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***3rd International
Conference on Advances
and Innovation in
Engineering and Sciences***

24th to 25th May 2024

Proceedings

ICAIES-2024



Edited by

Dr.N.Venkatachalapathi

Dr.H.Umamahesvari



Sreenivasa Institute of Technology and Management Studies

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**SREENIVASA INSTITUTE OF TECHNOLOGY
AND MANAGEMENT STUDIES
(AUTONOMOUS)
CHITTOOR, ANDHRA PRADESH
COUNSELLING CODE: SSCC**

**3rd International Conference
on
Advances and Innovation in
Engineering and Sciences
(ICAIES-2024)**

24th & 25th May 2024

Organized by



SITAMS
**SREENIVASA INSTITUTE OF
TECHNOLOGY AND MANAGEMENT STUDIES**



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Dr.H.Umamahesvari**

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Dr.N.Venkatachalapathi
Dr.H.Umamahesvari**

Dear Delegates....

We warmly invite you to attend the **3rd International Conference on Advances and Innovation in Engineering and Sciences (ICAIES-2024)** to be held in **Sreenivasa Institute of Technology and Management Studies, Chittoor, from 24th to 25th May 2024**. The main objective of **ICAIES-2024** is to provide a platform for researchers, students, academicians as well as industrial professionals from all over the world to present their research results and development activities in pertinent fields of Recent Challenges in Science and Technology. This conference will provide prospects for the delegates to exchange new ideas and experience face to face, to establish business or research rapport and to find global partners for imminent collaboration.

These proceedings accumulate the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their excellence and the relevance to the conference. We hope these proceedings will not only provide the readers a broad outline of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in there view process, and to the authors for contributing their research result to the conference.

The Organizing Committees have received more than 300 manuscript papers, and the papers cover all the aspects in Science and Technology. Finally, after review, about 290+ papers were included to the proceedings of **ICAIES-2024**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **ICAIES-2024**. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

Editorial Board

Message from the Chairman



Dear Colleague,

I'm very happy to note that our college is conducting third international conference on Advances & Innovations In Engineering & Science on 24th and 25th, May 2024.

I'm sure that this event will provide an excellent international platform for the academicians, researchers, engineers, Industry professionals, policy makers and budding students around the world to converge share their research and experiences on engineering, science and technology and deliberate on the latest Innovations, trends and challenges in the rapidly evolving landscape of technology.

I wish the conference very fruitful and a grand success and achieve the desired goals.

With my best wishes,
Sri.K.Ranganadham
Chairman, SITAMS.

Message from the Secretary



Dear Esteemed Colleagues,

It is with great pleasure and honor that I extend a cordial invitation to you to participate in the 3rd International Conference on Advances and Innovation in Engineering and Sciences (ICAIES-2024). This prestigious event will be held at the Sreenivasa Institute of Technology and Management Studies, Chittoor, on the 24th and 25th of May, 2024.

The theme of ICAIES-2024, centered on advancements in Engineering, Science, and Technology, underscores the imperative for collaborative research and interdisciplinary cooperation among professionals from diverse sectors. This conference will provide a distinguished platform to augment your knowledge base and delve into the forefront of innovations in Engineering and Technology. Moreover, ICAIES-2024 will offer extensive networking opportunities, facilitating engagement with esteemed scientists, researchers, industry peers, sponsors, and exhibitors. We eagerly anticipate your participation in what promises to be an exceptional and enlightening conference.

With best wishes,
Sri D.K. Badri Narayana Secretary,
SITAMS.

Message from the Advisor



Dear colleague,

On the 24th and 25th of May 2024, the Sreenivasa Institute of Technology and Management Studies (SITAMS) College will host a landmark event focused on the latest advancements and innovations in engineering. This conference aims to bring together students, faculty, researchers, and industry professionals to explore cutting-edge developments and foster collaborative efforts that drive the engineering field forward.

Will provide a technical platform to the young minds to connect with the Educational and Industrial Experts all over the world in various domains of Engineering and Sciences.

The conference will feature keynote address by eminent personality in the engineering sector. Notable speakers include Dr. Ravi Sankar, Mamilla renowned for his work in Advanced Materials and Manufacturing, Ultra Precision Machining from IIT Tirupati, Dr. Hadi Nabipour Afrouzi, Head of Department – Electrical and Electronic Engineering, Swinburne University, Malaysia has dedicated contribution in Renewable energy and G.K. Rajini, Professor and Head Dept of Instrumentation SELECT VIT University is expertise in Bio-medical Sensors Fabrication.

Technical Sessions and Research Presentations

A significant portion of the conference will be dedicated to technical sessions where participants can present their research findings. Topics will cover a broad spectrum of engineering disciplines.

These sessions will provide a platform for researchers to showcase their work, receive feedback, and engage in discussions that can lead to further advancements and collaborations. The conference will also emphasize networking,

with events such as a welcome reception, networking lunches, and a gala dinner. These occasions will provide attendees with the chance to connect with peers, establish new professional relationships, and discuss potential collaborations. The exhibition area will showcase projects from students and startups, offering a glimpse into the innovative work being conducted within the community.

The Advances and Innovations in Engineering conference at SITAMS College promises to be an enriching experience for all participants. By bringing together a diverse group of individuals from academia and industry, the event will not only highlight the latest advancements in engineering but also inspire new ideas and collaborations. The insights and knowledge shared over these two days will contribute significantly to the ongoing development and future directions of the engineering field.

As we look forward to this exciting event, it is clear that the conference will play a crucial role in fostering innovation and driving the engineering profession forward. Participants are encouraged to engage fully with the sessions and activities, taking advantage of the unique opportunities to learn, share, and collaborate.

With best wishes & Regards,
Dr. K.L. Narayana
Advisor, SITAMS.

Message from Principal



Welcome to ICAIES-2024

The ICAIES-2024 conference has solidified its position as a global standard for the dissemination of premier research across all aspects of engineering technologies, facilitating robust interaction and the exchange of innovative ideas. This year, the conference garnered significant interest from the academic and professional community, reflected in a substantial number of submissions. The volume of submissions allowed for the development of an exceptional program, necessitating a rigorous and thorough evaluation process. Members of the Technical Program Committee exhibited exemplary diligence and responsibility under stringent deadlines, ensuring that each paper underwent at least three comprehensive reviews, which formed the foundation for the final selection. To enhance the value for conference participants, 100 papers were accepted for presentation at the main conference. The main program of ICAIES-2024 spans two days, featuring parallel sessions enriched by keynote presentations from world-renowned researchers and three plenary panel discussions addressing various critical topics in engineering and technology.

We extend our profound gratitude to all authors who entrusted us with their research; their contributions are the bedrock of this conference. The success of this event would not have been possible without the dedication and hard work of numerous colleagues.

Special acknowledgment is due to the track chairs, the members of the Technical Program Committees, the General Chair, and all external referees for their meticulous reviews, sense of responsibility, and responsiveness under very tight deadlines.

With best wishes,
Dr.N.Venkatachalapathi
Principal, SITAMS.

Message from the Dean-Academics



It gives me immense pleasure to welcome you on the occasion of 3rd International Conference on “Advances and Innovation in Engineering and Sciences – ICAIES - 2024” on 24th – 25th May 2024, organized by Sreenivasa Institute of Technology and Management Studies (AUTONOMOUS). Major objective of this Conference is to provide a common platform for innovators, research scholars, academicians, and students (UG and PG) to disseminate the new emerging research and innovations in the field of Engineering and Science. We know that knowledge is power and to get knowledge we have to work hard and to be successful in all the fields. On behalf of the entire team and on my personal behalf, I would like to extend my good wishes to all participants. I believe ICAIES - 2024 will explore the research dimensions and thought process on a platform of intellect and bring quality in academics as well as research, which has become an essential requirement in higher technical education also the conference will surely prove conducive to all in equal length.

Dr.M.Saravanan
Convener – ICAIES - 24
Dean - Academics, .

**3rd International Conference on
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and Sciences
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24th – 25th May, 2024**

**About
Keynote Speakers**

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Mamilla Ravi Sankar, Ph.D.
Professor
Department of Mechanical Engineering
Indian Institute of Technology Tirupati
Tirupati

Dr. Mamilla Ravi Sankar is currently a Professor in the Department of Mechanical Engineering at IIT Tirupati. He served nearly 7 years as Assistant Professor in Department of Mechanical Engineering at IIT Guwahati before he joined IIT Tirupati. He did his B.Tech from Sri Venkateshwara University, Tirupati, and M.Tech as well as PhD from IIT Kanpur. His research group focuses on Nano Finishing, Micro-Nano Manufacturing, Sustainable Manufacturing, Precision 3D Printing, Online Monitoring, Bio-Manufacturing, Coatings, Tribology and Rheology. His lab also involves in development of lab scale Innovations to Commercial Manufacturing Products (Paper and Patent to Product Technologies). He has published over 80 in internationally reputed journals, 150 international conferences, 10 Patents, 5 Edited Books and 15 Book chapters. The knowledge transfer of his patents is already transferred to India's leading research laboratories such as CMTI, Bangalore presently, his lab possesses with various funding from BARC, DST, DRDO, MeitY, IMPRINT, BIRAC, IGSTC, SERB, CSIR, IKS, TARE, ISRF of about 6.0 Crore Rupees as Principal investigator and 160 Crore rupees as Co-investigator. He guided 7 PhD, 32 M.Tech, and 40 B.Tech students. Currently guiding 7 MS and 20 PhD students. He is the Editorial member for IMechE Journal of Micromanufacturing and Guest Editor for International Journal of Precision Technology. He is recipient of prestigious awards such as Institution of Engineers India (IEI) Young Engineers Award-2015 in Production Engineering, Indian Society for Advancement in Materials and Process Engineering (ISAMPE)-2011 and finalist of Indian National Academy of Engineering (INAE) Young Engineer Award-2014 (Mechanical Engineering). He and his students received 4 best papers and 3 best poster awards in national and international conferences (India and abroad). Apart from academic awards, he has also received Institute Blues (Outstanding Sports Personality) of IIT Kanpur for the year 2009 for his outstanding Games and Sports achievements.



Ir. Ts. Dr. Hadi Nabipour Afrouzi
Head of Department – Electrical and Electronic Engineering, Senior Lecturer
Swinburne University Malaysia

Dr. Hadi received a B. Eng. Degree in Electrical Engineering in 2005 (Iran) and completed his Master of Electrical Engineering (2011) and Ph.D. (2015) from Universiti Teknologi Malaysia (UTM). He is also a Chartered Professional Engineer with Engineers Australia (EA). His research interests are Renewable Energy (Sizing, Optimization, Hybrid System), high voltage engineering (partial discharge phenomenon, Modeling of fault in high voltage insulators). He has published journal papers, conference papers, book chapters and conference proceedings, and technical articles in these research areas. His expertise in the field of High voltage insulators and renewable energy has earned him an Editorial board member and reviewer in national and international conference and journals.



Dr. G K RAJINI
Professor

School of Electrical Engineering,
Department of Instrumentation,
VIT University, Vellore.

G.K.Rajini, Ph.D 2016 (S.V. University, Tirupati India), presently Professor Grade I of School of Electrical Engineering Vellore Institute of Technology, Vellore. Dr. G.K.Rajini completed her B.E ECE 1992 from Thanthai Periyar Govt. Institute of Technology, Vellore and M.Tech in Sensors Systems Technology, 2005 Vellore Institute of Technology, Vellore.

In the teaching profession, she has a vast experience of over 25 years which includes 4 years of industrial experience. She has handled a wide range of subjects for undergraduate students from the ECE, EEE and CSE streams, and postgraduate students from Communication Systems.

Dr. G.K.Rajini is currently undergoing research in Wavelet Transforms, Bio Medical image Processing & Sensors Technology. She has received Best Teacher award in Sreenivasa Institute of Technology And Management Studies, Chittoor. She has published about 65 papers in National/ International Journals and Conferences. She completed a MODROBS funded project from AICTE, New Delhi. She has organized and conducted various national and international conferences and workshops in the fields of signal and image processing and a Member of ISTE.

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SMART HEALTH MONITORING SYSTEM FOR PATIENTS USING IOT

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Abstract - Integrating temperature and pulse sensors to detect vital signs is a necessary step in creating an Arduino Uno health monitoring system. The Arduino code manages temperature conversion, processes pulse sensor readings to determine heart rate, and gathers sensor data. Real-time feedback is provided by display integration, which can be achieved by specialized modules or the serial monitor. Accurate data is ensured by calibration. Considerations for the user interface could improve the project's interactivity. Presentation and documentation are essential for successfully communicating project details. Constant enhancement, directed by user input, cultivates a flexible system. The initiative intends to prioritize well-being in daily life by providing accessible health monitoring through careful design and implementation.

Keywords—*Health monitoring system, controller, pulse sensor, temperature sensor, IOT*

POLLUTION MONITORING AND CONTROL SYSTEM

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Abstract:: Humans can be adversely affected by exposure to air pollutants in ambient air. Hence, health- based standards and objectives for some pollutants in the air are set by each country detection and measurement of contents of the atmosphere are becoming increasingly important. Careful planning of measurements is essential. One of the major factors that influence the representative of data collected is the location of monitoring stations the planning and setting up of monitoring stations are complex and incurs a huge expenditure. An IoT-based real-time air pollution monitoring system is proposed to monitor the pollution levels of various pollutants. The geographical area is classified as industrial, Residential, and traffic zones this article proposes an IoT system that could be deployed at any location and store the measured values in a cloud database, perform pollution analysis, and display the pollution level at any given location.

Keywords: *Pollution Monitorin, Control System, IOT,*

HARNESSING AI FOR DEEP FAKE DETECTION IN IMAGE

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Abstract: -This project explores the integration of artificial intelligence (AI) for deep fake detection in images, employing well-established convolutional neural network (CNN) architectures such as VGG16 and Mobile Net. Leveraging the strengths of these models in feature extraction and classification, the system aims to discern authentic images from manipulated ones. Through the deployment of deep learning techniques, the models undergo extensive training on diverse datasets containing both genuine and synthetic images, enhancing their ability to identify subtle alterations indicative of deep fakes. The project contributes to the ongoing efforts in combating the proliferation of misleading visual content on various platforms. The experimental results demonstrate the effectiveness of the proposed approach in detecting and mitigating the impact of image-based deep fakes.

Keywords: : *Artificial Intelligence, Deep Fake Detection, Image Forensics, Convolutional Neural Networks, VGG16, MobileNet, Deep Learning, Image Manipulation, Computer Vision, Authentication.*

BIRD IDENTIFICATION THROUGH AUDIO SIGNAL PROCESSING AND NETWORK USING PYTHON

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Abstract: Automated biodiversity monitoring is crucial for ecological research and conservation efforts. Traditional methods of bird species identification are often time-consuming and require significant expertise. This project addresses the need for an efficient and accurate automated bird identification system using audio signal processing and neural networks. The primary objective of this project was to develop a system capable of accurately classifying bird species based on their vocalizations. This was achieved by leveraging the power of neural networks and the flexibility of Python's machine learning libraries. An extensive dataset of bird calls was collected and preprocessed to enhance features critical for classification. The preprocessing steps included noise reduction, audio segmentation, and the extraction of mel-frequency cepstral coefficients (MFCCs). A convolutional neural network (CNN) was designed and trained using Python libraries such as TensorFlow and Keras to recognize and classify the bird species from the processed audio signals. The neural network achieved a high classification accuracy of 92%, effectively distinguishing between over 50 different bird species. The system's performance was validated through cross-validation techniques and showed superior accuracy compared to existing methods in the field. The findings demonstrate that integrating audio signal processing with neural networks in Python significantly enhances the efficiency and accuracy of automated bird identification systems. Future work will focus on expanding the dataset, incorporating real-time processing capabilities, and improving the system's adaptability to various environmental conditions.

Keywords: *CNN, MFCCs, Spectrogram,*

A NOVEL MODEL FOR TEXT SUMMARIZATION WITH PEGASUS AND FLASK

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Abstract This paper presents a novel approach to text summarization leveraging the power of the Pegasus model combined with the flexibility of Flask for web application development. Text summarization plays a crucial role in distilling large volumes of information into concise and informative summaries, aiding in efficient information consumption and decision-making. Abstractive summarization aims to generate concise, coherent summaries that capture the essence of a text. We provide background on text summarization and explain the difference between extractive and abstractive techniques. In this work, we propose Pretraining using Extracted Gap-sentences for Abstractive Summarization by Sequence-to-sequence models (PEGASUS). In other words, we propose extractive strategies to select and mask principal sentences and the sequence-to-sequence model is pretrained to generate the masked sentences. The Pegasus model, which utilizes transformer architectures, has shown state-of-the-art performance on abstractive summarization benchmarks. To demonstrate a practical application, we implement a web interface with Flask that allows users to input text and view generated summaries. . By integrating Pegasus with Flask, a lightweight and extensible web framework, we aim to create a user-friendly and scalable platform for generating high-quality text summaries. We survey recent literature on applications of Pegasus to summarization across diverse domains and languages. Results demonstrate Pegasus effectiveness in producing high-quality summaries while preserving key contextual information. However, challenges remain in aspects like factual consistency and coherence for long documents.

Keywords-Pegasus model, Abstractive Summarization, Natural Language Processing

INTELLIGENT VIDEO BASED ATTENDANCE SYSTEM

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Abstract- An Intelligent Video-Based Attendance System uses cameras and advanced face recognition technology to transform how attendance is recorded in schools and universities. By capturing video and recognizing students based on their unique facial features, the system logs attendance quickly and accurately. This saves valuable class time and reduces the administrative burden on teachers, allowing them to focus more on teaching. It also promotes punctuality by preventing students from faking attendance and ensures accurate records. The system makes generating attendance reports easy and accessible. Working seamlessly in well-lit classrooms, it enhances overall classroom efficiency, accuracy, and productivity. Investing in this technology leads to significant time savings and streamlined operations, contributing to a more effective and engaging educational experience for both teachers and students.

Keywords- Face detection, Face recognition technology, Deep learning algorithms, OpenCV library, Python programming language

ENHANCING PRIVACY AND SECURITY IN CLOUD-BASED BIOMETRIC AUTHENTICATION: A SECURE E-FINGER FRAMEWORK WITH THRESHOLD SCHEME

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Abstract: With the pervasiveness of mobile devices and the development of biometric technology, biometric identification, which relies on personal biological or behavioral characteristics for individual authentication, has attracted considerable interest. Privacy protection of biometric data in cloud computing scenarios is particularly challenging due to the high sensitivity of such data. In 2018, Zhu et al. proposed an efficient and privacy-preserving online fingerprint authentication scheme, e-Finga, for data outsourcing. This scheme provides accurate and efficient fingerprint identity authentication while ensuring the privacy of the user's fingerprint data. However, analysis reveals that e-Finga's use of a deterministic encryption algorithm for temporary fingerprints poses a risk of leaking fingerprint characteristics. To address this vulnerability, we introduce a temporary fingerprint attack method for the e-Finga scheme, demonstrating that an adversary can extract specific secret parameters and fingerprint features from the temporary fingerprint ciphertext. In response, we propose a secure e-fingerprint scheme, Secure e-finger, which employs homomorphic encryption with the addition property to encrypt users' temporary fingerprints. Experimental results show that Secure e-finger effectively resists temporary fingerprint attacks, with only a 6% increase in client running time and a 0.3125% increase in communication cost. Furthermore, to prevent the problem of excessive authority in single-user authentication, we propose a threshold authentication scheme based on biological characteristics. Our comprehensive solution ensures secure, accurate, and efficient online fingerprint authentication over encrypted outsourced data.

Keywords:- Privacy-preserving, online authentication, fingerprint authentication, cloud computing, homomorphic encryption, threshold authentication, biometric security, data outsourcing.

ENHANCING BUG REPORT PREDICTION THROUGH NATURE INSPIRED ENSEMBLE MACHINE LEARNING MODELS

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Abstract-More and more researchers are focusing on software systems maintenance phase, particularly on fixing bugs (BRs), which are reports of flaws found during software testing. These reports include comprehensive details about the bug, including its description, status, resolution, assignee, priority, and other details. It takes a lot of time and effort to manually analyze these BRs, especially as their numbers increase. For this reason, Automatic solutions are deemed essential. While most of the research that has been done so far has concentrated on automating aspects of this process, including determining the importance or severity of the bug, it has not addressed the fundamental nature of the bug, which is fundamentally a multi-class classification problem. By putting out a unique prediction model for BR analysis and bug nature prediction, this work aims to close this gap. The suggested model makes use of an ensemble machine learning approach that combines machine learning and natural language processing (NLP) methods. Our results show that the proposed model performs better than existing models in terms of accuracy through simulations using publicly available datasets from two online software bug repositories (Mozilla and Eclipse), covering six bug classes (Program Anomaly, GUI, Network or Security, Configuration, Performance, and Test-Code). More specifically, the accuracy achieved by the suggested model will surpass that of earlier research. Here we use algorithms like logistic Regression, Support Vector machines (SVM), Decision Trees, K-nearest Neighbors(KNN) , gradient boosting and XG Boost algorithms.

Keywords-*Software Maintenance, nature-classification, ensemble machine learning algorithm, natural language processing, bug reports, machine learning.*

USE OF DEEP LEARNING FOR CONTINUOUS PREDICTION OF MORTALITY FOR ALL ADMISSIONS IN INTENSIVE CARE UNIT

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Abstract- Predicting mortality for patients admitted to the intensive care unit (ICU) is crucial for clinical decision-making and resource allocation. Traditional scoring systems rely on static variables and may not capture the dynamic nature of patient conditions. In this study, we propose a deep learning approach for continuous prediction of mortality in ICU admissions, leveraging a comprehensive dataset of patient demographics, vital signs, laboratory results, and medical history. Our model combines recurrent neural networks (RNNs) with attention mechanisms to process sequential data and fully connected layers to incorporate tabular features. We evaluate our model on a large dataset of ICU admissions, achieving promising results with an area under the receiver operating characteristic curve (AUC) of XX%. Furthermore, we demonstrate the model's ability to provide real-time predictions, enabling clinicians to continuously assess mortality risk during a patient's ICU stay. This approach offers a powerful tool for early identification of high-risk patients and supports timely interventions to improve patient outcomes in critical care settings.

Keywords- ICU Mortality Prediction, Deep Learning Model, Continuous Monitoring Deployment

ESCORT SYSTEM AND WEAPON DETECTION

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Abstract: -An advanced security system utilizing the YOLOv8 algorithm for comprehensive object detection enables real-time identification of individuals and weapons. Innovative features include precise distance estimation and email alerts upon weapon detection, enhancing communication during security breaches. Rigorous testing ensures reliability, while ethical considerations ensure adherence to standards. This project represents a significant contribution to automated threat detection and response, exemplifying advancements in security technology within ethical boundaries, effectively addressing contemporary challenges. The integration of YOLOv8 for object, person, and weapon detection in audio, alongside distance estimation and email notification, marks a substantial leap in security surveillance technology, offering swift threat detection and coordinated response capabilities. Rigorous validation confirms its efficacy, promising to fortify security protocols and proactive threat mitigation strategies, thereby paving the way for further advancements in audio-based threat detection systems.

Keywords: *Security system, Object detection, Distance estimation, Real-time estimation, Email alerts, Ethical considerations.*

ENHANCING SUPPLY CHAIN RESILIENCE THROUGH ADVANCED TECHNOLOGY

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Abstract: Supply Chain Management plays a crucial in the backend of modern business. Supply chain is the global network used to deliver products and services from raw materials to end customer. However, we need to make advancements by embracing emerging technologies and trends, such as the booming artificial intelligence. To enhance the efficient working conditions, we are integrating AI technology into the sectors of supply chain management. To improve demand forecasting, we demonstrate artificial intelligence methods and techniques in feedforward neural networks for enhanced working speed in demand forecasting algorithms. These advancements bring about vast changes in the demand forecasting sector.

Keywords: *Supply chain management, Artificial Intelligence, demand forecasting*

PREDICTION MODEL USING DEEP LEARNING TECHNIQUES

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Abstract - Accurate prediction of stock prices can reduce investment risks and increase returns. This paper combines the multi-source data affecting stock prices and applies sentiment analysis, swarm intelligence algorithm, and deep learning to build the MS-SSA-LSTM model. Firstly, we crawl the East Money forum posts information to establish the unique sentiment dictionary and calculate the sentiment index. Then, the Sparrow Search Algorithm (SSA) optimizes the Long and Short-Term Memory network (LSTM) hyper parameters. Finally, the sentiment index and fundamental trading data are integrated, and LSTM is used to forecast stock prices in the future. Experiments demonstrate that the MS-SSA-LSTM model outperforms the others and has high universal applicability. Compared with standard LSTM, the R^2 of MS-SSA-LSTM is improved by 10.74% on average.

Keywords - multi-source data, stock prices, sentiment analysis

AI MEDIBOT –CLOUD GUARD WITH REDUCTABLE SIGNATURE

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Abstract-To ensure information security, the information proprietor necessities to check there spectability of information put away somewhat in the cloud server with the public examining method. Notwithstanding, the evaluation result will be invalid assuming the information has been adjusted progressively in the course of information anonymization while sharing information with other people with delicate data. In existing arrangements, an information sanitizer is expected to anonymize the information and change the mark. Notwithstanding, such information sanitizers present new security chances, and the static unknown procedure isn't adaptable to various application situations. Subsequently, we propose another plan in light of the redactable signature. In our proposed plot, the cloud server can change the mark straightforwardly without the extra sanitizer while sharing delicate information. The marked change doesn't impact the trustworthiness checking of the put-away information. The mark not exclusively can be utilized to validate the wellspring of sharing information, yet can likewise be used to take a look at the trustworthiness of the put-away information in the cloud. Both the security confirmation and exploratory examination show that our proposed plot is secure and more effective than the current plans.

Keywords-*Redactable Signature.*

DETECTION OF ALZHEIMER'S DISEASE USING DEEP LEARNING TECHNIQUES

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Abstract—Alzheimer's Disease is an brain disorder. In other words it is a neurodegenerative disorder affecting the millions of people worldwide, primarily among the elderly people. Early diagnosis and staging of the disease is very crucial for effective treatment. As the condition progresses, it limits one's ability to perform any task without taking help from others, and the diagnosis timeline and aging of an person are expected to cause its prevalence to increase. This research paper mainly aims at diagnosing the disease at early stages. We are using the CNN architectures applied to the brain imaging data to diagnose the Alzheimer's disease and in which stage the disease is present along with some precautions that has to be taken to reduce the impact of the disease. The dataset which we are using comprises of the Magnetic Resonance Imaging (MRI) scans that are obtained from the individuals who are suffering with this disease at different stages. The CNN architectures are designed in such a way that it automatically extracts the features from MRI images. Performance metrics such as accuracy, sensitivity, specificity, and area under the receiver operating characteristic curve (AUC-ROC) are calculated to assess the diagnostic and staging capabilities of the CNN models.

LEVERAGING MACHINE LEARNING FOR EARLY DETECTION OF LUMPY SKIN DISEASE OUTBREAKS

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Abstract- Lumpy Skin Disease (LSD) is a highly contagious viral infection that affects cattle and poses a significant threat to the livestock industry worldwide. Rapid and accurate diagnosis of LSD is crucial for controlling its spread and preventing economic losses. Traditional diagnostic methods, such as clinical observation and laboratory testing, are time-consuming and may lack sensitivity. In recent years, machine learning (ML) has emerged as a powerful tool for medical diagnosis, offering the potential for faster and more reliable detection of diseases. This paper presents a novel approach for the diagnosis of Lumpy Skin Disease using machine learning techniques. We collected a comprehensive dataset of clinical and histopathological s of cattle affected by LSD, along with data from healthy cattle for comparison. The dataset was preprocessed to remove noise and standardized for analysis. The advantages of our ML-based diagnosis system are twofold. Firstly, it offers a rapid and non-invasive method for detecting LSD, significantly reducing the time required for diagnosis compared to traditional methods. This speed is crucial for implementing timely control measures and preventing the spread of the disease. Secondly, the system's high accuracy ensures reliable results, reducing the risk of misdiagnosis and associated economic losses. The system has the potential to revolutionize the way LSD is detected and managed, contributing to the health and productivity of cattle populations worldwide while safeguarding the livestock industry against this devastating disease.

Keywords: MLP, Extra tree, Naïve Baye's, Evaluation, ML Techniques.

ENHANCING PRIVACY IN E-LEARNING THROUGH FEDERATED LEARNING BASED ON-SCREEN ACTIVITY TRACKING AND CLASSIFICATION

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Abstract-- In the rapidly evolving landscape of remote and online learning, the ability to monitor and assess students' engagement and productivity has become increasingly vital. This project introduces a pioneering solution, "Enhancing privacy in e-learning through federated learning based on-screen activity tracking And Classification," aimed at addressing this critical challenge. With the surge in popularity of e-learning platforms, especially in the wake of global events necessitating remote education, ensuring that students remain actively engaged and focused during online sessions has emerged as a significant concern. This project leverages Federated Learning, a decentralized machine learning paradigm, to safeguard user privacy while accurately classifying on- screen activities. By combining real-time monitoring capabilities with stringent privacy protection measures, this approach distinguishes between productive knowledge development and unproductive behaviors, such as distractions or disengagement. This not only empowers educators and institutions to take timely corrective actions but also enhances the overall effectiveness of online education. The project's decentralized nature sets it apart from traditional methods, mitigating privacy risks and data security concerns by keeping individual user data on their respective devices. This ensures compliance with stringent data protection regulations such as GDPR and HIPAA. Ultimately, this project represents a groundbreaking contribution to the field of e-learning monitoring. It strikes a delicate balance between user privacy and educational effectiveness, providing educators with valuable insights to foster student engagement and optimize learning outcomes in the rapidly evolving landscape of online education.

Keywords: CNN, decision tree, linear discriminant analysis, e-learning, federated learning.

ENABLING FAST AND ACCURATE COBB ANGLE MEASUREMENT VIA OPTIMIZED CNNs AND POINT-SET REGISTRATION

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Abstract-The abstract for a study on spine abnormality classifications using Convolutional Neural Network (CNN) architectures would likely highlight the key objectives, methods, and findings of the research. In this study, we employed advanced CNN architectures to address the challenging task of automatically classifying spine abnormalities from medical imaging data. Our approach involved the utilization of deep learning techniques to analyse and interpret complex patterns within spine images, enabling accurate and efficient classification of various abnormalities such as scoliosis, herniated discs, and vertebral fractures. The study utilized a comprehensive dataset of spine images, and the CNN architectures were trained and fine-tuned to achieve optimal performance. Our results demonstrate the effectiveness of the proposed CNN-based approach in achieving high accuracy and robustness in spine abnormality classification, showcasing the potential for these advanced technologies to enhance diagnostic capabilities in the field of orthopaedic medicine. This research contributes to the ongoing efforts to leverage artificial intelligence in medical imaging for precise and timely diagnosis of spine-related disorders, ultimately improving patient outcomes and health care efficiency

Keywords-CNN, spine abnormality.

TRASH AND RECYCLED MATERIAL IDENTIFICATION USING CONVOLUTIONAL NEURAL NETWORK

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Abstract-The aim of this research is to improve municipal trash collection using image processing algorithms and deep learning technologies for detecting trash in public spaces. This research will help to improve trash management systems and help to create a smart city. Two Convolutional Neural Networks (CNN), both based on the Alex Net network architecture, were developed to search for trash objects in an image and separate recyclable items from the landfill trash objects, respectively. The two-stage CNN system was first trained and tested on the benchmark Trash Net indoor image dataset and achieved great performance to prove the concept. Then the system was trained and tested on outdoor images taken by the authors in the intended usage environment. Using the outdoor image dataset, the first CNN achieved a preliminary 93.6% accuracy to identify trash and non trash items on an image database of assorted trash items. A second CNN was then trained to distinguish trash that will go to a landfill from the recyclable items with an accuracy ranging from 89.7% to 93.4% and overall 92%. A future goal is to integrate this image processing based trash identification system in a smart trash can robot with a camera to take real-time photos that can detect and collect the trash all around it. Yanjun Yan School of Engineering + Technology Western Carolina University Cullowhee, NC yyan@email.wcu.edu uninviting for newcomers, and especially unhealthy for kids and senior citizens. Uncollected trash and litter along highways or other areas in developed countries pose a serious problem for the residents in terms of hygiene, neighborhood appeal, and environment protection. The World Health Organization [1] has indicated that 842,000 deaths per year globally are attributable to “unsafe water supply, sanitation and hygiene”. Of this total 361,000 are children under age five, mostly in low-income countries. Automatic trash collection systems, in addition to improving public health, will also reduce the cost of collecting trash, which is a big amount in both developed and developing countries. For example, CBSNewYork [2] published that New York city pays \$300 million per year for collecting trash.

Keywords- CNN, AlexNet, Image Classification, Deep Learning, Object detection.

Snake Species Identification Based on Snake Bite Marks Using D-CNN Model

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Abstract—Snakebite remains a significant health concern worldwide, often requiring rapid and accurate identification of the snake species involved to administer appropriate treatment. In this study, we propose a novel approach for snake species identification based on snake bite marks utilizing convolutional neural network (CNN), Inception V3, and VGG16 models. The objective is to develop a robust system capable of accurately distinguishing between different snake species including cobra, coral snake, king cobra, krait, sea snake, and viper. The methodology involves several key steps: image preprocessing to enhance features, feature extraction using pre-trained CNN architectures (Inception V3 and VGG16), model training, and evaluation. We utilize a curated dataset comprising images of snake bite marks corresponding to the aforementioned species. The trained models are evaluated on a test dataset, and performance metrics such as accuracy and loss are calculated to assess their effectiveness. The results demonstrate varying levels of accuracy and loss across the different models. Specifically, the CNN model achieves an accuracy of 0.133 with a loss of 4.136, indicating relatively poor performance. In contrast, the Inception V3 model achieves a significantly higher accuracy of 0.967 with a lower loss of 0.191, demonstrating its efficacy in snake species identification. Furthermore, the VGG16 model outperforms both CNN and Inception V3, achieving an accuracy of 0.993 with a minimal loss of 0.078, indicating its superior performance in this task. Overall, the study highlights the potential of deep learning models, particularly Inception V3 and VGG16, in accurately identifying snake species based on bite marks. Such systems could prove invaluable in clinical settings, aiding healthcare professionals in prompt and precise treatment decisions following snakebite incidents.

Keywords— Snake species identification, Snake bite marks, CNN (Convolutional neural network), Inception V3, VGG16, Deep learning etc.

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REAL TIME DEEP LEARNING APPROACH FOR COVID-19 AND VIRAL PNEUMONIA SCREENING USING X-RAY IMAGES

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Abstract- COVID-19, caused by the SARS-CoV-2 virus, presents challenges in early detection due to its similarity with viral pneumonia. This paper explores the utilization of deep learning models to analyze chest X-ray images for swift and accurate identification of COVID-19 and viral pneumonia. Traditional diagnostic methods, such as RT-PCR tests and CT scans, face limitations in sensitivity and differentiation. We propose a real-time system integrating a deep learning model, trained on diverse datasets, to automate X-ray image analysis. The model demonstrates proficiency in detecting subtle disease patterns, surpassing human capability. Implementation through Flask API facilitates seamless integration into healthcare infrastructure, enabling timely diagnosis and treatment decisions for patients. This approach offers a promising solution to enhance disease surveillance and management amidst the COVID-19 pandemic. This study presents a comprehensive approach for the classification of X-ray datasets into COVID, pneumonia, and normal cases. The methodology includes data augmentation, preprocessing, and experimentation with lightweight transfer learning models such as MobileNet and EfficientNet, along with ensemble methods. Deep feature extraction and fine-tuning techniques are applied, followed by model evaluation using accuracy, precision, recall, and F1 score metrics. Subsequently, a web application is developed to facilitate image resizing and preprocessing, with the processed images being fed into the trained transfer learning model. The results are then stored in a remote cloud server, such as AWS, for accessibility and scalability.

Keywords- COVID-19, viral pneumonia, deep learning, chest X-ray analysis, real-time system, Flask API, disease surveillance, transfer learning, MobileNet, EfficientNet, ensemble methods, model evaluation, web application, cloud server, AWS.

THE BREAST CANCER CLASSIFICATIONS AND SEGMENTATION USING ARTIFICIAL INTELLIGENCE TECHNIQUES

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Abstract-Breast cancer is a major health concern for women globally, and early and accurate detection is critical to improve patient outcomes. Breast cancer classification and segmentation tasks have demonstrated significant potential for the application of artificial intelligence (AI) approaches, which offer dependable and automated solutions. The categorization and segmentation of breast cancer using AI methods is the foundation of our endeavor. The differentiation of benign from malignant breast lesions is the main goal of the classification component. For this objective, several AI techniques are investigated, such as deep learning models and machine learning models. The accurate separation of breast lesions from the surrounding healthy tissue is the focus of the segmentation aspect. Accurate lesion segmentation is achieved by using techniques like convolutional neural networks (CNNs) and image processing algorithms. It is investigated how segmentation and classification methods can work together, as a result of which breast cancer can be thoroughly examined. Combining methods allows for the precise detection of malignant areas in a picture, which helps with diagnosis and therapy planning. This method seeks to improve the precision and effectiveness of identifying and classifying breast cancer tumors using medical pictures, such as mammograms and histopathology slides, by utilizing cutting-edge algorithms and deep learning models. AI systems can help medical personnel detect, categorize, and segment breast cancer earlier by automatically analyzing these images. This allows for more prompt and accurate treatment decisions. eventually lessening the burden of this potentially fatal illness and improving patient outcomes.

Keywords: *Breast Cancer, Classification, Segmentation, Artificial Intelligence(AI), Machine Learning, Deep Learning, Texture Analysis, Shape Analysis*

PUPIL HEART: HEART RATE VARIABILITY MONITORING VIA PUPILLARY FLUCTUATIONS

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Abstract-Heart disease has now become a very common and impactful disease, which can actually be easily avoided if treatment is intervened at an early stage. Thus, daily monitoring of heart health has become increasingly important. Existing mobile heart monitoring systems are mainly based on seismo cardiography (SCG) or photoplethysmography (PPG). However, these methods suffer from inconvenience and additional equipment requirements, preventing people from monitoring their hearts in any place at any time. Inspired by our observation of the correlation between pupil size and heart rate variability (HRV), we consider using the pupillary response when a user unlocks his/her phone using facial recognition to infer the user's HRV during this time, thus enabling heart monitoring. To this end, we propose a computer vision-based mobile HRV monitoring framework-PupilHeart, designed with a mobile terminal and a server side. On the mobile terminal, PupilHeart collects pupil size change information from users when unlocking their phones through the front-facing camera. Then, the raw pupil size data is pre-processed on the server side. Specifically, PupilHeart uses a one-dimensional convolutional neural network (1D-CNN) to identify time series features associated with HRV. In addition, PupilHeart trains a convolutional neural network (CNN) with three hidden layers to model pupil and HRV. Employing this model, PupilHeart infers users' HRV to obtain their heart condition each time they unlock their phones. We prototype PupilHeart and conduct both experiments and field studies to fully evaluate effectiveness of PupilHeart by recruiting 60 volunteers. The overall results show that PupilHeart can accurately predict the user's HRV.

Keywords-Heart Monitoring, Pupillary Response, 1D-CNN, CNN, Pupil-Heart Model

DEEP LEARNING FUSION FOR IMAGE CAPTION GENERATION : A HYBRID ENCODER -DECODER STRATEGY

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Abstract-The image captioning is a process of generating descriptive sentence for a given image in human understandable language and such sentence is known as caption of the image. The automatic image caption generated is a result of deep analysis performed on the image which involves detecting objects in the image as well as the relationship between them. It involves expertise of computer vision (CV), natural language processing (NLP) and artificial intelligence (AI). Here, we propose an advanced system for image caption generation that combines the ResNet50 architecture and LSTM (Long Short-Term Memory) models. The ResNet50 model enables the extraction of discriminative and meaningful visual features, enhancing the system's understanding of the image content. The LSTM model leverages its sequential modeling capabilities to generate captions that capture the semantic context and linguistic structures of the images.

Keywords-Image Captioning, Resnet50, LSTM

DETECTION OF PHISHING WEBSITES BY USING MACHINE LEARNING-BASED URL ANALYSIS

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Abstract:As the internet continues to serve as an indispensable tool for communication, commerce, and entertainment, web spoofing emerges as a significant threat to online security. Web spoofing involves the creation of fraudulent websites that mimic legitimate ones, aiming to deceive users into divulging sensitive information or performing malicious actions. Traditional methods of detecting web spoofing often rely on static rule-based approaches, which struggle to adapt to the evolving tactics of attackers. This paper presents a novel approach to detecting web spoofing utilizing machine learning techniques. Leveraging the power of machine learning, particularly supervised learning algorithms such as decision trees, random forests, and deep neural networks, our proposed system can dynamically learn and adapt to the subtle nuances of spoofed websites, thereby enhancing detection accuracy and robustness. Key features extracted from web pages, including HTML structure, visual elements, textual content, and behavioral patterns, serve as input to the machine learning models. By analyzing these features, our system can discern patterns indicative of web spoofing with high precision and recall. Further more, to address the challenge of imbalanced datasets inherent in real-world web spoofing detection scenarios, we employ techniques such as oversampling, under sampling, and synthetic data generation to ensure that the models are trained effectively across diverse classes of legitimate and spoofed websites. We evaluate the performance of our approach using real-world datasets and compare it against state-of- the-art detection methods. The results demonstrate the effectiveness of our proposed system in accurately identifying web spoofing attempts while minimizing false positives. Overall, this research contributes to the advancement of web security by harnessing the capabilities of machine learning to combat the growing threat of web spoofing, ultimately safeguarding users' trust and privacy in the online environment.

Keywords- Machine learning, Supervised learning, Decision trees, Random forests, Deep neural networks, Feature extraction, HTML structure analysis

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ENHANCING EMERGENCY MEDICATION DECISIONS WITH MACHINE LEARNING BASED ADAPTIVE DRUG RECOMMENDATION SYSTEM

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Abstract-In the realm of emergency medical care, the timely and precise administration of medication is paramount. This project introduces a Drug Recommendation System that employs machine learning to support healthcare professionals in making rapid and accurate drug prescriptions during medical crises. By integrating advanced algorithms such as Decision Trees, Logistic Regression, Random Forest, and Naive Bayes, the system evaluates patient data on the spot to generate personalized drug recommendations. The system processes a comprehensive range of patient information, including demographics, symptoms, and medical history, to train models that predict the most suitable medications with high accuracy. Its core functionalities include real-time data processing, continuous learning from new data, and a user-friendly interface designed for easy adoption in clinical settings. The primary goal of this project is to enhance patient outcomes by streamlining the drug prescription process in emergencies, thus reducing decision-making time and minimizing errors. This project underscores the transformative potential of machine learning in healthcare, offering an efficient and dependable tool to aid medical professionals in delivering optimal care under pressure.

Keywords-*Drug Recommendation, DT, Logistic Regression*

A NOVEL MODEL FOR SKIN CANCER DISEASE IDENTIFICATION USING GENERATIVE AI AND DEEP LEARNING TECHNIQUES

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Abstract -Skin cancer, particularly malignant melanoma, remains a formidable health concern due to its potentially lethal nature stemming from abnormal melanocyte cell proliferation. However, diagnosing and categorizing skin lesions and discerning malignant tumors from dermo copy images present formidable challenges. Our study leverages Convolutional Neural Networks (CNNs) variants to proficiently diagnose and classify diverse skin lesion types utilizing the state-of-the-art ISIC 2019 and 2020 benchmark datasets. Rigorous pre processing of the datasets involves the application of advanced Generative Artificial Intelligence (AI) techniques, specifically Generative Adversarial Networks (GANs) and Enhanced Super-Resolution Generative Adversarial Networks (ESRGAN), for data augmentation. The efficacy of these generative techniques is meticulously evaluated and compared. Our CNN- based methodology includes the fusion of outcomes from various transfer learning models, including VGG16, VGG19, and SVM, and a novel hybrid model amalgamating VGG19 and SVM. On ISIC 2019, we achieve promising accuracies of 92% for VGG16 and 93% for VGG19. Particularly noteworthy is the hybrid VGG19+SVM model, exhibiting the highest accuracy of 96%. On ISIC 2020, VGG16, VGG19, and SVM attain accuracies of 90%, 92%, and 92%, respectively. Our results underscore the potential of generative AI for data augmentation and the effectiveness of CNN-based transfer learning models in elevating skin cancer classification accuracy.

Keywords: *CNN, Dataset, deep learning, models, Classification.*

IDENTIFYING STAGES OF CHRONIC DISEASE IN HIV- INFECTED PATIENTS VIA MACHINE LEARNING

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Abstract: Chronic Kidney disease is a major cause of disability and premature death throughout the world, and contributes substantially to the escalating costs of health care. The underlying pathology is atherosclerosis, which develops over many years and is usually advanced by the time symptoms occur, generally in middle age. Acute coronary and cerebrovascular events frequently occur suddenly, and are often fatal before medical care can be given. Modification of risk factors has been shown to reduce mortality and morbidity in people with diagnosed or undiagnosed chronic kidney disease. Type 2 kidney disease and chronic kidney disease (CKD) are conditions that cause a substantial public health burden. Since both conditions often coexist in the same individual, it has been hypothesized that they have a common effector. Insulin and hyperglycemia are assumed to play critical roles in this scenario. In recent years, many genetic risk factors for both kidneys and CKD have been discovered, mainly through genome-wide association studies. Genetic aspects of kidneys, kidney macrovascular complications, and CKD are assumed to have intersections leading to the common effector hypothesis. However, only a few genetic risk factors could be identified that modulate the risk for both conditions. Polymorphisms in TCF7L2 and near the CDKN2A/B genes seem to be of great importance in this regard since they appear to modulate both conditions, and they are not necessarily related to insularism, or hyperglycemia, for CKD development. Other issues related to this hypothesis, such as the problems of phenotype heterogeneity, are also of interest. Recent studies have contributed to a better understanding of the complex genetics of kidney macrovascular complications. Much effort is still needed to clarify the associations in the genetics of kidneys, and Chronic Kidney disease. At present, there is little genetic evidence to support a common effector hypothesis, other than insulin or hyperglycemia, for the association between these conditions.

Keyword: *Kidney Disease and Chronic Kidney Disease, phenotype heterogeneity, Prediction of CKD.*

TEXT ANALYSIS, SUMMARIZATION AND SPEECH GENERATION FOR PDF DOCUMENTS

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Abstract: This project introduces a versatile tool for efficient text extraction, analysis, and speech generation from PDF documents. Developed using Python and key libraries like PyMuPDF, Sumy, pyttsx3, and speech recognition, this tool enhances the accessibility and usability of textual content, particularly benefiting users with visual impairments. The core functionalities include extracting text from PDF files, performing keyword analysis and topic identification, summarizing text, and converting text to speech. PyMuPDF ensures accurate text extraction while preserving the document's formatting and structure. For keyword analysis and summarization, Sumy's Latent Semantic Analysis (LSA) algorithms are employed, allowing users to obtain concise summaries tailored to their preferences through customizable parameters. Speech synthesis is achieved with pyttsx3, providing options for voice selection and speech rate adjustment to produce clear and natural speech output. Additionally, the tool integrates voice commands using the speech recognition library, enabling intuitive hands-free interaction.

Key features include iterative processing of large PDF documents, text highlighting for improved readability, and export options for summarized text and speech output. These capabilities collectively contribute to a user-friendly and efficient text analysis experience. User feedback has been overwhelmingly positive, highlighting the tool's performance, ease of use, and the quality of both the summaries and speech output. This project successfully combines advanced text processing and speech synthesis technologies to create an accessible tool that promotes inclusivity and enhances information accessibility for all users.

Keywords : PyMuPDF, Sumy , Sumy's Latent Semantic Analysis (LSA) , pyttsx3, and speech recognition , colorama.

INTELLIGENT ROUTING OF VEHICLES USING ANT COLONY OPTIMIZATION

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Abstract: This project is dedicated to maximize operational efficiency in emergency services by conducting a comprehensive exploration of intelligent route planning strategies for emergency vehicles. The primary objective is to optimize response times, ensuring timely arrival at critical locations. One of the key components of the project involves a thorough comparison between two prominent optimization algorithms: Ant Colony Optimization (ACO) over Genetic Algorithms (GA). These algorithms are widely recognized for their ability to solve complex optimization problems, making them particularly relevant in the context of emergency vehicle route planning. The preference for Ant Colony Optimization over Genetic Algorithms stems from its effectiveness in solving problems related to pathfinding and optimization. ACO is inspired by the foraging behavior of ants, utilizing pheromone communication to discover and reinforce optimal routes. This mimicking of natural processes has proven successful in various optimization scenarios, making it a promising choice for improving emergency vehicle routing. The project encompasses a detailed analysis of the strengths and weaknesses of both ACO and GA, considering factors such as computational efficiency, adaptability to dynamic environments, and scalability. By weighing these factors, the research aims to provide insights into the most suitable algorithm for intelligent route planning in the context of emergency services. The comparison of Ant Colony Optimization and Genetic Algorithms, with a preference for adds a nuanced perspective to the field offering potential improvements.

Keywords: *Ant Colony Optimization, Genetic Algorithm, path finding, ACO.*

DETECTION OF CARDIOVASCULAR AND STRESS ECG IMAGES BASED CLASSIFICATION USING CNN ALGORITHMS

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Abstract-This study explores the application of Convolutional Neural Networks (CNN) in the classification of cardiovascular ECG images with a focus on detecting depression-related abnormalities. Leveraging state-of-the-art deep learning techniques, the research aims to develop a robust model for automated depression classification using ECG imagery. The project utilizes a diverse dataset of cardiovascular ECG images and employs CNN architectures to extract relevant features. By leveraging the power of deep learning, this research seeks to enhance early diagnosis and intervention for individuals at risk of depression-related cardiac conditions. The proposed CNN-based approach offers promising potential for efficient and accurate depression classification, which can significantly impact healthcare practices and patient well-being. Through comprehensive evaluation and validation, the study strives to demonstrate the feasibility and efficacy of the CNN algorithm in this critical domain. This research serves as a critical step towards the development of AI-assisted tools for cardiovascular depression assessment, providing timely and precise diagnostic support to healthcare professionals.

Keywords-cardiovascular diseases, supervised machine learning, predictive modelling, risk assessment.

INTEGRATED PATIENT PROFILING FOR OUTCOME-DRIVEN MATCHING AND RISK ASSESSMENT

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Abstract-To find important patterns and trends, large blocks of data must be examined and analysed using data mining techniques. One domain in which the data mining techniques can be applied is medical databases. Around the world, a large number of people struggle with their health and medical diagnoses. Hospital information systems (HIS) generate enormous amounts of data, yet it could be challenging to glean knowledge from diagnosis case data. By just giving the symptoms they are experiencing, patients can quickly learn about the sickness they are experiencing and the medication that can assist, treat it using the approaches utilized in this paper. In this paper, we give drug recommendations relied on ratings and conditions to customers. Four distinct prototypes are utilized to predict the diseases. The sentiment analysis relied on NLP are utilized to analyze the reviews. And finally, Support Vector Machine Algorithm in machine learning is utilized to recommend the medications. The model and strategy utilized in this paper is described in detail. The experimental findings presented in this work can be utilized in future studies and for a variety of different medicinal applications. we have tried with many procedures for accurately forecasting the diseases. This is because the dataset only contains one feature, which are the symptoms, and training any classifier with just one piece of information weakens it, which in turn lowers the accuracy of predictions using other inputs. The answer is to attempt to generate many data points for the same condition by considering all of its symptoms, their significance, and their occurrence. We have created four potential strategy, which focuses on prediction, and ultimately trained on classifier, and the accuracy and prediction result is compared to select the best strategy.

Keywords-*SVM, NLP*

COLORECTAL CANCER DETECTION BY USING DEEP LEARNING

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Abstract-Colorectal cancer is a significant global health concern, accounting for a substantial portion of cancer-related deaths worldwide. Early detection and timely intervention are pivotal in improving patient outcomes. This paper presents an innovative approach for the early detection of colorectal cancer through the application of deep learning techniques. We leverage a large dataset of medical images, including colonoscopy and histopathology slides, to develop a robust and accurate deep learning model for colorectal cancer detection. Convolutional Neural Networks (CNNs) and MobileNet architectures are employed to automatically extract meaningful features from these images, enabling the discrimination between cancerous and non-cancerous tissues.

Keywords: *colorectal dataset, deep learning algorithms*

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ACCIDENT DETECTION IN TUNNEL USING DEEP LEARNING ALGORITHM

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Abstract-This paper introduces a novel deep learning algorithm-based method for identifying accidents in tunnels. Effective accident detection is essential for ensuring rapid response and safety in tunnel environments because of the particular difficulties they provide, such as restricted spaces and low visibility. We trained and evaluated several deep learning models using a dataset that included different tunnel accidents. When compared to standard methods, our results demonstrate a significant improvement in classification accuracy. The proposed approach focuses an extreme value on how deep learning may improve transportation safety in limited spaces. As essential parts of our transportation system, tunnels present particular operational and safety difficulties. Accidents in these enclosed areas have the potential to result in serious injuries and severe traffic jams. Although they are functional, the current detection and response systems frequently lack speed, accuracy, and adaptability. By utilizing deep learning techniques, this project presents an innovative approach for tunnel accident detection. We want to train a model that can quickly and accurately classify different kinds of accidents by examining a wide range of tunnel incidents.

Keywords-*CNN, Tunnel, Accident*

STRESS DETECTION IN IT PROFESSIONALS USING MACHINE LEARNING

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Abstract- This study explores the application of Machine Learning algorithms like Random Forest, AdaBoost, ExtraTree with a focus on detecting the stress levels in IT professionals. In today's fast-paced technology landscape, stress management is becoming increasingly important, especially among IT professionals. The work environment in the IT industry is often characterized by long hours, tight deadlines, and high expectations, which can lead to elevated stress levels. Unchecked stress not only impacts the health and well-being of professionals but also affects productivity and job satisfaction. This study aims to predict the stress levels of IT professionals using machine learning techniques, thereby aiding in proactive stress management. We utilize a range of features indicative of work stress, including Heart Rate, Skin Conductivity, Hours Worked, Number of Emails Sent, and Meetings Attended. These features provide a comprehensive view of both the physiological and work-related factors that contribute to stress. The application of machine learning in this context serves as an innovative approach to an increasingly pertinent issue. By leveraging the power of data analytics, this model aims to provide actionable insights for both individuals and organizations. Individuals can use these predictions for self-monitoring and early intervention, while organizations can utilize them to identify high-stress environments or roles, thereby allocating resources or interventions more effectively. Our preliminary results indicate a strong correlation between the chosen features and stress levels, demonstrating the viability of using machine learning for stress prediction in IT professionals. This study stands as a crucial step towards a more data-driven approach to mental health and well-being in the workplace.

Keywords- Machine Learning, Random forest, AdaBoost, Extra Tree

ENHANCING CAMPUS COMMERCE: THE ID CARD APPROACH

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Abstract- In today's digital age, integrating advanced technology into educational environments is crucial for streamlining operations and enhancing user experiences. This paper proposes a smart ID card system tailored for educational institutions, revolutionizing financial transactions and campus management. Smart ID cards, embedded with microchips or magnetic stripes, are issued to students, faculty, and staff. These cards integrate with the institution's payment infrastructure, enabling cashless transactions for canteen purchases, printing, vending machines, and other campus-related expenses. Users can conveniently reload their accounts through online portals, mobile apps, or on-campus kiosks, ensuring continuous access to campus amenities. Robust security measures, including encryption protocols and user authentication mechanisms, protect user's financial and personal information, minimizing the risk of unauthorized access and fraud. Additionally, the system offers comprehensive tracking and reporting capabilities, facilitating meticulous monitoring of individual expenditures and institutional account auditing. Adopting this innovative smart ID card model can significantly improve financial efficiency, convenience, and security for educational institutions. It simplifies operational workflows and enhances the overall campus experience for students, faculty, and staff by providing a secure, efficient, and user-friendly financial transaction solution. Embracing this system not only modernizes campus operations but also supports a technologically advanced environment, promoting better resource management and service standards for all users, ultimately fostering an enhanced educational experience.

Keywords- *Campus management, Cashless transactions, Financial efficiency.*

ENHANCING OBJECT RECOGNITION IN SELF DRIVING CARS USING GAN BASED MILLIMETER WAVE RADAR POINT CLOUD

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Abstract- Millimeter-wave radar has recently gained attention from the academic community owing to its unique physical properties that complement other sensing modalities, such as vision. Unlike cameras and LIDAR, millimeter-wave radar is not affected by light or weather conditions, has a high penetration capability, and can operate day and night, making it an ideal sensor for object tracking and identification. However, the longer wavelengths of millimeter-wave signals present challenges, including sparse point clouds and susceptibility to multipath effects, which limit their sensing accuracies. To enhance the object recognition capability of millimeter-wave radar, we propose a GAN-based point cloud enhancement method that converts sparse point clouds into RF images with richer semantic information, ultimately improving the accuracy of tasks such as object detection and semantic segmentation. We evaluated our method on the CARRADA and NuScenes datasets, and the experimental results demonstrate that our approach improves the object classification accuracy by 11.35% and semantic segmentation by 4.88% compared to current state of the art methods.

Keywords: *Sparse cloud points , GAN*

BIRD IDENTIFICATION THROUGH AUDIO SIGNAL PROCESSING AND NETWORK USING PYTHON

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Abstract: Automated biodiversity monitoring is crucial for ecological research and conservation efforts. Traditional methods of bird species identification are often time-consuming and require significant expertise. This project addresses the need for an efficient and accurate automated bird identification system using audio signal processing and neural networks. The primary objective of this project was to develop a system capable of accurately classifying bird species based on their vocalizations. This was achieved by leveraging the power of neural networks and the flexibility of Python's machine learning libraries. An extensive dataset of bird calls was collected and preprocessed to enhance features critical for classification. The preprocessing steps included noise reduction, audio segmentation, and the extraction of mel-frequency cepstral coefficients (MFCCs). A convolutional neural network (CNN) was designed and trained using Python libraries such as TensorFlow and Keras to recognize and classify the bird species from the processed audio signals. The neural network achieved a high classification accuracy of 92%, effectively distinguishing between over 50 different bird species. The system's performance was validated through cross-validation techniques and showed superior accuracy compared to existing methods in the field. The findings demonstrate that integrating audio signal processing with neural networks in Python significantly enhances the efficiency and accuracy of automated bird identification systems. Future work will focus on expanding the dataset, incorporating real-time processing capabilities, and improving the system's adaptability to various environmental conditions.

Keywords: *CNN, MFCCs, Spectrogram,*

DETECTING AND MITIGATING BOT NET ATTACKS IN SOFTWARE-DEFINED NETWORKS USING DEEP LEARNING TECHNIQUES

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Abstract: Botnet attacks pose a significant threat to the security and stability of software-defined networks (SDNs). Traditional methods for detecting and mitigating botnet attacks often rely on signature-based detection or rule-based systems, which may struggle to adapt to evolving attack techniques. In this paper, we propose a novel approach for detecting and mitigating botnet attacks in SDNs using deep learning techniques. Our method leverages the capabilities of deep learning models, specifically convolutional neural networks (CNNs) and recurrent neural networks (RNNs), to automatically learn and extract features from network traffic data. By training these models on labeled datasets of normal and botnet traffic, we can effectively distinguish between benign and malicious activity in real-time. Additionally, we integrate our deep learning-based detection system with SDN controllers to enable proactive mitigation of botnet attacks. Experimental results demonstrate the effectiveness of our approach in accurately detecting and mitigating botnet attacks while minimizing false positives. Overall, our proposed method provides a promising solution for enhancing the security of SDNs against botnet threats.

Keywords-CNNS,RNNS

A CLOUD BASED SAFE AND EFFECTIVE ONLINE FINGERPRINT AUTHENTICATION SYSTEM

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Abstract-With the pervasiveness of mobile devices and the development of biometric technology, biometric identification, which can achieve individual authentication relies on personal biological or behavioral characteristics, has attracted widely considerable interest. However, privacy issues of biometric data bring out increasing concerns due to the highly sensitivity of biometric data. Aiming at this challenge, in this paper, we present a novel privacy-preserving online fingerprint authentication scheme, named e-Finga, over encrypted outsourced data. In the proposed e-Finga scheme, the user's fingerprint registered in trust authority can be outsourced to different servers with user's authorization, and secure and efficient authentication service can be provided without the leakage of fingerprint information. Specifically, an improved homomorphic encryption technology and AES for secure Euclidean distance calculation to achieve an efficient online fingerprint matching algorithm over encrypted FingerCode data in the outsourcing scenarios. Through detailed security analysis, we show that e-Finga can resist various security threats. In addition, we implement e-Finga over a workstation with a real fingerprint database, and extensive simulation results demonstrate that the proposed e-Finga scheme can serve efficient and accurate online fingerprint authentication.

Keywords: Admin, OASER, User, TA, Fingerprint data, add products, Make payment.

USE OF DEEP LEARNING FOR CONTINUOUS PREDICTION OF MORTALITY FOR ALL ADMISSIONS IN INTENSIVE CARE UNIT

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Abstract- Predicting mortality for patients admitted to the intensive care unit (ICU) is crucial for clinical decision-making and resource allocation. Traditional scoring systems rely on static variables and may not capture the dynamic nature of patient conditions. In this study, we propose a deep learning approach for continuous prediction of mortality in ICU admissions, leveraging a comprehensive dataset of patient demographics, vital signs, laboratory results, and medical history. Our model combines recurrent neural networks (RNNs) with attention mechanisms to process sequential data and fully connected layers to incorporate tabular features. We evaluate our model on a large dataset of ICU admissions, achieving promising results with an area under the receiver operating characteristic curve (AUC) of XX%. Furthermore, we demonstrate the model's ability to provide real-time predictions, enabling clinicians to continuously assess mortality risk during a patient's ICU stay. This approach offers a powerful tool for early identification of high-risk patients and supports timely interventions to improve patient outcomes in critical care settings.

Keywords- ICU Mortality Prediction, Deep Learning Model, Continuous Monitoring Deployment

TRASH AND RECYCLED MATERIAL IDENTIFICATION USING CONVOLUTIONAL NEURAL NETWORK

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Abstract-The aim of this research is to improve municipal trash collection using image processing algorithms and deep learning technologies for detecting trash in public spaces. This research will help to improve trash management systems and help to create a smart city. Two Convolutional Neural Networks (CNN), both based on the AlexNet network architecture, were developed to search for trash objects in an image and separate recyclable items from the landfill trash objects, respectively. The two-stage CNN system was first trained and tested on the benchmark TrashNet indoor image dataset and achieved great performance to prove the concept. Then the system was trained and tested on outdoor images taken by the authors in the intended usage environment. Using the outdoor image dataset, the first CNN achieved a preliminary 93.6% accuracy to identify trash and non trash items on an image database of assorted trash items. A second CNN was then trained to distinguish trash that will go to a landfill from the recyclable items with an accuracy ranging from 89.7% to 93.4% and overall 92%. A future goal is to integrate this image processing based trash identification system in a smart trash can robot with a camera to take real- time photos that can detect and collect the trash all around it. Yanjun Yan School of Engineering + Technology Western Carolina University Cullowhee, NC yyan@email.wcu.edu uninviting for newcomers, and especially unhealthy for kids and senior citizens. Uncollected trash and litter along highways or other areas in developed countries pose a serious problem for the residents in terms of hygiene, neighborhood appeal, and environment protection. The World Health Organization [1] has indicated that 842,000 deaths per year globally are attributable to “unsafe water supply, sanitation and hygiene”. Of this total 361,000 are children under age five, mostly in low-income countries. Automatic trash collection systems, in addition to improving public health, will also reduce the cost of collecting trash, which is a big amount in both developed and developing countries. For example, CBSNewYork [2] published that New York city pays \$300 million per year for collecting trash.

Keywords- CNN, AlexNet, Image Classification, Deep Learning, Object detection.

ENHANCING PRIVACY IN E-LEARNING THROUGH FEDERATED LEARNINGBASED ON-SCREEN ACTIVITY TRACKING AND CLASSIFICATION

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Abstract-- In the rapidly evolving landscape of remote and online learning, the ability to monitor and assess students' engagement and productivity has become increasingly vital. This project introduces a pioneering solution, "Enhancing privacy in e-learning through federated learning based on-screen activity tracking And Classification," aimed at addressing this critical challenge. With the surge in popularity of e-learning platforms, especially in the wake of global events necessitating remote education, ensuring that students remain actively engaged and focused during online sessions has emerged as a significant concern. This project leverages Federated Learning, a decentralized machine learning paradigm, to safeguard user privacy while accurately classifying on- screen activities. By combining real-time monitoring capabilities with stringent privacy protection measures, this approach distinguishes between productive knowledge development and unproductive behaviors, such as distractions or disengagement. This not only empowers educators and institutions to take timely corrective actions but also enhances the overall effectiveness of online education. The project's decentralized nature sets it apart from traditional methods, mitigating privacy risks and data security concerns by keeping individual user data on their respective devices. This ensures compliance with stringent data protection regulations such as GDPR and HIPAA. Ultimately, this project represents a groundbreaking contribution to the field of e-learning monitoring. It strikes a delicate balance between user privacy and educational effectiveness, providing educators with valuable insights to foster student engagement and optimize learning outcomes in the rapidly evolving landscape of online education.

Keywords: *CNN, decision tree, linear discriminant analysis, e-learning, federated learning.*

LEVERAGING MACHINE LEARNING FOR EARLY DETECTION OF LUMPY SKIN DISEASE OUT BREAKS

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Abstract- Lumpy Skin Disease (LSD) is a highly contagious viral infection that affects cattle and poses a significant threat to the livestock industry worldwide. Rapid and accurate diagnosis of LSD is crucial for controlling its spread and preventing economic losses. Traditional diagnostic methods, such as clinical observation and laboratory testing, are time-consuming and may lack sensitivity. In recent years, machine learning (ML) has emerged as a powerful tool for medical diagnosis, offering the potential for faster and more reliable detection of diseases. This paper presents a novel approach for the diagnosis of Lumpy Skin Disease using machine learning techniques. We collected a comprehensive dataset of clinical and histopathological s of cattle affected by LSD, along with data from healthy cattle for comparison. The dataset was preprocessed to remove noise and standardized for analysis. The advantages of our ML-based diagnosis system are twofold. Firstly, it offers a rapid and non-invasive method for detecting LSD, significantly reducing the time required for diagnosis compared to traditional methods. This speed is crucial for implementing timely control measures and preventing the spread of the disease. Secondly, the system's high accuracy ensures reliable results, reducing the risk of misdiagnosis and associated economic losses. The system has the potential to revolutionize the way LSD is detected and managed, contributing to the health and productivity of cattle populations worldwide while safeguarding the livestock industry against this devastating disease.

Keywords: *MLP, Extra tree, Naïve Baye's, Evaluation, ML Techniques.*

HAND GESTURE RECOGNITION USING DEEP LEARNING

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Abstract- Despite the fact that a large social group could benefit from it. Technology's ability to recognize hand gestures is not fully utilized. There are numerous technologies at this disposal that could be useful in creating a connection between this social group and the outside world. Knowing sign language is one of the keystones to empowering users to interact with the general public. Through image categorization and machine learning, computers are able to understand sign language, which humans can subsequently translate. Convolutional neural networks are used in this study to recognize gestures in sign language. The image collection utilized consists of static sign language gestures captured with an RGB camera. The images were preprocessed before being utilized as the source material that was this dataset of sign language gestures was retrained and tested using a convolutional neural network model; the results are reported in this article. The model processes several convolution filter inputs on a single input. More than 90% of the validation was successful as a result. This work also reviews the many approaches at machine learning and image depth data-based sign language identification. It evaluates the various challenges associated with resolving the current problem and also outlines the problem's possible future.

Keywords: *Sign Language Recognition, DeepLearning, CNN, Image Processing.*

DRIVER FATIGUE AND DROWSINESS DETECTION USING CNN

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Abstract :- We propose a drowsiness detection system that leverages deep learning techniques, specifically a Convolutional Neural Network (CNN), to monitor and alert drivers in real-time. Our system utilizes readily available hardware components, including a camera, USB cable, laptop as the processing unit, and a speaker as a warning system. The camera captures live video feed of the driver's face, which is then processed by the CNN model in real-time. The CNN model is trained to analyse facial features and detect signs of drowsiness such as drooping eye lids, yawning, and head nodding. When the CNN model identifies drowsiness indicators in the driver's facial expressions, it triggers an alert system. The alert system, through the speaker, emits warning sounds or voice prompts to grab the driver's attention and prompt them to stay alert. The USB cable connects the camera to the laptop, ensuring seamless data transfer and processing flow. This drowsiness detection system not only enhances road safety but also offers the advantage of easy integration into existing vehicles, as it relies on commonly available components. Our project proves the feasibility of implementing a cost-effective and efficient solution to mitigate the dangers of drowsy driving, ultimately saving lives on the road. When the CNN model identifies drowsiness indicators in the driver's facial expressions, it triggers an alert system. This drowsiness detection not only enhances road safety also offers the advantage of easy integration into existing vehicles, as it relies on commonly available components.

Keywords:- DCNN, Driver drowsiness, camera, training testing etc.

IMAGEDATAAUGMENTATIONFORDEEPLEARNING

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Abstract-Image Data augmentation is a technique used in deep learning projects to artificially increase the size of the training data set by applying various transformations to the existing images. The goal is to enhance the model's performance by exposing it to a boarder range of variations in the input data. This is particularly useful when the available labeled dataset is limited, as it helps prevent overfitting and improves the model's generalization capabilities. Deep learning has achieved remarkable results in many computer vision tasks. Deep neural networks typically rely on large amount of training data to avoid over fitting. However, labeled data for real world applications may be limited. By improving the quantity and diversity of training data, data augmentation has become an inevitable part of deep learning model training with image data. As an effective way to improve the sufficiency and diversity of training data, data augmentation has become a necessary part of successful application of deep learning models on image data. In this paper, we systematically review different image data augmentation methods. We propose a taxonomy of reviewed methods and present the strengths and limitations of these methods. We also conduct extensive experiments with various data augmentation methods on three typical computer vision tasks, including semantic segmentation, image classification and object detection. Finally, we discuss current challenges faced by data augmentation and future research directions to put forward some useful research guidance.

Keywords- :CNN, You Only Look Once version-3, GAN.

THYROID DETECTION AND CLASSIFICATION USING MACHINE LEARNING ALGORITHMS

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Abstract The Thyroid nodule is a small and abnormal growth of thyroid cells which is a butterfly-shaped gland located at the front of our neck under our skin. This gland produces two hormones which help in controlling the metabolism of the body such as body temperature and heart rate. There are mainly two stages of thyroid that commonly occurs such as Hyperthyroidism and Hypothyroidism. Early detection of thyroid is very difficult job. Generally, blood test is used to detect the thyroid but it may cause noise and inaccurate data. This study aims to solve these issues and to make job easier for doctors, Machine Learning algorithms are used to detect and classify the stage of thyroid. Leveraging a diverse dataset comprising patient records, the proposed model employs popular machine learning algorithms such as Support Vector Machines (SVM), Random Forest, and Naïve Bayes's. The evaluation includes metrics such as accuracy, precision, recall, and F1 score, providing a nuanced understanding of the strengths and weaknesses of each algorithm in thyroid classification. Through this comparative study, the research aims to contribute insights that can guide the selection and optimization of machine learning models for effective thyroid diagnosis, paving the way for improved decision support systems in clinical settings. The outcomes of this research will not only contribute to the advancement of thyroid diagnosis methodologies, but will also guide healthcare practitioners in adopting the most efficient machine learning approach for accurate and timely identification of thyroid disorders.

Keywords — Thyroid disease detection, classification, data cleaning techniques, machine learning algorithm, SVM, Naïve Baye's, Random Forest.

THE ESSENTIAL ROLE OF EXPLORATORY DATA ANALYSIS IN DATA ANALYSIS

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Abstract - Exploratory Data Analysis(EDA) or Data Exploration is a significant process in the Data Analysis Process, which is performed after the data pre-processing stage as initial research for understanding the dataset using summary statistics and graphical representations. It works with the philosophy of "Garbage in and Garbage Out". It converts the almost usable dataset into a completely usable one. It is mainly performed to check for outliers, meaningful patterns, and trends in the given data. It also provides in-depth insights into the data to solve business problems. It also paves the way to impute missing values in the dataset. Further, it helps to understand the variables and their relationships better. Three different types of EDAs exist in the literature. They are i) Univariate Analysis, ii) Bivariate Analysis, and iii) Multivariate Analysis. Under each type, there will be two methods: graphical and non-graphical. Graphical methods use graphs, charts, and other visualizations to describe the data, whereas non-graphical methods use statistical techniques to explore data. The univariate analysis looks at only one variable at a time, describing the data distribution. Bivariate analysis describes the relationship between two variables, whereas multivariate data analysis determines the relationship between three or more variables. By using the combination of these methods, it is possible to understand the data better and make healthy business decisions. The research article explains the importance and objectives of EDA, types of EDA, Literature review, Real-world applications of EDA, Tools for EDA, and Case Study on "How to perform EDA for a Sample Dataset" using Python.

Keywords - Exploratory Data Analysis, EDA, Data Exploration, Univariate Analysis, Bivariate Analysis and Multivariate analysis

PARALLEL PREFIX ADDERS WITH APPROXIMATIONS: AxPPA APPROACH

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Abstract-The widely used application addition units in compute kernels for error-tolerant applications, such as signal, image, and video processing and machine learning, are examined in this paper. This paper highlights the significance of parallel prefix adders (PPAs) as fundamental building blocks for many mathematical operations, including subtraction, comparison, multiplication, squaring, and division. PPAs are considered to be very high- performance units. Prefix operators (Pos) are nodes that carry operators in a parallel prefix graph. The PPAs are renowned for their high speed. A unique idea of approximate PPAs that capitalize on approximation inside the POs is introduced in this study. AxPPAs, such as approximation brent-kung (AxPPA-BK), Kogge-stone (AxPPA- KS), and Ladner Fischer (AxPPA-LF), are generated as part of the development. This paper analyses four AxPPA architectures against energy-efficient approximate adders (AxAs), specifically error-tolerant adder I (ETAI), in order to evaluate the proposed approximate prefix operators (AxPOs).

Keywords: *Approximate adders(AxA), Approximate Computing(AxC), energy efficient operators, parallel prefix adders(PPA)*

ROAD ACCIDENT SEVERITY PREDICTION USING MACHINE LEARNING TECHNIQUES

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Abstract-Air pollution is a significant global issue, impacting both human health and the environment. Air quality is becoming poor day by day. So the need for air quality prediction is very essential. This study introduces an effective air quality prediction system utilizing machine learning. By analyzing historical pollutant data and incorporating meteorological factors, the model aims to accurately forecast air quality levels in real-time. According to WHO, In 2019,12% global deaths are caused due to air pollution. The primary goal is to create an accurate air quality prediction model using various Regression models. The main goal of this study is to predict the most effective model by considering the evaluation criteria which includes, Mean Absolute Error, Root mean squared error and R2 measures. Our results demonstrate the potential of machine learning with regression models for accurate AQI prediction, enabling proactive measures to improve air quality and public health. These systems collect data on various pollutants like PM2.5, PM10, NO2, SO2, O3, and CO, NH3. Overall, the project's offers a promising approach to provide accurate model for predicting air quality.

Keywords- *Air pollution, machine learning, IoT, smart city, air quality index.*

DESIGN AND IMPLEMENTATION OF ATTENDER ROBOT

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Abstract- This project focuses on the design and implementation of an Attender Robot using a Raspberry pi, python programming, and a camera. In every field Robots have a scope for their presence and complete the tasks given. The area we are going to introduce robots is educational institutions. For every Educational institution there are Attenders who are being used for taking attendance, passing circulars and calling students/faculty from the class rooms. Attender Robot can perform the above tasks in place of humans with speed and accuracy. For taking attendance latest process used is Biometric and for circular, calling process attender is being used. The camera-enabled attender robot finds applications in various domains, including healthcare, retail, hospitality, and surveillance. In healthcare settings, it can assist patients with mobility challenges, monitor vital signs, and provide remote consultation services. In retail environments, it enhances customer engagement through personalized assistance, product recommendations, and interactive displays. Moreover, in surveillance and security applications, it serves as an intelligent monitoring system, detecting intrusions, analyzing suspicious activities, and alerting authorities as necessary. Multiple attenders need to be used to complete circular and calling tasks this is another cost and time-consuming process. Motor drivers control the robot's movement and manipulation. A camera is used for visual perception, enabling object recognition and environment mapping. All these problems can be solved using simple Attender Robot. Software we used are Raspberry pi IDE and python. We use protocol namely wi-fi for communication.

Keywords- Attender Robot, Python, wi-fi, Attendance, Circular, Calling.

ROAD ACCIDENT SEVERITY PREDICTION USING MACHINE LEARNING TECHNIQUES

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Abstract-Millions of people die every year from road accidents, which are becoming more commonplace worldwide. They cost society heavily in terms of money and the economy. With the use of severity prediction models, several agencies can forecast an accident's severity and learn more about the variables that influence or are connected to crash severity. Using machine learning (ML) techniques is one possible method to forecast the severity of a crash. ML algorithms use accident data to uncover hidden patterns that indicate whether a crash is likely to be deadly, major, or minor. Road accident prediction has primarily been examined as a classification problem in existing research, which tries to forecast whether a traffic accident will happen in the future or not, without investigating the underlying relationships between the complex variables that cause traffic accidents. Traffic accidents are dangerous for one's health because they cause about 1.35 million deaths annually worldwide. Particularly impacted are nations like India, where over 150,000 people die every year. The staggering amount of traffic accidents that occur each year has made this a serious issue in our nation. It is completely unacceptable and heartbreaking to permit its citizens to die in car crashes. So, a precise analysis is needed to address this overwhelming problem.

Keywords: Crash severity, machine learning algorithms, and road accidents.

IMAGE DE-NOISING USING BILATERAL FILTER AND GAUSSIAN SCALE MIXTURES

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Abstract- In the realm of image processing, noise reduction remains a fundamental challenge, particularly in scenarios where images are corrupted by various types of noise during acquisition or transmission. In this paper, we present a novel approach for image denoising that combines the strengths of two popular techniques: the bilateral filter and Gaussian scale mixtures. The bilateral filter, renowned for its ability to preserve edges while reducing noise, is employed to exploit both spatial and intensity similarities within the image. Concurrently, Gaussian scale mixtures provide a multi-scale representation of the image, allowing for the capture of noise characteristics across different scales. By integrating these two methods, we achieve robust denoising performance across a wide range of noise levels and types. Experimental results on diverse datasets demonstrate the effectiveness of our approach in preserving image details while effectively suppressing noise artifacts. Comparative evaluations with state-of-the-art denoising techniques further validate the superiority of our proposed method in terms of both quantitative metrics and visual quality assessment. Overall, our proposed approach offers a promising solution for practical image denoising applications, with potential implications in fields such as medical imaging, surveillance, and remote sensing. The Gaussian filter is a local and linear filter that smoothes the whole image irrespective of its edges or details, whereas the bilateral filter is also a local but non-linear, considers both gray level similarities and geometric closeness of the neighboring pixels without smoothing edges. The extension of bilateral filter: multi-resolution bilateral filter, where bilateral filter is applied to approximation subbands of an image decomposed and after each level of wavelet reconstruction.

Keywords- *Nonlinear filter, wavelet thresholding, robustness*

MODELLING AND ANALYSIS OF HELICAL ANTENNA

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Abstract-Designing a helical antenna tailored for 3GHz frequency is crucial for achieving optimal performance in various applications. The specificity to 3GHz allows for meticulous optimization of the antenna's parameters, such as pitch angle, diameter, and spacing between turns. This fine-tuning ensures maximum efficiency and effectiveness within the desired frequency band, enabling reliable communication in wireless systems, Wi-Fi networks, radar applications, and satellite links. Moreover, focusing on 3GHz frequency facilitates broader bandwidth coverage, accommodating slight frequency variations and environmental changes, while minimizing interference from adjacent frequency bands. By honing in on this frequency, engineers can harness the inherent advantages of helical antennas, such as wider bandwidth and improved radiation patterns, to deliver robust and reliable performance in demanding operational scenarios.

Keywords-*Axial mode, Electromagnetic, Helical antenna, Underwater communication, wireless.*

MACHINE LEARNING DRIVEN SMART QUALITY INSPECTION FOR MANUFACTURING

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Abstract- In today's era monitoring the health of manufacturing environment has become essential in order to prevent unforeseen repairs, and to be able to detect defective products that could incur big losses. The health of a product can also be continuously assessed throughout the manufacturing lifecycle by using Quality Control measures. However, there are several factors that impact the visual inspection process resulting in overall inspection accuracy of around 80% in the industry. Aiming for 100% inspection in systems for advanced manufacturing. The approach includes a custom Convolution Neural Network (CNN) for inspection and a computer application that can be deployed on the shop floor to make the inspection process user-friendly. The input used here is Casting Product dataset. This dataset is from pilot technocast. Both train and testfolders contains def-front and ok-front. In train (def-front have 3758 and ok-front have 2875 images), test (def-front have 453 and ok-front have 262 images).

Keywords- *Machine Learning Algorithm, Smart Quality.*

REVOLUTIONIZING SANITATION: UV LIGHT DISINFECTION ROBOTICS”

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Abstract- A theoretical in (UV) light is utilized for the last goal of cleaning or sanitizing the spaces and offices. UV-C is utilized in light of its antibacterial properties, explicitly infection, and contaminations, yet it additionally forestalls individuals. In accordance with these lines, to wipe out sewage without the mediation of people, an UV sterilization Robot has been assembled and executed after the previously mentioned strategy. Two 18W UV lights were introduced toward each path. Since UV light may be destructive to people, an Arduino-worked fake casing close to the ultrasonic sensor is utilized at the lower part of the robot that distinguishes development and the presence of a human or a creature. Thusly, quite possibly the best method for forestalling defilement of SARS-COV-2(Covid) is to clean the spaces utilizing an UV robot.

Keywords- *UV-C Light Source, Robotic Base, Sensors, Control System*

CRACK DETECTION IN RAILWAY TRACK USING IOT AND IMAGE PROCESSING

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Abstract-Every large and small metal is inspected by an automated railway track fault detection system to look for any flaws or defects in the railway track. This project discusses a computer-based approach (image processing in Python) that will help identify track cracks accurately and with less assistance from humans. The photos of the track will be captured by a system and sent to the server. Specifically, to the railway employee's PC. The employee just must browse that image. The railway key guy, who walks 8 kilometers every day to check for flaws, can actively use this system. The primary objectives of the proposed study are to create and implement a system that will efficiently detect, locate, and notify the relevant authorities of any fractures or other metallic problems. However, no special knowledge is required to detect cracks which will help the employees of the railway. The proposed robot includes two Laser transmitter, Raspberry Pi 3 model, GPS (Global Positioning System) module, IOT (Internet of Things) module and image processing-based track detection framework. A laser transmitter and receiver will detect any track cracks. The railway line damage is taken by the camera, and the resulting image is then used for analysis. GPS delivers the signal to Raspberry Pi 3, and further the IOT server sends an alarm message with the longitudinal coordinates of the region to the authorized contact that has already been saved in the robot.

Keywords-Crack, IOT, image processing, Raspberry Pi.

SMART WASTE MANAGEMENT WITH IMAGE BASED WASTE SORTING

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Abstract: The world's expanding garbage problem poses serious risks to human life because of the enormous volume of rubbish that humans produce every minute. Every day, about 0.2 million tons of rubbish are created in India alone. The bulk of trash cannot be fixed with a workable manner since India lacks a widely used separating mechanism. Only fury pickers in some cities are capable of sorting trash, but not entirely. Because just 30–40% of trash is segregated every day. Secure, forgiving, and automatic waste separation is required because certain wastes—like hazardous chemical waste, medical waste, floating garbage, etc.—cannot be manually separated. Thus, the project's goal is to present a clever present a smart, which is capable of separating wastage image dataset from kaggle.com using image processing techniques. The .NET system is an image processing framework based on the module the software is an image classification algorithm machine learning process. The project's ultimate goal is to separate garbage, which is capable of separating wastage image dataset from kaggle.com using image processing techniques. The .NET system is an image processing framework based on the module the software is an image classification algorithm machine learning process. The project's ultimate goal is to separate garbage into four major categories: paper, food waste, plastics, and metals. The proposed CNN image segmentation & object detection based, after processing and segmentation is done, it separates waste into degradable and non-degradable.

Keywords-*CNN, Open CV, Arduino IDE*

MODELLING AND ANALYSIS OF CPW-FED CIRCULAR PATCH ANTENNA

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Abstract: Designing a CPW-FED Circular patch antenna tailored for 5GHz frequency is crucial for achieving optimal performance in various applications. The antenna is designed to operate at the 5G frequency bands, offering the advantages of flexibility and compactness. The antenna is fabricated on a flexible substrate to provide mechanical flexibility, making it suitable for various 5G communication systems. The antenna achieves a wide impedance band width and good radiation characteristics, making it suitable for various 5G communication applications. Simulation results demonstrate that the antenna achieves excellent performance in terms of impedance matching, radiation efficiency and gain across the 5G frequency bands. The antenna's compact size, flexibility, and good performance make it a promising candidate for future 5G communication system.

Keywords: Circular patch Antenna, Flexible, compact, 5G.

IMPLEMENTATION OF EFFICIENT AND LOW POWER TEST PATTERN GENERATORS

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Abstract:

Testing VLSI (Very Large Scale Integration) circuits involves numerous challenges, particularly concerning area overhead, power consumption, and latency. A crucial technique for testing the intricate architecture of VLSI designs is generating low transition test patterns. During testing, when the device is not in its normal operation mode, power dissipation can be around 200% higher compared to its normal functioning mode. To tackle this challenge, a 32-bit test pattern generator has been proposed for VLSI design testing. This generator utilizes an efficient Linear Feedback Shift Register (LFSR) along with additional combinational circuitry, which leads to lower power consumption. The main improvement comes from reducing the switching activity between test vectors, resulting in decreased power usage. This test pattern generator has been implemented using the Vivado IDE tool suite and is described in Verilog HDL (Hardware Description Language). The implementation emphasizes optimizing the LFSR to minimize transitions, thereby achieving low power consumption during the testing phase.

Keywords: Test Pattern Generator (TPG), Linear Feedback Shift Register (LFSR), VLSI Testing, Low Transition LFSR, Switching activity.

WIRELESS SENSOR NETWORK BASED AUTOMATIC IRRIGATION MONITORING SYSTEM

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Abstract: Every nation has engaged in agriculture for years, and it is an essential component of the Indian economy. It is imperative that agriculture adopt new technology and methods in line with the global trend toward technological advancement. The Internet of Things is crucial to smart agriculture. IOT sensors have the ability to provide agricultural field information. The Automatic Irrigation Monitoring System based on Wireless Sensor Network is the subject of the proposed work. It uses a variety of sensors that are put at different nodes to gather data, which is then transmitted via wireless protocol. The microcontroller board powers this wireless sensor network-based smart agriculture, which includes a DC motor, GPRS module, water level sensor, temperature sensor, moisture sensor, and gas sensor. The Internet of Things (IoT) agriculture monitoring system monitors water, humidity, and moisture levels, as well as gas sensors, and sends out phone alerts when any of these parameters are exceeded. When the water level drops, sensors detect it and activate the water pump. The fan turns on when the temperature rises above the threshold. The LCD display module shows all of this. All of this is also apparent in IOT, which displays data on water level, humidity, and moisture along with the date and time, all dependent on minutes. Depending on the kind of crops being grown, a specific temperature can be established. A camera can also be connected to the system, allowing it to take pictures and send farmers MMS messages via WiFi. One widely used technique is clustering, which arranges the grouping of several nodes and transfers real-time data to each node's webpage. Additionally, the farmers receive the Parameters wirelessly using a wireless facility.

Keywords-*Node MCU, Sensors, Relay*

IOT BASED VEHICLE TRACKING SYSTEM AND THEFT IDENTIFICATION

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Abstract-The rise of technology and infrastructure has made our lives easier. the entrance of technology has also increased the traffic hazards and also the road accidents happen frequently which causes huge loss of life and property due to the poor emergency facilities. According to statistics, there are around 10 million property crimes per year. Vehicle theft is the most common and occurs in all regions of the world. There are many recent technologies evolving and new methods are being developed to overcome this issue. The methods involved in vehicle theft detection have become known to everyone, including burglars, and they try to break the system and steal a vehicle. This paper proposes a system presenting a mechanism to minimize vehicle thefts. The system provides security by sending an alert message as soon the vehicle is stolen or moved without knowledge of owner. The system also offers periodic location updates to the registered user through the internet of things. GPS technology sends location to provide vehicle tracking. GSM technology is used to send an alert message to intimate the owner when the vehicle is started.

Keywords-*Vehicle theft detection, Alert message system, Location updates, Internet of Things (IoT), GPS technology, GSM technology, Theft vehicle tracking.*

DESIGN AND STUDY OF A MICROSTRIP PATCH ANTENNA FOR GPS APPLICATION

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Abstract- Designing a Microstrip Patch Antenna for 1.5GHz operating frequency is simulated by using HFSS software. The slots are created to increase the adaptation between feed line antenna. The antenna is designed for GPS applications. There are many applications such as mobile radio and wireless communication have specifications to meet this requirements this antenna is useful. In satellites and navigation systems these localization system is needed. The substrate is used based on the relative permittivity. We are using FR4 material for getting better performance of antenna parameters like gain(dB), return loss(dB).

Keywords- Microstrip patch, GPS, Return loss, VSWR.

IMPLEMENTATION OF HIGH SPEED THREE OPERAND BINARY ADDER FOR AREA EFFICIENT VLSI ARCHITECTURE

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Abstract-The three-operand binary adder serves as a fundamental unit for modular arithmetic in cryptography and pseudorandom bit generator algorithms. While the Carry-save adder (CS3A) is commonly employed, its ripple carry stage results in a significant propagation delay. Alternatively, utilizing a parallel prefix two-operand adderlike Han-Carlson (HCA) can minimize the critical path delay but incurs additional hardware complexity . This project introduces a novel high-speed and area-efficient adder architecture employing pre-compute bitwise addition and carry-prefix computation logic. The FPGA implementation and synthesis demonstrate the proposed adder's superiority, reporting notable speed improvements over CS3A across various bit architectures. Also, the new adder exhibits reduced area, lower power consumption, and lower detention compared to the HC3A adder, achieving superior ADP and PDP criteria in three-operand addition ways.

Keywords: *Three operand adder, carry save adder (CSA), Han-Carlson adder (HCA).*

AN IOT AND SOCIAL MEDIA INTEGRATED AMBULANCE SYSTEM

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Abstract: The IoT-based totally GSM module monitoring machine integrates both software program and hardware components to offer real-time GSM monitoring for patients. The software program factor encompasses a cloud-based totally platform for statistics storage, analysis, and visualization, permitting healthcare vendors to remotely display sufferers' health wirelessly. On the hardware side, wearable sensors and gadgets collect physiological facts together with heart price, blood strain, temperature, and pastime ranges. Those facts are then transmitted securely to the cloud platform through wireless communication protocols which include GSM or Bluetooth. The machine employs superior analytics eleven and machine studying algorithms to stumble on abnormalities, developments, and styles within the data, allowing early intervention and personalized healthcare control. average, this integrated technique gives a comprehensive solution for non-stop GSM tracking, promoting preventive care and improving affected person outcomes.

Keywords- ML-Algorithm, Node Mcu, Spo2 sensor, Temperature sensor, wifi-module, Heart beat sensor, LCD, GSM

AUTOMATIC KIDNEY STONE DETECTION USING DIP AND CONVOLUTIONAL NEURAL NETWORKS

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Abstract : The kidney are a pair of bean-structured organ placed under the rib cage and it is a main organ in the body which plays a vital role in cleansing of body. Kidney purifies the fluid in our body, Not only water but also purifies the acids produced by cells and maintains an equilibrium between water and salts in our body. One of the main problem occurring in kidney is the formation of stones. The stones are formed due to excess amount of salts that are strucked while purifying the fluids. These salts later get harden and turn into stones. In earlier days the medical practioners used to identify the stones in the kidney by testing the urine released from the body. After the development of X-Ray Images, the doctors preffered taking the scans of the kidneys and identify the kidney stones accurately. The proposed comprehensive approach for kidney stone detection utilizing a DCNN in MATLAB. The workflow encompasses preprocessing, segmentation, feature extraction, and classification stages. The deep CNN architecture exhibits superior performance results in sensitivity, specificity, and overall accuracy is greater when compared to earlier methods. Firstly, the input image undergoes pre-processing using a median filter to reduce noise and enhance clarity. Subsequently, a segmentation technique based on Fuzzy C-Means (FCM) clustering is employed to delineate the kidney stone regions accurately. Next, texture features are extracted using Gray-Level Co-occurrence Matrix (GLCM), providing valuable information regarding the spatial distribution of pixel intensities within the segmented regions. These features serve as discriminative attributes for distinguishing between kidney stone and non-stone regions. The core of our methodology works on the application of a Deep CNN for classification and the database is MRI scanning images.

Keywords: Kidney Stone Detection, Deep CNN-Convolution Neural Network, FCM-Fuzzy C-Means Clustering, GLCM-Gray-Level Co-Occurrence Matrix, MRI Scanning Image

IMAGE CAPTION GENERATOR USING DEEPLARNING

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Abstract-This paper delves into neural network approaches for generating descriptive captions from images, a task that bridges computer vision and natural language processing. We examine the combination of Convolutional Neural Networks (CNNs) for image feature extraction and Recurrent Neural Networks (RNNs), particularly Long Short-Term Memory (LSTM) networks, for text generation. Our study includes an analysis of encoder-decoder frameworks and the implementation of attention mechanisms to enhance caption accuracy. We address the key challenges such as dataset requirements and handling complex image scenarios. Experimental results indicate that these neural network-based models can generate coherent and contextually relevant captions, demonstrating significant advancements in automated image description. Our findings underscore the potential for further research and practical applications in fields like digital media, accessibility, and automated content generation.

Keywords-Image captioning, LSTM, Natural language processing tool(nltk), RNN, CNN

PADDY LEAF DISEASE DETECTION USING DEEP LEARNING

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Abstract- With the increasing demand for efficient and accurate plant disease detection systems, this research proposes a Convolutional Neural Network (CNN)-based approach for enhancing the quality of rice leaf disease image datasets through advanced data augmentation techniques. The study focuses on addressing the challenges associated with limited and imbalanced datasets, which often hinder the performance of deep learning models in the domain of plant pathology. The proposed methodology leverages Python- based tools and libraries to implement a robust data augmentation pipeline tailored specifically for rice leaf disease images. Various augmentation techniques, including rotation, scaling, flipping, and color transformations, are employed to diversify the dataset and improve the model's ability to generalize across different conditions. To evaluate the effectiveness of the proposed approach, experiments are conducted using a state-of-the-art CNN architecture for image classification. The performance metrics, such as accuracy, precision, recall, and F1 score, are systematically analyzed to assess the impact of data augmentation on model performance. Results indicate a significant improvement in the model's stability to accurately classify rice leaf diseases, particularly in scenarios where limited labeled data is available. The augmented data set not only enhances the model's generalization but also contributes to mitigating over fitting issues commonly encountered in deep learning applications. The proposed approach can serve as a valuable resource for researchers and practitioners working on plant pathology, aiding in the advancement of precision agriculture and sustainable crop management practices.

Keywords: *Rice Leaf, CNN, F1-Score, recall, etc.,*

A NEW METHOD FOR AUTOMATIC VEHICLE LICENSE PLATE DETECTION

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Abstract-Automatic vehicle license plate detection plays a crucial role in various applications such as law enforcement and traffic management. In this project, we propose a method for automatic license plate detection using machine learning techniques. The proposed algorithm consists of several steps. In the first step the camera captures images of vehicles on the road. These images are then processed by ML model specifically trained to detect license plates. Once the license plate region is identified, then it will be cropped using python image library (PIL). Subsequently Gaussian Blur is applied to reduce noise in the cropped license plate image. To increase accuracy the cropped image is resized. Then it is fed to the ML model which uses CNN for character detection. By analyzing the x and y positions of each character, the ML model identifies individual characters within the license plate. The detected characters are stored in an array based on their accuracy, and subsequently sorted based on their positions within the license plate. Finally the sorted characters are extracted, providing a robust and accurate method for automatic license plate detection. The experimental results demonstrate the effectiveness and efficiency of the proposed method in accurately detecting and extracting license plate information from vehicle images. This means it's really good at recognizing license plates in pictures of vehicles. This could make a big difference in how we manage traffic and help police do their jobs better.

Keywords-Automatic vehicle license plate detection, Python image library, CNN, Gaussian Blur.

ANALYSIS OF VARIOUS IMAGE SEGMENTATION TECHNIQUES ON RETINAL OCT IMAGES

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Image segmentation is one of the most important processes involved image processing. Segmenting an image is breaking involved in image processing. Segmenting an image is breaking it up into smaller pieces, or segments. These are the areas where it is most helpful because processing the complete image would be in efferent for task like object recognition or dividing an image's elements for father processing. This article looked at a number of image segmentation techniques, including the threshold approach, edge-based method, and clustering-based method. The segmentation method that is most effective for separating images in OCT images is clustering-based segmentation. To reduce the speckle noise during preprocessing, the wiener filter approach is used. With regards to the threshold, edge-base(sobel,canny,Robert's),andclustering-basesegmentationtechniques,calculate Accuracy values for the segmented image quality. Where as in my project I used to compare all this method and conclude which method is best with high accuracy.

Keywords: -Clustering; Edge detection; Image segmentation; Threshold.

IOT BASED INCLUSIVE ACCIDENT DETECTION SYSTEM FOR SMART VEHICLES AND TRACKING SYSTEM

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Abstract: Transportation plays a significant role in our daily lives, and its development has made many of our tasks much easier. IoT-based vehicle accident detection systems using GPS and WiFi have gained attention. When an accident occurs, this system sends a short message via WiFi over the internet to a gmail. The message includes the longitude and latitude values, which can be used to determine the location of the accident. The techniques used include crash prediction using smartphones, vehicular ad-hoc networks, GPS/GSM-based systems, and various machine learning techniques. With high rates of deaths associated with road accidents, road safety is a critical sector that demands significant exploration. In this paper, we present a critical view of various existing methodologies used for predicting and preventing road accidents, highlighting their strengths, limitations, and the challenges that need to be addressed to ensure road safety.

Keywords: *GSM, GPS, accident detection, IoT, smart cities, WiFi*

SMART E-VEHICLE CHARGING SYSTEM USING IOT AND RFID

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Abstract-Electric vehicle (EV) wireless charging using radio- frequency identification (RFID) is a new technology that enables the charging of electric vehicles without the need for cables or lines. The technology utilizes RFID markers that are installed on the EV, which communicate with the charging pad through electromagnetic fields. The charging process is initiated when the RFID anthology detects the presence of the EV with the installed RFID label, and the charging pad is actuated. The power transfer is also enabled between the charging pad and the EV, allowing for the charging process to begin. RFID- grounded wireless charging technology offers multitudinous benefits over traditional wired charging systems. For case, it eliminates the need for physical connectors, thereby reducing the wear and tear and gash of factors and adding the convenience of charging. also, the technology is more effective, with minimum energy losses, and reduces the threat of electrical hazards. It also minimizes the impact of rainfall conditions and road debris on the charging process, making it suitable for both inner and out-of-door charging operation. In conclusion, EV wireless charging using RFID is a promising technology that can potentially revise the EV charging assiduity. It offers multitudinous benefits, including increased convenience, effectiveness, and safety, and has the implicit to significantly reduce the environmental impact of transportation.

Keywords *Electric vehicle, Wireless Charging, RFID*

COORDINATED BEAMFORMING DESIGN FOR MULTI USER MULTI CELL MIMO VLC NETWORKS

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Abstract- This paper proposes a comprehensive framework for coordinated beamforming design in multi-user multi-cell MIMO visible light communication (VLC) networks. The proposed system encompasses various stages including input bit sequence processing, encoder, modulation, multiplexing, data mapping, IFFT processing, cyclic prefix (CP) addition, transmission through additive white Gaussian noise (AWGN) channel, and reception. Key to the system's performance is a modified alternating optimization (AO) algorithm for coordinated beamforming. The proposed algorithm optimizes beamforming weights to enhance signal quality and mitigate interference in the multi-user multi-cell VLC environment. Furthermore, the system incorporates zero crossing and mean square error (MSE) equalization techniques for improved signal recovery at the receiver. Upon reception, the received signal undergoes CP removal, FFT processing, de mapping, demodulation, demultiplexing, and decoding stages..

Keywords-Modified AO Algorithm, VLC Networks, FFT, IFFT etc.,

DESIGN OF 32-BIT POWER EFFICIENT POSIT MULTIPLIER

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Abstract-POSIT quantity device has been used as an opportunity to IEEE floating-factor quantity device in many applications, especially the recent popular deep learning. Its non-uniformed number distribution fits well with the data distribution of deep learning and thus can speed up the training process of deep Learning. Among all of the associated mathematics operations, multiplication is one of the maximum frequent operations used in applications. However, because of the bit-width flexibility nature of posit numbers, the hardware multiplier is commonly designed with the most viable mantissa bit-width. As the mantissa Bit-width isn't continually the most value, such multiplier layout results in a excessive energy consumption especially when the mantissa bit-width is small. In this brief, a electricity green posit multiplier architecture is proposed. The mantissa multiplier continues to be designed for the most viable bit-width, However, the complete multiplier is split into a couple of smaller multipliers. Only the required small multipliers are enabled at run-time. Those smaller multipliers are managed with the aid of using the regime bit-width Which may be used to decide the mantissa bit-width. This layout method is implemented to 8-bit, 16-bit, and 32-bit posit codecs on this quick and a mean of 16% electricity discount may be finished with negligible area and timing overhead.

Keywords- *Posit number system, Posit Multipliers, Power dissipation, Computer arithmetic, Floating point, Numerical error*

IOT BASED COAL MINING MULTI NETWORK SAFETY SYSTEM

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Abstract-Safety is the most vital part of any type of industry. In the Mining industry safety and security is the Fundamental aspect of all. To avoid any types of accidents mining industry follows some basic precautions. Still accidents take place in the underground mines due to rise in Temperature, Increased water level and methane gas leakage. Hence, in the proposed work a reliable wireless sensor system was established and this system will monitor the working environment of a coal mine. The system consists of master controllers and slave controllers. Slave controllers will detect the danger and give alert through RF to master controller and it will raise the alarm in all tunnels and also raise message on IOT, which will help to take action as soon as possible. The sensors used in Slave micro controller consists of temperature sensor, water sensor, methane and carbon dioxide sensor and RF transmitter which collects temperature, humidity and methane values underground of coal mine. In Mining involving the use of a wireless sensor network to ensure parameters like humidity, temperature, water and methane and other critical parameters are transferred in real-time to operators. Clustering is one of the popular technique where it organizes the grouping of the multiple nodes and transfer the real time data to the webpage of all the multiple nodes. Moreover, the Parameters are wirelessly transmitted to the control room, allowing people to determine the situation of the mine.

Keywords- Risc Microcontroller(ATMEGA328), Temperature, Methane Sensor, Water Sensor, Thingspeak App.

DESIGN OF APPROXIMATE MEMORY FOR HIGHQUALITYVIDEOAPPLICATIONSWITHLOWPOWER

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Abstract: An error- correction code (ECC) enabled memory design with particular bit hardening is proposed for approximate data storage. Approximate memory is suitable for error tolerant operations, and can achieve low- power design pretensions within targeted quality. Our design offers roughly 90 percent power savings compared to traditional memory, without compromising perceived quality. Here, we are combining particular bit hardening with ECC is a new approach to secure the protection of MSBs and cover other imperfect bits, singly. Our proposed system requires no area above for MSB hardening, other than one fresh input pin; and area above for implementing ECC is minimal. The former work in this design has concentrated on multitudinous approaches to exploit the essential error rigidity of video data to chieve power savings. Some former ways are voltage scaling, approximate computing, error-flexible coding, and picky bit hardening. But in this design, we are using integration of error- correction law with picky bit hardening to achieve significant power savings without compromising the video quality. This approach offers a comprehensive result for both power effectiveness and error rigidity which is suitable for low power video operations in VLSI designs.

Keywords: *Approximate memory, videos, error-correction code (ECC), memory, power consumption, video quality, trade-off and bit hardening*

REAL TIME FACIAL EMOTION DETECTION USING MACHINE LEARNING

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Abstract-Face detection has been around for ages. Human emotion plays a crucial role in conveying the intentions regardless of gender, race, national borders. Any detection or recognition by deep learning requires training algorithm and then testing them on a suitable dataset. The Real Time Facial Emotion Detection system is a software based application that helps in recognising and categorizing the human emotions based on the facial feature extraction. This system uses computer vision and machine learning. This project proposes machine learning algorithm as well as facial feature extraction techniques which would help us in accurate identification of the human emotion. To enhance real-time performance, optimizations such as model compression and hardware acceleration are implemented. Additionally, the system integrates feedback mechanisms to adaptively refine emotion predictions over time, improving overall accuracy and robustness. Experimental evaluations are conducted on benchmark datasets, demonstrating the effectiveness of the proposed approach in real-world scenarios. Overall, this paper contributes to advancing the field of facial emotion detection by providing a practical and efficient solution suitable for real-time applications across diverse domains.

Keywords: *Facial Recognition, Human Emotion Image Processing etc.,*

AN IMPROVED ENERGY-EFFICIENT CLUSTERING PROTOCOL TO PROLONG THE LIFETIME OF THE WSN- BASED IOT

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Abstract- The Internet of Things relies heavily on wireless sensor networks (WSNs) (IoT). However, the energy resources of sensor nodes in a WSN-based IoT network are restricted. By grouping nodes into clusters to reduce the transmission distance between sensor nodes and base stations, a clustering protocol offers an effective method for ensuring node energy savings and extending network lifespan (BS). Current clustering protocols, on the other hand, have problems with the clustering mechanism, which has a negative impact on their efficiency. We suggest an enhanced energy-efficient clustering protocol (IEECP) in this paper to extend the lifespan of WSN-based IoT devices. The proposed IEECP is divided into three parts. For the overlapping balanced clusters, an optimum number of clusters is first calculated. The balanced-static clusters are then developed using a tweaked fuzzy C-means algorithm in combination with a mechanism to minimize and balance the sensor nodes' energy consumption. Finally, cluster heads (CHs) are chosen in optimal locations by rotating the CH function among cluster members using a new CH selection-rotation algorithm that combines a back-off timer mechanism for CH selection and a rotation mechanism for CH rotation. The suggested protocol, in particular, eliminates and balances energy consumption. The proposed protocol, in particular, reduces and balances node energy usage by optimizing clustering structure, and IEECP is ideal for networks with a long lifespan. The findings of the assessment show that the IEECP outperforms current protocols.

Keywords- WSN, IEECP, IOT, Network Lifetime, Energy Efficient

SURVEILLANCE ROBOT FOR OBSTACLE AVOIDANCE

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Abstract-The development of an obstacle avoidance robot is considered as a fundamental step for the development of autonomous or unmanned vehicles. These vehicles are used in various fields like transportation, surveillance, rescue operations where human reach is not possible. It is a futuristic approach and the research towards the unmanned vehicles are extremely useful for the beneficiary of mankind. The objective of the project is to develop an obstacle avoiding robot using a microcontroller and an ultrasonic sensor to detect the object in front of it. This prototype is equipped with an ultrasonic sensor and the distance calculations are done inside the microcontroller. This prototype is also equipped with a wireless camera for live video transmission which can be received by various terminals like smart phones, tablets, PC, etc. The implementation results show that the robot can effectively navigate complex terrains and maintain constant surveillance, making it an invaluable asset for security operations in both indoor and outdoor settings. This paper also evaluates the robot's performance through a series of tests in various scenarios, demonstrating its reliability and efficiency in real-world conditions. The development of such autonomous systems opens up new possibilities for enhancing security measures without increasing human risk or labor. Furthermore, machine learning techniques are employed to improve obstacle detection and path planning capabilities over time, adapting to new environments and challenges dynamically.

Keywords-Arduino uno, Motor driver shield, Servo motor, DC motors & wheels, FPV camera, UVC-OTG, power supply.

A ROBUST SYSTEM FOR TRACKING STUDENT ATTENDANCE AND COMMUNICATING WITH PARENTS BY AUTOMATIC MESSAGE AND CALL GENERATION

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Abstract-In the contemporary world, the majority of universities and institutions have moved from electronic attendance tracking as opposed to traditional paper-based tracking. Comparing electronic attendance monitoring to manual techniques has several advantages, including enhanced precision, expedited processing, real-time information, and sophisticated analytics for the purpose of meeting attendance standards and guaranteeing safety in universities and schools. In today's classroom, attendance monitoring is still important because it encourages high-quality instruction and student responsibility. It is simple to complete and enables the instructor to record the pupils' attendance in the system itself. The focus of this project is tracking attendance automatically and corresponding with parents through text and phone calls. Parents receive automatic contact if their child is not present for classes, and by contrasting the attendance, a message will be issued to their mobile devices during the entire day. It will be stated in the communications that during that period, their child is not in class, allowing each parent to closely monitor their ward's attendance. This will primarily aid in lowering student absences and class skipping. Through this, there will be a problem-free, trouble-free method for taking attendance.

Keywords: *real-time data, call production, and absenteeism notification.*

PREDICTING FAILURES IN EMBEDDED SYSTEMS USING LONG SHORT-TERM INFERENCE

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Abstract-Users of implanted and cyber-physical frameworks anticipate Reliable operation for an progressively different set of applications and situations. Responsive self-diagnosis procedures either utilize pointlessly Traditionalist protect groups, or do not anticipate disastrous disappointments. In this letter we utilize machine-learning strategies to plan a expectation motor in arrange to foresee disappointments on-device in inserted frameworks. We assess our forecast engine's adequacy for anticipating temperature behavior on a portable system-on-chip, and propose a realizable equipment usage for the use-case.

Keywords-Embedded frameworks, Deduction , Temperature Estimations, Equipment, Runtime

REAL TIME ELLIPSE DETECTION FOR ROBOTIC APPLICATIONS

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Abstract-Over the years, many ellipse detection algorithms have been studied broadly, while the critical problem of accurately and effectively detecting ellipses in the real-world using robots remains a challenge. Ellipses detection from real-world images with a fast and reliable method represents a powerful analysis tool for many computer vision applications. For example, ellipse detection can be used for wheel detection road sign detection and classification object segmentation in industrial applications, automatic cell segmentation in microscope images, pupil/eye tracking etc. Vision-based autonomous landing detection and tracking circles or ellipses in real-time are crucial for many real-world (mainly robot) applications. In this application, many landing areas for aerial robots are composed of elliptical shapes, and autonomous vehicles need to detect circular landmarks first. Ellipse detection still remains unresolved as one of the typical tasks with a long history. We propose a new algorithm for real-time detection and tracking of elliptic patterns suitable for real-world robotics applications. The method fits ellipses to each contour in the image frame and rejects ellipses that do not yield a good fit. The resulting detection and tracking method is light weight enough to be used on robots' resource-limited onboard computers, can deal with lighting variations and detect the pattern even when the view is partial. The method is tested on an example application of an autonomous UAV landing on a fast-moving vehicle to show its performance indoors, outdoors, and in simulation on a real-world robotics task.

Keywords-UAV, Ellipse Detection

DESIGN AND EXPERIMENTAL VERIFICATION OF A LASER ENGRAVING MACHINE

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Abstract -This paper aims to develop a low-cost laser engraving machine. Materials like plastics, acrylic, glass, wood, cardboard, and leather have been used to engrave desired inputs. It has been found that this laser engraving process has a higher precision and accuracy as compared to traditional embellishing and embossing. The laser beam acquires thermal energy, which emerges from the machine and engraves the material. CREO 2.0 software is used for the 3D modelling and simulation of the machine. Arduino and different controller boards are tried and used in assembling the machine in less time. Different dependency and dimensional tests are conducted in order to validate the machine. Our objective is to achieve to be satisfactory in terms of quality and cost. The final assembly based on a 2D gantry that is mounted with a laser LED payload for laser engraving on various compatible materials.

Keywords-laser engraving, machine design, gantry robot, subtractive manufacturing

CHANNEL ESTIMATION IN INTELLIGENT REFLECTING SURFACES FOR 5G AND BEYOND

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Abstract: The components of intelligent reflecting surfaces (IRS), which may adjust the phase and amplitude of the reflected signals and combine them coherently to provide beamforming, are many independently controlled passive reflecting elements (RE). It is necessary to estimate the incoming and outgoing channels' channel coefficients in order to perform beamforming. In this study, the effectiveness of the channel estimate approach based on the discrete Fourier transform (DFT) is investigated using an IRS-assisted communication system employing the Fifth Generation (5G) orthogonal frequency division multiplexing (OFDM) waveform. Because DFT-based channel estimate doesn't use the entire OFDM symbol for pilot transmission, it can be done while data is being transmitted. Therefore, for various Signal-to-Noise Ratio (SNR) values with and without a direct channel, the impacts of multipath delay spread, the quantity of REs, and training sequence sparsity in the OFDM symbol are noticed. The outcomes demonstrate that delay spread significantly affects performance and that training sequence duration can be decreased.

Keywords: 5G, Intelligent Reflecting Surfaces (IRS), Reflecting Elements (RE), Orthogonal Frequency Division Multiplexing (OFDM) and Discrete Fourier Transform (DFT).

DESIGN OF ADVANCED ENCRYPTION STANDARD USING VERILOG HDL

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Abstract: Cryptography is dedicated to ensuring data security and integrity. Initially, many algorithms were developed for encoding and decoding data, but they proved unreliable for securing large volumes of confidential information. To address this, the Advanced Encryption Standard (AES) was created as a new standard for data encryption and decryption. Initially used to safeguard highly confidential data, AES has since become a standard in many networking applications for data protection. It is primarily employed to secure sensitive information and is also used in network backends to enhance data security. AES operates on 16-byte blocks and supports key sizes ranging from 128 bits to 256 bits. The main advantage of using Verilog over the standard VHDL is its shorter operation time and lower propagation delay for encoding and decoding data compared to other HDL languages. Before AES, the Data Encryption Standard (DES) was used, but its fixed 56-bit key size was a significant drawback. AES addresses this issue by offering variable key sizes, providing greater flexibility and security.

Keywords:- *Advanced Encryption Standard, Input text, Cipher text, Verilog.*

DESIGN OF APPROXIMATE MULTIPLIER WITH LOW POWER AND HIGH ACCURACY

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Abstract: The aim of this paper is to design an approximate multiplier by creating a highly accurate approximate compressor that surpasses existing models in precision. Multipliers are pivotal in numerous applications, often necessitating numerous multiplications, which in turn consume substantial power. Employing an approximate multiplier presents a promising strategy for mitigating critical path delay and power consumption. Such multipliers offer the flexibility to balance accuracy against energy efficiency and performance gains. Our contribution includes not only a high-precision approximate 4-2 compressor but also an adaptable approximate multiplier capable of dynamically truncating partial products to meet varying accuracy demands. Furthermore, we introduce a straightforward error compensation circuit to minimize error distance. Experimental findings indicate that, compared to traditional accurate Wallace multipliers, our proposed adjustable approximate multiplier significantly reduces delay, power, and area parameter values. Additionally, we illustrate the adaptability and suitability of our multiplier in convolutional neural networks (CNNs), catering to diverse requirements at different layers.

Keywords-*Approximate computing, approximate multiplier, CNN accelerator, deep learning, high precision.*

DESIGN OF LOW-PROFILEDUAL BAND T-SLOT MICROSTRIP PATCH ANTENNA FOR RADAR APPLICATIONS

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Abstract- In our project, we're working on enhancing the performance of dual-band T-slot antennas. These antennas are crucial for radar applications, operating at frequencies of 5.9 GHz and 7.4 GHz. To achieve dual-band functionality, we're employing a clever technique called a T-shaped slot in our microstrip patch antenna design. Despite the availability of advanced simulation tools like CST, HFSS, and ADS, optimizing these antennas remains challenging. This is because the antenna's geometry, the properties of the substrate it's placed on, and how it's fed all interact in complex ways. Our focus is on designing a small-sized antenna that packs a punch in terms of performance. We're exploring various methods to boost its bandwidth, such as adding parasitic elements, using defected ground structures, and incorporating fractal geometries.

Keywords- Dual-band; T-slot; ROGERS substrate; microstrip patch; WLAN; radar.

DESIGN, EVOLUTION AND APPLICATION OF APPROXIMATE-TRUNCATED BOOTH MULTIPLIERS

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Abstract- This project, in order to avoid the creation of hard multipliers, the approximate radix-256 Booth encoding was suggested in this short. Partial product pairings are created using a partial encoding method and are simply acquired by shifting and complementing. The sum of each pair of matching partial products consequently takes the role of the precise encoding values. For performance testing, a 16/16-bit multiplier with the suggested radix-256 Booth encoding have been constructed. The effectiveness of the proposed method is synthesized and simulated using Xilinx Vivado.

Keywords- Xilinx Vivado, radix-256

MULTIHOP D2D COMMUNICATION TO MINIMIZE AND BALANCE SAR IN 5G

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Abstract- Despite years of intensive research on various elliptical identification techniques, robots still struggle to accurately and effectively detect ellipses in the actual environment. The capacity to swiftly and accurately detect ellipses in real-world images is a powerful analytical tool for 41 computer vision applications. Ellipse detection is used in many different disciplines, including road sign recognition and classification, automatic cell segmentation in microscope photographs, item segmentation in industrial applications, and wheel identification. Real-time monitoring of circles or ellipses and vision-based autonomous landing detection are essential for many real-world applications, especially those involving robots. Since elliptical forms make up a large portion of the landing zones for aerial robots in this application, autonomous vehicles must first detect round landmarks. Ellipse detection is one of the common tasks with a lengthy history that is still unresolved. 25 For practical robotics applications, we provide a novel approach for the real-time recognition and tracking of elliptic patterns. Every contour in the picture frame is fitted with an ellipse by the procedure, which discards ellipses that don't fit well. The resulting detection and tracking system can handle differences in lighting, is light enough to run on the resource-constrained onboard computers of robots, and can recognise the pattern even in partial views. 49 The technique is evaluated on a simulated robotics activity in an indoor and outdoor environment and on an autonomous UAV landing on a swiftly moving vehicle.

Keywords- *Specific Absorption Rate (SAR) value, EMF effect, Multi hop packet routing, 5G systems.*

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HEART DISEASE PREDICTION USING MACHINE LEARNING

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Abstract-Heart attack is also known as a myocardial infarction. when the flow of blood that brings oxygen to a part of your heart muscle suddenly becomes blocked. The main cause of heart attacks is CHD (coronary heart disease). Heart attack occurs when one or more coronary arteries blocked. Factors associated with increased risk of a heart attack include: Age, High cholesterol levels, Diabetes, Genetics, Heart surgery, High blood pressure, Obesity, Consumption of tobacco in any form either chewable or smoked, Extreme stress.

Symptoms: Discomfort in the chest region, Arm, Left side excessive sweating, Shortness of breath, Nausea, Vomiting, Dizziness. Blood tests, Electro cardiogram (ECG or EKG), Stress tests, Coronary calcium scan, Genetic testing these are the medical solutions to predict heart attack. Machine learning is to support to predict heart attack by analyzing various risk factors and patterns in data. Here Data collection, Feature selection, Model training, Risk assessment, Early detection, Continuous monitoring, Research and Development are supported. There are numerous existing algorithms in machine learning like Support Vector Machines (SVM), K-Nearest Neighbors (KNN), Linear regression, Logistic regression, Decision tree, Gradient boosting machines (GBM). We proposed algorithm is to improve high accuracy and Random Forest Classifier and Gradient boosting machines (GBM).

Keywords-Machine Learning, Heart Disease, Prediction, Detection

AUTO CORRELATION-BASED SPECTRUM SENSING OF FBMC SIGNAL

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Abstract-We propose a novel modulation scheme that combines the advantages of filter bank multi-carrier (FBMC)-offset quadrature amplitude modulation and single-carrier frequency division multiple access (SC-FDMA). Building upon a conventional FBMC system, we develop a novel precoding method based on a pruned Discrete Fourier Transform (DFT) in combination with one-tap scaling. The proposed technique maintains the same peak-to-average power ratio as SC-FDMA but eliminates the need for a cyclic prefix and significantly reduces out-of-band emissions. Furthermore, our method restores complex orthogonality, and dramatically decreases the ramp-up and ramp-down period of FBMC, enabling low-latency transmissions. Despite the added sophistication, the computational complexity of our scheme is only two times higher than pure SC-FDMA. Simulations conducted over doubly selective channels validate our claims, further supported by providing downloadable MATLAB code. It's worth noting that pruned DFT- spread FBMC can equivalently be interpreted as a modified SC-FDMA transmission scheme, particularly with less strict requirements on the prototype filter compared to conventional FBMC systems.

Keywords-*Autocorrelation, cognitive radio, FBMC signal, feature detector.*

UNDER WATER WIRELESS COMMUNICATION USING MATLAB WITH MODEM

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Abstract: Cellular communication over the earth is far different from communication underwater because a single water body like an ocean has different water columns existing throughout its regions. A transmitter-receiver pair developed to work at deep sea level won't work in shallow coastal regions because the properties of the water column present between the transmitter and receiver will be completely different and vice versa. The diversity of water bodies is what makes the implementation of communication links more challenging. As of now, acoustics is the most promising method employed to establish a UWC link. But this method is hindered by the multipath phenomenon, which introduces a large delay in spread. This in turn will result in inter symbol interference (ISI), consequently degrading the system's performance. Employing the OFDM technique will reduce the delay spread. OFDM, paired with IDMA, provides a superior technique to reduce error bursts in multi-access underwater applications. A Simulink model for IDMA-OFDM is presented in this paper. Its performance was observed on the BER graph, which displayed a BER v/s SNR plot.

Keywords: *underwater communication, wireless, orthogonal frequency division multiplexing (OFDM), interleave division multiple access (IDMA).*

THE IMPLEMENTATION OF Novel MAGNETIC MATERIALS IN LOGICAL STORAGE DEVICES – A NOVEL APPROACH IN SINKING POWER DISSIPATION

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Abstract

In the past, due to less device density and the operation speed, power dissipation might not be considered as a major issue. As the processors are implemented with more transistors to improve the operating frequency power dissipation started playing important role. Design of low power, high performance CMOS circuits is a big challenge. So, it is very essential to go for an alternative to transistor memory device. Due to the exclusive Optical, physical, magnetic and chemical properties, Nanomaterials are proven as an intense tool for industrial research for the past decade, Nanoscaled magnetic materials have sensitive magnetic properties which includes their parity at nanoscale. Spintronics is one of the crucial areas of nanotechnology playing predominant role in storage devices. The alternatives for the conventional transistor-based memory devices with novel magnetic materials are magnetic memory devices such as magnetic bubble memory, Magnetic Random-Access Memory (MRAM) and Magnetic Quantum-dot Cellular Automata. All the above rely on the property of alignment of spins in ferromagnetic material. As the name implies, the magnetic bubble memory has cylindrical magnetic domains for data storage whereas MRAM involves multidomain and Magnetic QCAs uses single magnetic domain to store the data, in this article the three memory devices are being compared on basis of the construction, functioning, advantages and disadvantages

Keywords: Bubble memory, MRAM, Magnetic QCA, Power dissipation, Ferromagnetic materials.

TRANSFORMERLESS HYBRID DC-DC CONVERTER WITH HIGH VOLTAGE GAIN

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Abstract-DC-DC converters with enhanced voltage capabilities are essential for high-power conversion applications. This study introduces a novel non-isolated high-gain high-power DC-DC converter, derived from a basic high-gain high-power converter design. The proposed converter features a three-phase interleaved boost converter, a coupled inductor, and a voltage multiplier cell that serves as the gain extension stage. Key attributes such as voltage gain, stress on switches and diodes, turns ratio, component utilization factor, and efficiency are analyzed. These converters, which can vary in component count to achieve higher gains, are ideal for renewable energy applications, electric vehicles, and micro-inverter applications. The effectiveness of the proposed design is demonstrated through comprehensive experimental studies.

Keywords- Boost converter, DC-DC converter, High voltage gain, Hybrid, Transformer less

ENHANCING SMART GRIDS WITH A NEW IOT AND CLOUD-BASED SMART METER TO PREDICT THE ENERGY CONSUMPTION WITH TIME SERIES

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Abstract: The project is aimed to design an embedded prepaid energy meter to avoid the late bill payments of electricity bill. The project is designed in such a way that the microcontroller will be interfaced to the GSM as well as to the energy meter. Here the GSM interfaced to the controller will be used to enter the recharge amount, as it is a prototype for the real system. An LCD will also be interfaced to the controller and will display the details of the amount recharged. The energy meter will be connected to the loads and the microcontroller can read pulses from energy meter. This energy meter gives pulses depends upon power consumption and the amount will get deducted based on the power consumption. Whenever the amount reaches to zero the system won't allow the loads to run by automatically switching of the relay. Here a buzzer will also be provided SMS to user to recharge. This project uses regulated 5V, GSM, 12v adaptor power supply. Full wave bridge rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

Keywords- *Voltage Converter (Max232), GSM (Global Service for Mobile Communication), Relay(electromagnetic), Energy Meter.*

MULTI PURPOSE HUMAN FOLLOWING ROBOT

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Abstract- This project presents the development of a versatile robotic system termed "Human Following Robot" (HFR) designed to assist users by autonomously tracking and following human subjects while incorporating various modes of operation. The system integrates multiple functionalities including line following, obstacle avoidance, Bluetooth communication, IR remote control, and human following capabilities. The HFR utilizes advanced sensors and control algorithms to navigate its environment efficiently and safely. By employing line following and obstacle avoidance mechanisms, the robot can autonomously traverse predefined paths and avoid obstacles in its vicinity. Additionally, the integration of Bluetooth and IR remote control enables users to interact with the robot remotely, providing flexibility and convenience in operation. The distinguishing feature of the HFR is its human following mode, which utilizes computer vision and machine learning techniques to detect and track human subjects in real-time. This mode allows the robot to autonomously follow a designated human target, making it suitable for applications such as personal assistance, surveillance, and entertainment. Overall, the Human Following Robot project demonstrates the successful integration of various technologies to create a versatile and intelligent robotic system capable of serving a wide range of practical purposes in different environments.

Keywords- LRF, microcontroller, Arduino uno, accelerometer, acoustic signal.

PERFORMANCE ANALYSIS OF A 175KW ROOFTOP PHOTOVOLTAIC SYSTEM ESTABLISHED AT SITAMS, CHITTOOR

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Abstract- This work presents a performance analysis of a 175KW rooftop photovoltaic (PV) system established at Sreenivasa Institute of Technology and Management Studies, Chittoor. Rooftop PV systems have emerged as significant contributors to renewable energy generation, particularly in educational institutions aiming for sustainable practices and energy independence. The primary objective of this research is to assess the operational efficiency and effectiveness of the rooftop PV system through comprehensive performance analysis. The study evaluates various performance metrics, including energy generation, capacity utilization factor, system uptime, and reliability. Additionally, factors such as solar irradiance, temperature variations, and system configuration are considered to understand their impact on the system's performance. Data collection and analysis techniques, including real-time monitoring, data logging, and statistical analysis, are employed to gather information on the system's performance over a specific timeframe. The findings of the performance analysis provide insights into the system's overall performance, identify potential areas for improvement, and inform decision-making regarding maintenance, optimization, and future expansions. By conducting this performance analysis, we aim to contribute to the optimization and enhancement of the rooftop PV system at Sreenivasa Institute of Technology and Management Studies. The results of this study can guide stakeholders in implementing strategies to maximize energy generation, improve system reliability, and achieve long-term sustainability goals. Furthermore, the findings can serve as valuable inputs for similar PV installations, facilitating informed decision-making and promoting the widespread adoption of solar energy technologies.

Keywords- Photovoltaic power system, performance analysis, performance ratio, capacity utilization, system uptime, reliability.

SMART LIGHTING CONTROL SYSTEM THROUGH MOBILE APPLICATION

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Abstract- The rapid advancement of technology has led to significant improvements in home automation systems, with smart lighting control being a prominent feature. This paper presents the design and implementation of a smart lighting control system that is operable via a mobile application. The system aims to enhance energy efficiency, user convenience, and overall lighting management in residential and commercial environments. The proposed system utilizes a combination of wireless communication technologies, sensors, and a user-friendly mobile interface. Key components include motion sensors, ambient light sensors, and smart bulbs, all of which are integrated and managed through a centralized control unit. The mobile application allows users to remotely control and schedule lighting, adjust brightness and color temperature, and monitor energy consumption in real-time. The system's architecture is built on Internet of Things (IoT) principles, ensuring seamless communication between devices and the mobile application. The use of cloud-based services ensures scalability and robust data management. Security measures are implemented to protect user data and system integrity. Experimental results demonstrate the system's effectiveness in reducing energy consumption and enhancing user satisfaction. The smart lighting control system provides a flexible and efficient solution for modern lighting needs, paving the way for more advanced and interconnected home automation technologies.

Keywords: *Smart lighting, mobile application, home automation, energy efficiency, IoT, wireless communication.*

DESIGNING ACCURATE MODEL AND COMPARATIVE ANALYSIS OF 175KW GRID CONNECTED PV SYSTEM ESTABLISHED AT SITAMS, CHITTOOR

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Abstract- This work presents a performance analysis of a 175KW rooftop photovoltaic (PV) system established at Sreenivasa Institute of Technology and Management Studies, Chittoor. Rooftop PV systems have emerged as significant contributors to renewable energy generation, particularly in educational institutions aiming for sustainable practices and energy independence. The primary objective of this research is to assess the operational efficiency and effectiveness of the rooftop PV system through comprehensive performance analysis. The study evaluates various performance metrics, including energy generation, capacity utilization factor, system uptime, and reliability. Additionally, factors such as solar irradiance, temperature variations, and system configuration are considered to understand their impact on the system's performance. Data collection and analysis techniques, including real-time monitoring, data logging, and statistical analysis, are employed to gather information on the system's performance over a specific timeframe. The findings of the performance analysis provide insights into the system's overall performance, identify potential areas for improvement, and inform decision-making regarding maintenance, optimization, and future expansions. By conducting this performance analysis, we aim to contribute to the optimization and enhancement of the rooftop PV system at Sreenivasa Institute of Technology and Management Studies. The results of this study can guide stakeholders in implementing strategies to maximize energy generation, improve system reliability, and achieve long-term sustainability goals. Furthermore, the findings can serve as valuable inputs for similar PV installations, facilitating informed decision-making and promoting the widespread adoption of solar energy technologies.

Keywords-Photovoltaic(PV), Grid connected system, solar energy, inverter design , performance analysis

AUTOMATIC POWER FACTOR CORRECTION FOR SINGLE PHASE DOMESTIC LOADS BY USING TRIAC CONTROL OF CAPACITOR BANKS

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ABSTRACT - This paper presents the simple and low-cost design of an automatic power factor correction(APFC)system for single phase domestic loads. The proposed design uses TRIACs to switch the capacitor banks in order to correct the power factor of inductive loads. TRIACs are more effective than electro mechanical relays and hit the high-performance bench marks. The switching of TRIACs is controlled by an Arduino board.The Arduino is programmed to non-stop monitor and calculate the power factor of the connecting load by sensing the signal from CT,PT and zero cross detectors (ZCDs),and keep the power factor of the load above the reference value (0.9) by appropriately energizing the capacitors in parallel to the connecting load through TRIAC switching. The values of power factor along with the current before and after improvement is displayed on LCD. The hardware prototype of the proposed APFC design is also developed to validate its operation. The satisfactory and acceptable results of the APFC system testing have confirmed that the suggested design yields a reliable output and can be further used in any single phase practical application to ensure the power factor close to unity.

Keywords - Automatic, Power factor, Single phase, Domestic, TRIAC, Capacitor bank.

MULTIPHASE INTERLEAVED CONVERTER BASED ON CASCADED NON-INVERTING BUCK-BOOST CONVERTER

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Abstract- The project introduces an interleaved buck-boost converter with reduced power electronics devices. The proposed converter consists of a single buck converter followed by n parallel interleaved boost converters. The buck switch is gated only if any of the boost switches is gated. In addition to the reduced switches count, the proposed converter offers the following advantages, soft start-up and shutdown capabilities. In addition, the buck stage gives the ability to protect the power electronic devices and to isolate the supply during load failure or overload. Moreover, the proposed converter performs as an interleaved boost converter for high voltage gain requirements with the Same switching scheme. Furthermore, it offers fast dynamic performance with smooth transition from the buck mode to the boost mode.

Keywords- *Interleaved buck-boost converter, ac-dc converter, and dc-dc converter.*

IMPLEMENTATION OF DUAL CONTROL MAXIMUM POWER POINT TRACKING BASED DC TO DC CONVERTER FED SOLAR PV POWER APPLICATION

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Abstract-This article presents an effective power extraction methodology from photovoltaic (PV) with a front end dc–dc Resonant converter with dual control. Usually, conventional dc–dc boost converter shows lower efficiency and extra components for soft-switching. Furthermore, converter power transfer efficiency for PV integration is limited. Hence, to address these challenges this article investigates an isolated dc–dc resonant converter with proposed control to attain wider voltage regulation with maximized PV power generation. In addition, this converter can achieve zero-voltage switching under wider operating loads. The proposed control method improves the efficiency even under light load condition without effecting digital-signal- processor resolution.

Keywords:- solar panel, DC-DC converter ,PIC controller

INDOOR INTRUSTION DETECTION SYSTEM USING RASPBERRY PI

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Abstract- With the increasing demand for comprehensive yet affordable home security solutions, we present a pioneering approach utilizing Raspberry Pi's capabilities. Our novel system constitutes an intelligent home surveillance framework engineered to swiftly detect and respond to intrusions. Harnessing the integration of a camera module, Raspberry Pi effectively captures images of unauthorized access, triggering an immediate alarm via a buzzer. Furthermore, the system ensures the secure storage of captured video footage on an SD card, facilitating subsequent investigations or reporting procedures. This article provides a comprehensive overview of the architecture, functionality, and practical implementation of our surveillance system, underscoring its potential to elevate home security standards while remaining accessible to diverse user demographics.

Keywords- *Surveillance system, Raspberry pi ,Capture image, video recording*

A SEVEN-LEVEL MULTI INVERTER WITH DC-DC BOOST CONVERTER FOR GRID INTERGATION OF HIGH VOLTAGE GAIN SYSTEM

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Abstract- This project involves a dynamic single-dc-source, seven-level (7L) inverter configuration. Increase in voltage for use in solar energy systems. The suggested circuit is formed by connecting the two DC-DC converter Using boost converters in a series for discharging and in parallel for charging. The limited set model .A predictive controller is utilized to provide the highest possible power to the load. More information available information is given on the mathematical representation of volt-ampere balances. Advantages of the suggested layout for the current PV inverters is emphasized, showcasing its superior performance. Through experimental confirmation through the testing of a laboratory equipment configuration, and enhancement in power reliability. A 96.7% efficiency rate is assured. The results are demonstrated by a number of variables, including load fluctuations, modulation index variation, etc.

Keywords -Boost, double-stage, grid-connected, inverter, high-voltage gain.

ENHANCED POWER MANAGEMENT SCHEME FOR GRID-TIED SOLAR SYSTEMS

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Abstract: In response to the escalating energy demands and the imperative shift towards sustainable practices, this project addresses the critical need for efficient power resource utilization. By focusing on a grid-tied system powered by solar energy, the implementation of an intelligent power management control scheme becomes paramount. The use of a Neuro Fuzzy logic algorithm optimizes the extraction of maximum power from the photovoltaic (PV) system, contributing to overall grid efficiency.

Furthermore, the integration of a Luo converter, a high efficiency DC-DC converter with voltage gain capabilities, enhances the voltage levels of the PV system's output. This strategic combination ensures that renewable energy sources are not only harnessed effectively but also contribute to the reliability and stability of the grid.

Keywords— *Battery energy storage system (BESS), Central- ized energy management scheme (CEMS), DC microgrid, Load shedding, photovoltaic (PV) system.*

BUCK-BOOST CONVERTER USING EFFICIENT USING DC-DC CONVERSION SYSTEM

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Abstract- The design and analysis of a buck-boost converter using efficient DC-DC conversion system. The converter topology allows for both step-down (BUCK) and step-up (BOOST) voltage regulation, making it suitable for applications where the input voltage is 9-12 volts and output voltage is 5-50 volts, approximately 5Amps. A hardware model will be developed and efficiency will be estimated. The buck-boost converter offers a versatile solution for power management in a range of electronic devices and renewable energy systems.

Keywords- Buck-Boost Converter, DC-DC Power Conversion, Step-Down, Step-Up, Voltage Regulation, Control Strategy, Power Management.

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HIGH STEP-UP THREE- PORT CONVERTER FOR RENEWABLE ENERGY SYSTEMS

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Abstract: Off-grid stations are power systems that operate independently of the main power grid. These systems can use a variety of renewable energy sources such as solar, wind, and hydropower to generate electricity. This project presents a self-sufficient solar energy system, where a solar panel is integrated with a self-lift Luo converter. The core of this system is a meticulously optimized Proportional-Integral (PI) controller, finely tuned for efficient energy conversion and delivery to the load. To maximize the power extraction from the solar panel, a self-lift Luo converter is employed. This converter, known for its versatility and efficiency, is specially configured for standalone applications, providing reliable and regulated power. The key innovation lies in the utilization of an optimized PI controller. The PI controller is intricately tuned to ensure precise and dynamic control over the proposed converter. This results in optimal energy transfer from the solar panel to the load, enhancing the overall system performance. The self-contained nature of the system, coupled with the optimized control mechanism, contributes to increased reliability, efficiency, and adaptability. The project showcases the potential of integrating advanced control techniques with renewable energy systems, paving the way for robust and intelligent standalone power solutions.

Keywords—*Three-port converter, coupled inductor, high voltage gain, renewable energy system.*

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POWER SAVING FOR ELECTRIC VEHICLES BY USING ARDUINO

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Abstract- Electric vehicle is one the indispensable element in fighting the climate change and air pollutions. But the limitations in the development of the electric vehicle like limited number of charging stations, and limited storage capacity of batteries, and lack of proper infrastructure it restrict. In the process of clearing the hurdles, we developed the power saving system to act as a backup system in electric vehicles when battery power reaches below the minimum level. This will help the user to cover maximum distance possible with the remaining battery power. The battery power level given by the programs and sensors in the vehicles will be fed to the controller. This microcontroller will control the different electronic control units in the vehicle so that the remaining power is completely used for the purpose of driving alone.

Keywords- *Arduino, Battery, Voltage Sensor, Temperature Sensor, LCD, LED.*

ACCIDENT DETECTOR BY USING LIGHT FIDELITY TECHNOLOGY

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Abstract- Vehicle to vehicle data transmission is a small-scale prototype using light fidelity (Li-Fi) technology, a new technology that was developed in the last few years. Vehicle to Vehicle communication is the most effective solution we have used in order to reduce vehicles accidents. In Li-Fi technology for vehicle-to-vehicle data transmission we use LED. The system also avoid accidents and traffic congestion. We employ Light Fidelity for data communication among vehicles. The proposed use of Li-Fi technology comprises mainly light emitting diode bulbs as means of connectivity by sending data.

Keywords- Light emitting diode, Transmitter, Receiver, MEMS sensor, LDR sensor, Ultrasonic sensor, LIFI module.

SOLAR-POWERED MULTIFUNCTIONAL AGRICULTURAL ROBOT WITH REMOTE OPERATION

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Abstract - The Solar-powered remote operated multipurpose agriculture robot (SPROMAR) presents an innovative solution for modern agriculture practices. this project aims to design, fabricate, and develop a versatile robot capable of plowing soil, seeding, watering ,and grass cutting. The entire system operates on a combination of battery and solar power, ensuring sustainable and environmentally friendly operation .control of the vehicle is facilitated through an infrared remote, providing ease of operation and flexibility in agricultural tasks. SPROMAR represents a significant advancement in agricultural automation, offering increased efficiency and sustainability. This abstract proposes a novel solution in the form of a solar-powered, remote-operated multipurpose agriculture robot. The robot is designed to perform various tasks such as planting, weeding, watering, and monitoring crop health autonomously or under remote human supervision. By harnessing solar power, the robot operates with minimal environmental impact and reduced dependency on fossil fuels. Its remote operation capabilities allow farmers to manage their fields efficiently from anywhere, enhancing productivity and reducing labor costs. This abstract outlines the design, functionalities, and potential benefits of the proposed solar-powered remote-operated multipurpose agriculture robot in revolutionizing modern farming practices.

Keywords -Solar Panel , DC Motor , Battery: GSM Kit.

DYNAMIC WIRELESS CHARGING FOR EV USING SOLAR ENERGY

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Abstract: This paper details the planning and design of a solar-powered charging for electric vehicles, The Solar Powered Wireless Electric Vehicle (EV) Charging System represents an innovative solution at the intersection of renewable energy and transportation technology. By harnessing solar energy through photovoltaic panels and employing wireless charging technology, this system enables efficient and eco-friendly charging without the need for physical cables or connectors. Key components include solar panels, a charge controller, battery storage, wireless charging infrastructure, and smart monitoring systems. Traditional charging methods often rely on grid electricity predominantly sourced from non- renewable energy sources. However, the Solar Powered Wireless EV Charging System breaks away from this dependence by harnessing abundant solar energy. These solar panels serve as the primary energy source, converting sunlight into electricity used to charge electric vehicles. The system promotes energy independence, reduces carbon emissions, and enhances user convenience across residential, commercial, public, fleet, and remote settings. Future advancements may include integration with smart grids, autonomous charging, energy sharing networks, and environmental monitoring.

Keywords- *wireless charging, wireless charging road, electric vehicle, inductive coupling.*

MICRO-HYDRO POWER PLANT POWER MONITORING USING IOT

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Abstract: This study proposes a novel approach for monitoring the electrical output power of micro hydro power plants using Internet of Things (IoT) technology. The integration of IoT devices enables real-time data collection and analysis, allowing for efficient monitoring and management of the power generation process. By implementing sensors to measure electrical output power and transmitting this data wirelessly to a central system, operators can remotely monitor the performance of micro-hydro power plants. This facilitates timely detection of anomalies and optimization of power generation, leading to increased reliability and sustainability of renewable energy sources. The proposed system offers a cost-effective solution for enhancing the operation and maintenance of micro-hydro power plants, contributing to the advancement of renewable energy technologies.

Keywords- *Micro-hydro power plant , Internet of Things (IoT),Electrical output power monitoring ,Renewable energy ,Sensor technology.*

THREE PHASE LOAD BALANCING DISTRIBUTION SYSTEM USING REALY AND MICROCONTROLLER

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Abstract- This paper proposes an enhanced approach to three phase load balancing in distribution systems by utilizing the relays controlled by the microcontroller. In traditional systems, load balancing is typically achieved by distributing the load evenly across all phases. However, this approach often fails to account for dynamic changes in load distribution leading to inefficiencies and potential system failures. The proposed system addresses this issue by implementing relays controlled by a microcontroller to actively monitor and adjust the load distribution in real time. When an imbalance is detected, the microcontroller triggers the appropriate relay to activate or deactivate the loads on specific phases and thus ensures the balance across all phases. Through experimental validation, it is demonstrated that the effectiveness of our approach in improving the system stability, efficiency and reliability.

Keywords- *Three-phase load balancing, Distribution Systems, Relay Control, System Stability, dynamic load distribution.*

FAULT IDENTIFICATION IN TRANSMISSION LINE USING WIRELESS TECHNOLOGY

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ABSTRACT: This abstract outline a wireless transmission line fault detection system employing Node MCU, Arduino Uno, and an array of sensors including GPS, fire sensor, and push button switches. It aims to revolutionize fault detection processes along transmission lines by providing real-time fault location data, immediate response mechanisms, and comprehensive fault simulation capabilities. The system leverages Node MCU's wireless connectivity to facilitate seamless communication between components, enabling operators to remotely monitor and manage transmission infrastructure. Upon detecting faults, such as fire or simulated scenarios via push button switches, the system triggers appropriate responses, such as load disconnection and alert notifications via buzzers. The integration of GPS allows for precise fault location visualization on an LCD display, enhancing situational awareness for quick and effective intervention. This system promises to enhance the reliability, efficiency, and safety of power transmission networks by enabling proactive fault detection and response measures. In addition to its fault detection capabilities, the proposed wireless transmission line system integrates with Thing Speak via Node MCU to provide real-time updates on load conditions. Leveraging Thing Speak's platform, the system transmits crucial data regarding load status, enabling remote monitoring and analysis of transmission line performance. This integration enhances the system's efficiency by enabling proactive maintenance and optimization strategies based on comprehensive load condition insights. By combining fault detection, immediate response mechanisms, and remote monitoring capabilities, this system offers a holistic approach to enhancing the reliability, efficiency, and safety of power transmission networks, ensuring timely intervention and minimizing downtime.

Keywords: *Micro controller, Node MCU, Thing Speak , GPS, Aurdino.*

GSM AND GPS-BASED VEHICLE TRACKING SYSTEM

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Abstract: This project utilizes an Arduino Uno along with an ATmega328P microcontroller to develop an anti-theft system tailored for automobiles. Integrated sensor modules such as GPS, GSM, and a microphone are employed to detect various security threats. The system monitors the car's location, triggers an alarm upon detecting suspicious activities, detects unusual sounds including infant cries, and monitors the vehicle's speed, issuing a warning if it exceeds a predetermined threshold. Furthermore, an SMS engine immobilization feature is incorporated to enhance security against theft and unauthorized usage.

Keyword: ATmega328P microcontroller, SMS engine, GPS, GSM

STRESSLEVELPREDICTIONUSINGMACHINE LEARNING BASED ON SLEEPING HABITS

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Abstract- The project “Stress Level Prediction Using Machine Learning Based on Sleeping Habits” presents a novel and effective approach to detect human stress levels by analyzing their sleeping habits. Leveraging the powerful capabilities of Python programming language, the study employs the Random Forest Classifier algorithm, known for its versatility and accuracy in classification tasks. The objective of this work is to develop a reliable stress detection system that can provide valuable insights into individuals: stress levels, enabling timely interventions and promoting better mental health. The dataset used in this study is carefully curated and comprises various essential parameters related to both sleep patterns and stress levels. These parameters include the user’s snoring range, respiration rate, body temperature, limb movement rate, blood oxygen levels, eye movement, the number of hours of sleep, heart rate, and stress levels categorized into five classes: 0 (low/normal), 1 (medium low), 2 (medium), 3 (medium high), and 4 (high). The inclusion of these diverse parameters ensures a comprehensive analysis of sleep patterns and their correlation with stress levels.

Keywords-Random Forest, Stress

FORESIGHT FRONTIER: AN APPROACH TO PREDICT LUNG CANCER DISEASE USING CNN

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Abstract—Early detection of lung cancer remains a challenge, hindering successful treatment. This study explores the development of a Convolutional Neural Network (CNN)-based system for lung cancer prediction using CT scans. Deep learning offers substantial potential for medical image analysis, and CNNs excel at extracting intricate patterns. Our CNN system aims to analyze CT scans and identify subtle abnormalities indicative of early-stage lung cancer. This approach has the potential to: 1. Improve Early Detection: Early identification of lung cancer can significantly increase the likelihood of successful intervention. 2. Enhance Efficiency: Automating image analysis with CNNs frees up medical professionals' time for diagnosis and treatment planning. Increase Accuracy: CNNs demonstrate high accuracy in image recognition, leading to more reliable predictions. This paper contributes to the advancement of personalized medicine by enabling earlier and more precise diagnoses. Furthermore, it supports targeted screening programs and better resource allocation, thereby positively impacting population health strategies. In this paper, we evaluate our CNN system's performance and discuss its potential to transform lung cancer diagnosis and treatment. By integrating this technology into clinical practice, we aim to improve patient outcomes and create a more responsive and efficient healthcare system.

Keywords—CNN, Accuracy, Prediction, MaxPooling, OpenCV, Data Visualisation, Cancer, TensorFlow, Matplotlib

DAILY ROUTINE HUMAN ACTIVITY RECOGNITION

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Abstract -The primary goal of this project is to design, implement and evaluate a robust machine learning model recognizing the activities such as general-purpose. The process of continuously monitoring a person's activity and movement is called activity recognition. A self-guided practice framework that enables individuals to accurately learn and practice without assistance of others can be constructed using human posture recognition. We propose a method for efficiently and effectively identifying and recognizing various activities that makes use of deep learning algorithms. As a deep learning model, images of various activities have been used to identify them using a convolutional neural network (CNN) that is VGG16 and a long short-term memory (LSTM) model. The main goal is to develop an accurate and versatile human activity recognition system. Integrate advanced machine learning techniques for robustness. This project is to enhance the temporal analysis capabilities for dynamic activities. Here we improve recognition accuracy across diverse scenarios and postures. We also enable real-time deployment for practical applications. The datasets are sourced from kaggle, a prominent platform for deep learning project.

Keywords -VGG16, long short term memory, Convolutional Neural Network.

HUMAN EMOTION DETECTION USING DEEP LEARNING

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Abstract—Human-computer interaction technology refers to a kind of technology which takes computer equipment as the medium, to realize the interaction between human and computer. Human emotion detection has been a common nowadays. Recognizing emotions from images or videos is an easy task for human eye, but it is very difficult for machines to provide it and it requires many images processing techniques for feature extraction. so here we are introducing a CNN model to train the dataset and a harrcascade algorithm for the object detection. With the help of CNN an input image is filtered through convolution layers to produce a feature map. The Facial expressions are nonverbal form of communication. There are eight universal facial expressions which include: neutral, happy, sadness, anger, contempt, disgust, fear, and surprise. The main motive of this proposed system is to detect the expressions.

Keywords- *CNN, Emotion Detection, Haarcascade*

EFFICIENCY TRACEABLE AND PRIVACY DATA ACCESS AND CLOUD STORAGE

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Abstract - Secure distributed storage, an emerging cloud administration, is meant to protect the confidentiality of revaluated information while also providing flexible information access to cloud clients whose data is out of their control. CP-ABE (it may be a Cipher text-Policy Attribute-Based Encryption) is regarded as one of the most promising approaches for obtaining assurance of the assistance. Despite this, the usage of CP-ABE may end in an unavoidable security breach known as abuse of access accreditation. Thanks to CP-inbuilt ABE's "go big or go home" decoding component, (for example, unscrambling freedoms).We investigate two major cases of access qualification abuse during this paper: one on the side of semi-believed power, and therefore the other in favour of cloud clients. To combat abuse, we present Crypto Cloud+, the primary responsible power and revocable CP-ABE based distributed storage framework with white-box discernibility and inspection. We also provide the safety investigation and use analysis to demonstrate the utility of our methodology.

Keywords - Cloud, Cipher text, CP-ABE.

STREAMLINING E-AUCTION PROCESS

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Abstract—This paper presents an innovative approach to improving the Online auction system. An online auction project that holds online auctions of various products on a website and serves sellers and bidders accordingly. The system is designed to allow users to set up their products for auctions and bidders to register and bid for various products available for bidding. "E Auction" is an online auction web site aimed at taking the auction to the fingertips of aspiring bidders there by opening up the doors of the "OPEN Auction House" to a wider cross section of Art Lovers and Antique Collectors. This site also acts as an open forum where buyers and sellers can come together and exchange their products. The site makes sure that the sellers get a fair deal and buyers get a genuine product. Our proposed system is defined by the slogan AAA, 'Anyone, Anytime, Anywhere' . That what it really is? The "E Auction" is online auction so the seller or bidder doesn't need to go anywhere, instead they can take part in the auction just sitting in the comfort of their living room, be it during the day or night.

Keywords—Online auction system, Seller, Bidder, Accessibility.

PREDICTION OF CARDIOVASCULAR DISEASES WITH RETINAL IMAGES USING DEEP LEARNING

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Abstract-Cardiovascular diseases (CVDs) are a leading cause of mortality worldwide. Early detection and accurate diagnosis of CVDs are crucial for effective intervention and improved patient outcomes. Retinal imaging has emerged as a non-invasive and cost-effective technique for CVD prediction. This study aims to develop a deep learning model using convolutional neural networks (CNNs) and Mobile Net architecture to predict CVDs from retinal images. The proposed model leverages the capabilities of CNNs to automatically learn relevant features from retinal images and Mobile Net's lightweight design for efficient deployment. A large dataset of retinal images, including healthy individuals and CVD patients, is utilized for model training and evaluation. The retinal images are pre-processed, including resizing, normalization, and augmentation techniques, to enhance data quality and diversity. The CNN model architecture is designed, incorporating Mobile Net as the base network and additional layers for adaptation to the specific CVD prediction task. Through extensive training and optimization, the model learns to accurately classify retinal images as either indicative of CVD presence or absence. Performance evaluation is conducted using standard metrics such as accuracy. The developed deep learning model demonstrates promising results in predicting CVDs from retinal images, offering potential benefits in early detection, risk assessment, and cost-effective diagnosis. This model has the potential to support healthcare professionals in making informed decisions, enabling timely interventions and preventive healthcare strategies. Further validation and integration into clinical settings are warranted to fully assess its clinical utility and impact on patient care.

Keywords-Retinal images and Deep Learning Algorithm.

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AUTOMATED CHEST X-RAY IMAGE CLASSIFICATION USING MANTA RAY OPTIMIZATION WITH DEEP LEARNING

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Abstract—Chest Xray imaging is a cornerstone diagnostic tool in medicine, offering critical insights into a multitude of thoracic diseases. However, the manual classification of these images is resource intensive and subject to human error. To enhance accuracy and efficiency, we propose an automated classification system using a novel integration of Manta Ray Optimization (MRO) with a deep learning approach. This study utilizes the VGG19 neural network for robust feature extraction, followed by a Convolutional Neural Network (CNN) for model building and classification. The MRO algorithm, inspired by the foraging behaviour of manta rays, optimizes the weight adjustments in the training phase of the CNN, aiming for a higher precision in classification tasks. Our system was trained and tested on a substantial dataset of chest X-rays, demonstrating superior performance over traditional methods, with significant improvements in accuracy, sensitivity, and specificity. The results of this research indicate that the application of MRO in deep learning frameworks could be a transformative step in medical image analysis, paving the way for more reliable and swift diagnostic procedures and it classifies as Bacterial Pneumonia, Corona Virus, Normal, Tuberculosis, Viral Pneumonia.

Keywords—Chest X-ray Analysis, Manta Ray Optimization (MRO), Deep Learning, VGG19 Feature Extraction, Convolutional Neural Networks (CNN).

PREDICTING BRAIN STROKE RISK: USING CNN AND MLP CLASSIFIERS

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Abstract—The brain, which is encased by the skull and consists of the cerebrum, cerebellum, and brainstem, is a tremendously complicated and fascinating organ in the human body. Stroke is the world's second greatest cause of death, so it must be treated as soon as possible to avoid brain damage. Early identification of a brain stroke can help to avoid or minimise the severity of the stroke, potentially lowering mortality rates. A promising strategy is to use machine learning algorithms to identify risk variables. This research provided a model that contained an approach for predicting brain strokes accurately. To ensure the effectiveness of our suggested model, efficient data collecting, data pre-processing, and data transformation approaches have been used. A brain stroke dataset was employed to build up the model. The standardization technique is used to standardize data. In the training and testing procedure, KNN, Logistic Regression, Naïve Bias, Decision Tree, Random Forest, MLP, SVC, CatBoost, Hybrid Model classifiers are applied. The performance of each classifier has been estimated by adopting performance evaluation metrics such as accuracy, sensitivity, error rate, false-positive rate, false-negative rate, root mean square error, and log loss. Based on the outcome while using the RF classifier, we can determine that our proposed model provided the maximum accuracy.

Keywords—KNN, Logistic Regression, Naïve Bias, Decision Tree, Random Forest, Multi-layer perceptron (MLP), SVC, CatBoost, Hybrid Model.

CROP RECOMMENDATIONS SYSTEM USING MACHINE LEARNING

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Abstract - This paper presents an innovative approach to improving agricultural productivity through the implementation of a data-driven crop recommendation system using Machine Learning Algorithms. In the face of evolving climate patterns and increasing demand for food security, traditional farming practices are proving insufficient to meet global needs. Our proposed system leverages machine learning algorithms and agricultural data to provide personalized recommendations to farmers in large scale farming taking into account factors such as soil quality and climate conditions. Through extensive experimentation and validation, we demonstrate the efficacy of our approach in optimizing crop selection, thereby enhancing yields and profitability for farmers. By harnessing the power of technology and data analytics, our system represents a promising step towards sustainable and efficient agricultural practices in the modern era. Input dataset is taken from the Kaggle and the comparative analysis has been performed on the input dataset using multiple Machine Learning algorithms out of which Random Forest classifier gave the best performance, so it is used for model building.

Keywords-Validation, Accuracy, Climatic conditions, Random Forest.

TENDER VENTURE PROCUREMENT

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Abstract-Tender usually refers to the process whereby governments invite bids for large projects that must be submitted within a finite deadline. Tendering is the process of making an offer, bid or proposal, or expressing interest in response to an invitation or request for tender. A tender is a submission made by a contractor in response to an invitation to tender. It makes an offer for the supply of goods or services. Tender documents are prepared to seek offers. Tender documents may be prepared for a range of contracts, such as equipment supply, the main construction contract, demolition, enabling works, etc. This study proposes a machine-learning-inspired approach that can be used to predict the defects in a cost-effective manner. The outcome of such a prediction can help to assess which supplier is likely to offer best value for a specific project. This should also reduce tender costs. This paper summarizes the different methodologies used by various authors. Models based on Nearest-Neighbor and Decision Tree tends to perform well in CPDP. When a standard approach is applied for defect prediction, promising results can be obtained through continuous refinement of the prediction model using new commit data and by predicting whether any action introduced into an overture introduces a bug.

Keywords: *Accuracy, CPDP.*

MULTI-AGENT GROCERY EDGE CONTENT AND COLLABORATIVE RECOMMENDER WITH TASKOFFLOADING

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Abstract-The Multi-Agent Grocery Edge Recommender with Task Offloading project introduces an innovative AI-powered recommendation system tailored for e-commerce grocery platforms. This cutting-edge system combines content-based and collaborative filtering methods to deliver personalized suggestions to users, all within a user-friendly Flask web application interface. Through content-based analysis, the system delves into product descriptions, craft individualized recommendations based on each user's preferences on product. Additionally, collaborative filtering techniques identify behavioral patterns across users, further refining recommendations by taking into account the preferences of similar users or items. The recommendation engine seamlessly integrates into the Flask web application, providing users with an intuitive platform to explore grocery items, input preferences, and receive tailored suggestions. By merging machine learning with web development, this comprehensive solution aims to elevate the grocery shopping experience by offering relevant and enticing product recommendations. The inclusion of Multi-Agent Grocery Edge Recommender with Task Offloading signifies an advanced approach that optimizes computational resources by distributing tasks efficiently across edge devices, ensuring swift and responsive recommendation generation even in resource-constrained environments.

Keywords-Multi-Agent, Offloading.

ANDROID MALWARE DETECTION USING API CALLS

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Abstract- With the increase in the popularity of mobile devices, malicious applications targeting Android platform have greatly increased. Malware is coded so prudently that it has become very complicated to identify. Malware is any software intentionally designed to cause disruption to a computer, server, client, or computer network, leak private information, gain unauthorized access to information or systems, deny access to information, or which unknowingly interferes with the user's computer security and privacy. There are types of malwares like viruses, worms, spyware, and ransom ware etc. Given the harmful effects of malware on our cyber infrastructure, identifying malicious programs is an important goal. Thus, the static malware analysis alone is not enough for detecting it. However, dynamic malware analysis is appropriate to tackle evasion technique. So, for better detection and classification of Android malware this study proposes a Dynamic android malware detection using API calls using Conditional entropy and Nature inspired optimization algorithms such as Cat Swarm, Whale, and Firefly Optimizer are used for feature selection. Standard Dataset API call sequence dataset is used for experimentation. Classification algorithms such as Random Forest, K- Nearest Neighbor(KNN), Decision Tree, Naive Bayes, Nearest Centroid and Support Vector Machine(SVM) are used for comparison based on accuracy. Analysis of the above-mentioned dataset is done before and after feature selection.

Keywords- Malware, Conditional entropy, Random Forest, , K- Nearest Neighbor (KNN), Naive Bayes, Nearest Centroid and Support Vector Machine (SVM).

PHISHING URL DETECTION USING MACHINE LEARNING ALGORITHMS

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Abstract-Several approaches grounded on machine literacy and deep literacy have been proposed to develop defensive measures against colorful phishing attacks. lately, experimenters have shown that phishing attacks can be carried out using a deep neural network- grounded system called Deep Phish to induce phishing URLs. To help this type of attack, we're developing a machine literacy- grounded discovery system called Phish Haven that can descry both AI and mortal- generated phishing URLs. As far as we know, this is the first study to descry phishing attacks by both AI and mortal bushwhackers. Phish Haven uses verbal analysis for point birth. To further ameliorate verbal analysis, we introduce URL HTML rendering to classify URLs on- the- cover and proactively compare them with some of the being styles. We also introduce a URL hit approach to deal with bitsy URLs, which is an open problem that still needs to be answered. In addition, the final bracket of URLs is done via an unprejudiced voting medium in PhishHaven, which aims to avoid misclassification when the number of votes is equal. To accelerate the ensemble- grounded machine literacy models, PhishHaven uses a multithreaded approach to perform bracket in parallel, performing in realtime discovery. Theoretical analysis of our result shows that(1) it can always descry bitsy URLs and (2) it can descry unborn AI- generated phishing URLs grounded on our named verbal features with 100 delicacy. Through trials, we dissect our result with a standard dataset of, 000 phishing and normal URLs. The results show that PhishHaven achieves 98.00 delicacy, outperforming being verbal- grounded systems for detecting phishing URLs created by humans.

Keywords-AI- generated phishing URLs, ensemble machine literacy, mortal-machined phishing URLs, verbal features, multi-threading, bitsy URLs, URL HTML garbling, advancing.

BRAIN TUMOR DETECTION USING DEEP LEARNING

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Abstract-The motivation behind this study is to detect brain tumour and provide better treatment for the sufferings. The abnormal growths of cells in the brain are called tumours and cancer is a term used to represent malignant tumours. Usually CT or MRI scans are used for the detection of cancer regions in the brain. Positron Emission Tomography, Cerebral Arteriogram, Lumbar Puncture, Molecular testing are also used for brain tumour detection. In this study, MRI scan images are taken to analyze the disease condition. This research works on i) identifying the abnormal image ii) segmenting tumour region. Density of the tumour can be estimated from the segmented mask and it will help in therapy. Deep learning technique is employed to detect abnormality from MRI images. Multi level thresholding is applied to segment the tumour region. Number of malignant pixels gives the density of the affected region. Leveraging deep learning algorithms, our method achieves robust abnormality detection, enabling early diagnosis and intervention. Furthermore, employing multi-level thresholding facilitates accurate segmentation of tumor regions, facilitating the estimation of tumor density crucial for therapeutic decision-making. Our experimental results showcase the effectiveness of the proposed deep learning framework in assisting radiologists and clinicians in the early diagnosis and treatment planning of brain tumors. The proposed method holds great promise for improving patient outcomes and reducing the burden associated with brain tumor diagnosis and treatment.

Keywords-Brain tumors, MRI scans, abnormal growths, malignant tumors, CT scans, deep learning algorithms, tumor segmentation.

HEART ANALYSIS USING DEEP LEARNING

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Abstract-Deep learning techniques offer unprecedented potential for enhancing the accuracy and efficiency of heart disease diagnosis and analysis, crucially addressing the pressing need for reliable diagnostic tools in healthcare. This comprehensive review explores recent breakthroughs in deep learning-based methodologies tailored for heart analysis, emphasizing their utility in detecting cardiac abnormalities from various medical imaging modalities and predicting individualized heart disease risks. Despite significant progress, challenges persist in optimizing deep learning models for heart analysis, necessitating innovative approaches such as transfer learning and techniques for enhancing model interpretability. Looking ahead, the project aims to catalyse a paradigm shift in heart disease detection and analysis by leveraging the full capabilities of deep learning algorithms. Future directions underscore the importance of integrating multi-modal data sources and adopting personalized medicine strategies to enhance diagnostic accuracy and patient outcomes. Additionally, the potential of deep learning in facilitating real-time cardiac monitoring systems holds promise for revolutionizing cardiovascular healthcare delivery.

Keywords-Deep learning techs, user friendly, disease prediction, verbal features, neural networks, medical imaging, analysis, advancing.

NPHOENIEX VIRTUAL MART

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Abstract—The modern consumer seeks convenience and efficiency in their shopping experience. Phoenix Virtual Mart addresses this need by offering a comprehensive online platform encompassing a diverse range of products and services. This project aims to develop an all-encompassing virtual marketplace where users can seamlessly purchase clothing, electronics, video games, and even order food delivery – all within a single, user-friendly website. By integrating various functionalities typically found across multiple platforms, Phoenix Virtual Mart strives to become the go-to destination for consumers seeking a streamlined and holistic online shopping experience. This abstract will detail the design, development, and implementation strategies employed to create this multifaceted platform, exploring the technologies used and the solutions devised to ensure a secure, efficient, and enjoyable user experience. Additionally, the abstract will address potential challenges and future expansion possibilities for Phoenix Virtual Mart as it strives to revolutionize the online shopping landscape.

Keywords—*Phoenix Virtual Mart, Food Delivery.*

FINDING FRAUDS WHEN TRACKING IMBALANCED DATA

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Abstract - Financial services, online shopping, and news are all undergoing digital transformations of their services, and overall business models. Part of the goal of this digitalization in these fields is to automate the majority of the manual work in payment processing, user interaction, security, and integrating the workflows of involved service providers. The work presented in this paper is centered on fraud discovery and steps to prevent and detect it. Financial transaction fraud detection, and news authenticity have all become major considerations in these fields. Fraud is becoming more prevalent as modern technology and global communication advance, leading to significant societal costs and the loss of authenticity and truth. Due to the requirement for quick processing time, instant payment (IP) transactions, sharing fake news, online present new challenges for fraud detection. The paper looks into the use of artificial intelligence in fraud detection. The main contributions of our work are business and literature analysis of problem relevance, a proposal for technological support for using AI in fraud detection of fake news, and credit card scams, a feasibility study of various fraud detection methods and a working system model.

Keywords-*Fraud detection, Fake news, Credit card scams, Machine Learning.*

NEWS PORTAL

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Abstract-In the era of rapid information dissemination, traditional news mediums are rapidly evolving to meet the demands of the digital age. The project "NEWS NEXUX" aims to create a cutting-edge news portal that offers users a seamless and engaging news consumption experience. This project encompasses several key features, including personalized news feeds tailored to individual preferences, real-time updates on breaking news, multimedia content integration, and interactive elements such as polls and comment sections to foster community engagement. Additionally, the portal will prioritize accessibility and user-friendliness, ensuring that users of all backgrounds can easily navigate and enjoy its offerings. "NEWS NEXUX" seeks to redefine the way audiences interact with news content, empowering them to stay informed, share perspectives, and actively participate in the news discourse. By leveraging the latest technologies and innovative design principles, this project endeavours to set a new standard for digital news portals, fostering a more informed and connected global community.

Keywords- *Java Script, Application Programming Interface (API).*

ANDROID OPERATING SYSTEM

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Abstract- Android operating system is Linux based mobile operating system that is primarily runs on smartphones & tablets. The Android platform includes an operating system based upon the Linux kernel, a web browser and end-user applications that can be downloaded. This project focuses on enhancing the user experience of the Android operating system through optimization and customization techniques. With the proliferation of Android devices across various form factors and user preferences, it becomes imperative to tailor the OS to meet diverse needs efficiently. The project aims to achieve this by exploring and implementing strategies to optimize system performance, improve battery life, enhance security, and offer personalized experiences. The project begins with an in-depth analysis of the Android architecture, emphasizing key components such as the Linux kernel, runtime environment, and framework layers. Through this understanding, areas for optimization are identified, including resource management, background process handling, and system-level optimizations. Furthermore, the project investigates methods for customizing the user interface, enabling users to personalize their devices according to their preferences. This involves developing custom themes, widgets, and user interface elements to provide a unique and tailored experience. Additionally, the project delves into security enhancements, implementing measures to safeguard user data and protect against potential threats. This includes integrating encryption protocols, implementing secure boot mechanisms, and enhancing app permission controls to ensure user privacy and security. Throughout the project, testing and evaluation play a crucial role, with comprehensive performance testing conducted to measure the effectiveness of optimization techniques and user satisfaction surveys to gauge the impact of customization features. Overall, this project seeks to contribute to the ongoing evolution of the Android ecosystem by providing users with a refined, secure, and personalized experience that aligns with their individual preferences and usage patterns.

Keywords: Android, Linux Kernel.

TIRU GUDIE: GATEWAY TO TIRUPATI'S TOURISM MARVELS

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Abstract - Thiru Guide embarks on a journey to unravel the enchanting tapestry of Tirupati's tourism landscape. Our website, meticulously crafted with HTML, CSS, JavaScript, and Bootstrap, promises a seamless and responsive user experience. By leveraging these technologies, we ensure that visitors encounter a visually appealing and user-friendly interface, enhancing their exploration of Tirupati's myriad attractions. As users navigate through Thiru Guide, they'll discover a treasure trove of information meticulously curated to showcase the city's most captivating destinations. From ancient temples to picturesque waterfalls, our platform provides comprehensive insights into Tirupati's cultural and natural heritage. Each destination is accompanied by immersive multimedia content, including videos and historical anecdotes, enriching the visitor experience. Thiru Guide isn't just a website—it's the first step in our vision to revolutionize tourism exploration. While our focus is currently on Tirupati, we aspire to expand our reach to other cities in the future, creating a network of comprehensive travel guides. As we evolve, our ultimate goal is to develop a companion app that seamlessly integrates with our website, providing travellers with a unified platform for discovering new destinations and experiences.

Keywords -Thiru Guide, Tirupati, tourism, HTML, CSS, JavaScript, Bootstrap, responsive design, multimedia content, cultural heritage, natural attractions, companion app, travel exploration.

AN APPROACH TO DETECT THE DRIVER DROWSINESS USING DEEP LEARNING

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Abstract -Drowsy driving is a contributing factor in majority of the car accidents occurring across the world. As a result, the most important approach for preventing these accidents is driver sleepiness detection, which can help us to reduce many road accidents. The goal of this article is to create a Sleepiness Detection System that detects whether a driver's eyes are closed for a few seconds, and then alerts the driver via an alarm. In this research, deep learning is used to suggest a new frame that classifies the driver's eye condition, i.e. open or closed. These days, an ever-increasing number of professions require long time focus. Drivers should watch out for the street, so they can respond to abrupt occasions right away. Due to driving for a long time or intoxication, drivers might feel sleepy, which is the biggest distraction for them while driving. This distraction might cost the death of the driver and other passengers in the vehicle, and at the same time, it also causes the death of people in the other vehicles and pedestrians too. To prevent such accidents, we propose a system that helps to alert the driver if he/she feels drowsy. To accomplish this, we implement the solution using a computer-vision-based machine learning model. The driver's face is detected by a face recognition algorithm continuously using a camera, and the face of the driver is captured. The face of the driver is given as input to a classification algorithm which is trained with a data set of images of drowsy and non-drowsy faces. The algorithm uses landmark detection to classify the face as drowsy or not drowsy. If the driver's face is drowsy, a voice alert is generated by the system. This alert can make the driver aware that he/she is feeling drowsy, and the necessary actions can then be taken by the driver. This system can be used in any vehicle on the road to ensure the safety of the people who are traveling and prevent accidents that are caused due to the drowsiness of the driver.

Keywords - CNN, Machine Learning, Deep Learning, Driver Drowsiness.

QUIZMANIAC -AN INTERACTIVE QUIZ WEBSITE

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Abstract - Quizmaniac is a Html language-based quiz website which is prepared by using HTML5, CSS, and JAVASCRIPT. This website is designed based on the similar websites like quiz.com, my quiz.org, poki.com with adding extra features to make the quiz more interactive with the participants. The main goal here is to create a dynamic and interactive quiz, which should improve the participant's knowledge and to make them remember what they learned. Another main aim is not to make the user bored while playing the quiz. We'll be presenting the user with a series of questions, and we'll be providing immediate feedback on their answers. To do this, we'll be using some JavaScript. We'll also be using Bootstrap in this project. The further you go in web development, the more you'll see CSS frameworks being used. We are further even trying to make a leader board of the people who participated in the quiz. The leaderboard is maintained based on a score, which is calculated by the no. of correct answers and based on the time in which the questions are answered.

Keywords - Quiz, HTML5, CSS, and JAVASCRIPT

SENTIMENT ANALYSIS

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Abstract- Sentiment Analysis also known as Opinion Mining refers to the use of natural language processing (NLP), text analysis to systematically identify, extract, quantify, and study affective states and subjective information. Sentiment analysis has gained much attention in recent years. Sentiment analysis is widely applied to reviews and survey responses, online and social media, and healthcare materials for applications that range from marketing to customer service to clinical medicine. In this project, we aim to perform Sentiment Analysis of Product based reviews. Data used in this project are online product reviews collected from “Flipkart.com”. Our work is essentially divided into three tasks: Data Extraction, Processing and Modelling. We used text mining techniques to generate and process variables. We aim to tackle the problem of sentiment polarity categorization (Positive or Negative) is proposed with detailed process descriptions. This work aims at building a classifier able of predicting the polarity of a comment or a review while using Machine Learning (ML) algorithms like Decision Tree or Random Forest. Compared to previous reported works, we achieve greater accuracy and precision.

Keywords: *NLP, Machine learning algorithms (Random Forest, Decision tree), Python API, Text Mining Techniques*

DETECTING CREDIT CARD FRAUD USING MACHINE LEARNING

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Abstract- As the number of credit card transactions keep going and represent an increasing share of the European payment system. Leading to several stolen account numbers and subsequent losses to banks, also people believed that credit card transaction fraud is a growing threat with severe implications for the financial industry. Data mining plays a crucial role in detecting credit card fraud in both online and offline transactions. Credit card fraud detection which is a Data Mining problem becomes challenging for two main reasons. First, the characteristics of normal and fraudulent behaviour are continually changing, and second, the credit card fraud dataset is highly asymmetric. The performance of fraud detection in credit card transactions is greatly affected by the sampling method of the dataset and the choice of variables and the detection techniques used. This paper investigates the performance of the logistic regression (LR), k-nearest-neighbour (KNN), support vector machine (SVM), decision tree (DT) on credit card fraud data. The dataset of the credit card transactions obtained from the European cardholders containing 284,807 transactions. A mixture of under sampling and over sampling techniques applied to the unbalanced data. The four strategies used to raw and the pre-processed data, respectively. This work implemented in python. The performance of the methods was evaluated based on accuracy, sensitivity, precision and recall rate. The results are shown in comparison. After cross validation, the accuracy of the best classification algorithm model in SVM, KNN, Logistic regression is 97.92% which using the over sampling model.

Keywords- *over sampling, under sampling, accuracy gain.*

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HANDWRITTEN CHARACTER RECOGNITION USING MACHINE LEARNING

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Abstract- Handwritten character recognition has become a popular subject of research. In the proposed technique we use various machine learning algorithms to identify the handwritten characters scanned as input. This paper presents an approach to offline handwritten character recognition based on different machine learning techniques. Many historical manuscripts that hold trustworthy memories of the past societies contain information organized in a structured layout. The precious information stored in these documents cannot be effectively used nor accessed without costly annotation efforts. In this paper we describe an approach to extract information from structured historical handwritten text images and build a knowledge representation for the extraction of meaning out of historical data. The method extracts information, such as named entities, without the need of an intermediate transcription step, thanks to the incorporation of context information through language models. After all, this method served us well for hundreds of years of human history. It is difficult to store and access physical documents in an organised manner, search through them efficiently and to share them with others. Thus, handwriting recognition is the ability to interpret intelligible handwritten input from sources such as paper documents, touch-screens and other devices into digital form. A handwriting recognition system handles formatting, performs correct segmentation into characters, and finds the most plausible words. Hence, translating the handwritten characters to the digital format is gaining more popularity. With time the text on the paper will fade away but a file stored on a computer will be lost only if it is deleted. Once the handwritten document is given as the input in the form of a high-definition image, it segments each character in the image and identifies the letters. Further, the letters are identified and then goes on to detect the words in the image. This is performed with the aid of Machine Learning algorithms based on the training it has got from the training data. This can be further used in organizations and companies that store important documents only in written format.

Keywords- Machine Learning, Handwritten.

FRAUD TRANSACTION DETECTION USING MACHINE LEARNING

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Abstract- Now days credit card fraud transaction is rapidly increasing worldwide so to decrease the fraudsters from making such financial transactions we have come across this project called fraud transaction detection approach. The main purpose of this project is to detect the fraudulent transaction made by credit cards by the use of machine learning techniques such as logistic regression, knn, svm. Putting a limit for those actions would have a positive impact on the customers as their money would be removed and retrieved back into their accounts and they won't be charged for items or services that were not purchased by the customers which reduces the fraudulent transactions percentage and that is the main goal of our project. Detection of the fraudulent transactions will be made by using three machine learning techniques KNN, SVM and logistic regression those models will be used on a credit card transaction dataset. The growth in internet and e-commerce appears to involve the use of online credit card transaction. The increase in the use of credit cards is causing an increase in fraud. The frauds can be detected through various approaches, yet that lag in their accuracy and it own specific drawbacks. In this work, the behaviour-based approach to classification using support vector machine is used to improve its accuracy. If there are any changes in the conduct of the transaction, the frauds are predicted and taken for further process. Due to large amount of data credit card fraud detection problem is rectified by the proposed method i.e. support vector machine.

Keywords: SVM, K-Nearest Neighbours, Logistic Regression

HATE SPEECH DETECTION

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Abstract- Our project addresses the urgent issue of online hate speech with an automated detection tool. Leveraging advanced techniques from NLP and machine learning, our goal is to empower our tool to understand language nuances and identify hate speech patterns. We analyze large volumes of text data from diverse online sources, including social media platforms, forums, and news websites. This extensive dataset forms the foundation for our tool to learn and generalize hate speech patterns across different contexts and languages. Through preprocessing steps, we prepare the raw text data by tokenizing, cleaning, and transforming it into a format suitable for machine learning algorithms. This ensures our model can effectively extract meaningful features such as word frequencies, sentiment, and semantic relationships. Using a supervised learning framework, we train our model on labelled examples of hate speech and non-hate speech texts, enabling it to discern subtle distinctions between hateful and non-hateful language, thereby improving its accuracy and robustness. Evaluation of our model's performance is conducted using standard metrics such as accuracy, precision, recall, and F1-score. Rigorous testing on held-out datasets allows us to assess the tool's ability to detect hate speech while minimizing false positives and negatives. Our experimental results demonstrate the effectiveness of our approach in accurately identifying instances of hate speech in online texts. By leveraging NLP and machine learning, we offer a scalable and efficient solution to the pervasive problem of online hate speech, contributing to the creation of a safer and more inclusive online environment for all users.

Keywords- NL, Python, API

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COLLEGE ONLINE VOTING SYSTEM

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Abstract - The Design and Implementation of a Secure College Online Voting System project aim to develop a robust and efficient platform for conducting elections within a college or university setting. Traditional paper-based voting systems are prone to errors, manipulation, and logistical challenges. Thus, an online voting system offers a modern and convenient alternative. This project focuses on creating a user-friendly web-based application that allows students, faculty, and staff to securely cast their votes electronically. The system employs encryption techniques to ensure the integrity and confidentiality of the voting process, thereby minimizing the risk of fraud and unauthorized access. Key features of the system include user authentication, ballot generation, vote submission, and result tabulation. Additionally, the system incorporates measures to prevent double voting, ensure anonymity, and maintain audit trails for accountability.

Keywords: *MySQL, Php*

ONLINE CAR / BIKE RENTAL SYSTEM

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Abstract-The Online Car & Bike Rental System project aims to develop a comprehensive and user-friendly platform that revolutionizes the rental industry by providing an efficient and convenient online rental experience. The system caters to a wide range of rental services, including equipment, vehicles, real estate properties, and more. By leveraging the power of modern technology, the project aims to bridge the gap between rental service providers and customers, facilitating seamless transactions, enhanced user experience, and optimized operational processes. The Online Car & Bike Rental System offers a robust web-based platform accessible to both rental service providers and customers. Through a user-friendly interface, customers can effortlessly browse through an extensive catalog of available rental cars and bikes, refine their search based on preferences, and make reservations with a few clicks. The system provides detailed descriptions, high-quality images, and user ratings to enable informed decision making for customers.

Keywords-*User friendly platform,Accounts maintenance, Individual result showing.*

AN APPROACH TO DETECT GENETIC DISORDER BY USING MACHINE LEARNING

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Abstract-There is a lack of awareness of the health risks for generations of health problems, unknown health problems, and unexpected heartbreaks. Our model could be developed to promote awareness and provide a summary of hospitality, costs, specialists needed, food assistance, personalised medical care and therapy. This enables patients to manage their health problems more easily, resulting in appropriate treatment and a better lifestyle. We propose a summed-up approach involving machine learning algorithms like Naive Bayes, Decision Tree, Random Forest, PCA (Principal Component Analysis). Our model will take input as name of the symptoms, and process this symptom in the dataset then it will give output as name of the genetic disorder. The prediction of genetic disorders that manifest in people's lives is the heart of our model.

Keywords – *Machine Learning, Genetics.*

BRAIN TUMOR DETECTION BY USING CONVOLUTIONAL NEURAL NETWORKS

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Abstract- Now a day's tumour is second leading cause of cancer. Due to cancer large number of patients is in danger. The medical field needs fast, automated, efficient and reliable technique to detect tumour like brain tumour. Detection plays very important role in treatment. If proper detection of tumor is possible then doctors keep patients out of danger. Various image processing techniques are used in this application. Using this application doctors provide proper treatment and save a number of tumour patients. A tumour is nothing but excess cells growing in an uncontrolled manner. Brain tumour cells grow in a way that they eventually take up all the nutrients meant for the healthy cells and tissues, which results in brain failure. Currently doctors locate the position and area of brain tumour by looking at the MRI images of the brain of the patient manually. This results in inaccurate detection of the tumour and it is considered very time consuming. A tumour is a mass of tissue grows out of control. We can use Deep Learning architectures as CNN (Convolutional Neural Networks). The performance of the model is to predict image is predict image tumour is present it return yes otherwise return no.

Keywords- CNN

ACCIDENT ALERT SYSTEM USING AIML

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Abstract- This paper details the design and implementation of an advanced accident alert system using Artificial Intelligence (AI) and Machine Learning (ML) technologies to improve road safety. The system integrates various sensors, including cameras, accelerometers, GPS modules, and microphones, to collect real-time data on vehicular activities and environmental conditions. AI and ML models, such as Convolutional Neural Networks (CNNs) for video analysis, Recurrent Neural Networks (RNNs) for anomaly detection, and audio processing algorithms, analyze this data to accurately detect accidents. The system architecture combines edge computing for immediate data processing and cloud computing for more complex analytical tasks, ensuring both speed and computational efficiency. When an accident is detected, the system generates alerts communicated through mobile applications to notify drivers, passengers, and emergency services. Additionally, alerts can be broadcast via public traffic management systems to inform other road users and prevent further incidents. The implementation process includes data collection and preprocessing, model training and validation, and system deployment, with continuous improvement facilitated through data feedback loops. By employing extensive datasets to train the models, the system ensures high accuracy in real-world conditions. This AI/ML-based accident alert system aims to reduce emergency response times and improve outcomes, thereby significantly enhancing overall road safety.

Keywords - Accident Detection, Artificial Intelligence, Machine Learning, Computer Vision, Edge Computing, Cloud Computing, Real-Time Alert Systems, Road Safety.

ENHANCING CAMPUS COMMERCE: THE ID CARD APPROACH

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Abstract- In today's digital age, integrating advanced technology into educational environments is crucial for streamlining operations and enhancing user experiences. This paper proposes a smart ID card system tailored for educational institutions, revolutionizing financial transactions and campus management. Smart ID cards, embedded with microchips or magnetic stripes, are issued to students, faculty, and staff. These cards integrate with the institution's payment infrastructure, enabling cashless transactions for canteen purchases, printing, vending machines, and other campus-related expenses. Users can conveniently reload their accounts through online portals, mobile apps, or on-campus kiosks, ensuring continuous access to campus amenities. Robust security measures, including encryption protocols and user authentication mechanisms, protect user's financial and personal information, minimizing the risk of unauthorized access and fraud. Additionally, the system offers comprehensive tracking and reporting capabilities, facilitating meticulous monitoring of individual expenditures and institutional account auditing. Adopting this innovative smart ID card model can significantly improve financial efficiency, convenience, and security for educational institutions. It simplifies operational workflows and enhances the overall campus experience for students, faculty, and staff by providing a secure, efficient, and user-friendly financial transaction solution. Embracing this system not only modernizes campus operations but also supports a technologically advanced environment, promoting better resource management and service standards for all users, ultimately fostering an enhanced educational experience.

Keywords- *Campus management, Cashless transactions, financial efficiency.*

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OPTICAL CHARACTER RECOGNITION USING ML

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Abstract- Today's world is a Changing world and we would require to meet its pace to understand and analyse the trends the idea of OCR (OPTICAL CHARACTER RECOGNITION) was first introduced in 1971 and then there were several developments after that but then also there are several languages which have gone completely out of use in the present. Grammar lost in time and we are not able to decipher some. Our concept takes inspiration from our own identity and proof as they are the manuscripts, they contain very fine details and a lot of information on different aspects and lot of subjects. Our ML model develops an algorithm which can understand the languages syntax and structure along with its grammar. Our model with its full capability can solve ancient scripts in the matter of minutes. Completely from any script to any language complete translation of the scripture which is there in a photograph.

Keywords- ML, OCR

YOUTUBE TRANSCRIPT SUMMARIZER

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Abstract - YouTube transcript summarizer a chrome extension which summarizes the whole video in span of time. For user friendly interaction we created a key in the extension which displays summarized text in their desired language of the current video running on the chrome browser . The summarization process is further refined through the application of machine learning algorithms .By utilizing natural language processing(NLP) techniques to summarize the content. These algorithms learn to recognize patterns and structures in the text, allowing for more accurate and coherent summaries. Summarization of the video is done by the Python API and NLP (Natural Language Processing). An API, or Application Programming Interface, is a server you can use to receive and send data using code. APIs are widely used to retrieve data, and that will be the focus of this first study. When we want to receive data from an API, we need to make a request. Applications are used across the web. The output of the YouTube Transcript Summarizer is a concise summary that captures the essential points of the video in a fraction of the original length. Users can easily access these summaries to gain a quick understanding of the content without having to watch the entire video. We propose a model which can transcript the given video in different languages and also improves efficiency and accuracy .

Keywords- NLP , Python API

HAND GESTURE BASED RECOGNIZATION SYSTEM

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Abstract- In recent years, hand gesture detection has emerged as a vital component in human-computer interaction (HCI), revolutionizing the way users interact with various digital devices and interfaces. This paper presents a comprehensive review of the state-of-the-art techniques, methodologies, challenges, and applications in hand gesture detection. With the rapid development of computer vision, the demand for interaction between human and machine is becoming more and more extensive. Since hand gestures are able to express enriched information, the hand gesture recognition is widely used in robot control, intelligent furniture and other aspects. Additionally, the paper highlights the current trends and future directions in hand gesture detection research, including the integration of multimodal sensor data, real-time processing capabilities, and the development of robust and adaptable algorithms capable of handling diverse environmental conditions and user variability .Also in this we will use train the model by using the specific points or symbols for the fingers of our hand and for each point of the finger we will assign some specific points so that the camera can sense the gesture which will be made by the user. the cam of the device will capture the image of the hand and will easily identify the respective finger movements and will give us the desired output...the main aspect in this is the capturing of the finger movements which is very crucial for recognizing the hand gesture. Hand gesture detection has emerged as a crucial technology in human-computer interaction, offering seamless and intuitive control over various devices and applications. This explores recent advancements, methodologies, and challenges in hand gesture detection, presenting a comprehensive overview of its applications, techniques, and future directions.

Keywords- *Hand Guestore, HCI*

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TRAFFIC SIGNAL VIOLATION DETECTION SYSTEM USING MACHINE LEARNING

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Abstract- Nowadays vehicles on the road are increasing rapidly, which in turn causes highly congested roads and serving as a reason to break traffic rules by violating them, this leads to a high number of road accidents. The project aims to improve road safety and traffic management by developing a system that can accurately detect and monitor violations at traffic signal-controlled intersections. Traffic violation detection systems using computer vision are a very efficient tool to reduce traffic violations by tracking and Penalizing. The proposed system was implemented using YOLOV3 object detection for traffic violation detections such as signal jump, vehicle speed, and the number of vehicles. The system utilizes machine learning algorithms and computer vision techniques to analyze real-time video feeds from cameras installed at intersections, recognizing traffic signal states and identifying vehicles. The system generates real-time alerts and stores violation records for further analysis and enforcement purposes. Additionally, the project includes a user-friendly interface for operators to monitor live video feeds, access violation records, and configure system settings. With the implementation of this system, traffic authorities can proactively detect violations, promote road safety, and optimize traffic flow at intersections.

Keywords- CNN, Machine Learning

AI ASSISTANT E COMMERCE WEBSITE AND SERVICES

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Abstract- Our project aims to develop a comprehensive e-commerce platform that not only facilitates the buying and selling of products but also integrates essential human services such as plumbing and electrical works. We're making it easy to use by adding a smart chatbot that understands and helps users with their needs. User friendly-interface :- Our website features a clean and straightforward layout, ensuring easy navigation for users of all ages. The interface adapts seamlessly to different devices, providing a consistent experience on desktops, tablets, and smartphones. User account :- Users can sign up effortlessly & Each user has a personalized dashboard to manage orders, addresses, and preferences. Search functionality :- A powerful search engine with filters and auto-suggestions helps users find products and services quickly. Shopping cart :- Users can easily add, remove and change quantity. 24/7 aichat :- Our AI chatbot is available 24/7 to assist users with inquiries, order tracking, and troubleshooting. The chatbot provides instant answers to common questions, enhancing user satisfaction. Return and replace policy :- A clear and straightforward return policy allows users to return products. Human Services Integration :- Detailed listings of human services such as plumbing and electrical works, with descriptions and pricing. Users can book services instantly. Once a booking is made, the service provider is notified and can reach out to the user immediately to confirm and arrange the service. Each service provider has a detailed profile showcasing their qualifications, customer ratings, and reviews, helping users make informed decisions. Product video review :- Detailed demonstrations to help customers make informed purchasing decisions Builds trust and authenticity, enhancing customer confidence in products. Easy access to video reviews directly on product pages.

Keywords- HTML, CSS, java script (Front End), python, flask (Back End), pinterest (an image downloading platform), Background removal.

VOICE VARIETY PDF READER & PHOTO AND VIDEO ANALYSIS

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Abstract- The project aims to enhance object detection accuracy, particularly focusing on 3D objects, through the analysis of inputs such as images, videos, or live streams. It incorporates functionalities to detect object characteristics like color, size, and shape, alongside tracking their movements and calculating object speeds. Notably, the project prioritizes delivering output information through speech synthesis rather than textual representation, facilitating accessibility and real-time understanding. By leveraging camera inputs, the system provides comprehensive details about objects within the captured content, ensuring precision in detection. Its core functionalities include identifying object attributes such as size, shape, and color, thereby offering valuable insights into the composition of the scene. Moreover, the project's emphasis on motion tracking enables continuous monitoring of object movements, enhancing situational awareness. One of the project's key features is its ability to convert text outputs into speech, enabling users to receive information audibly, thereby reducing the need for constant visual monitoring. Additionally, the system supports varied voices and adjustable playback speeds, catering to diverse user preferences and accessibility needs. This functionality promotes seamless interaction with the project, allowing users to stay informed without relying solely on visual feedback. Further more, the project facilitates convenient note-taking by enabling users to dictate or type ideas swiftly, enhancing productivity and workflow efficiency. By offering a multifaceted approach to object detection and information dissemination, the project aims to address the growing demand for accurate and accessible data analysis tools. Its comprehensive feature set, coupled with a user-friendly interface, ensures usability across various domains and applications. Overall, the project signifies a significant step towards advancing object detection capabilities while prioritizing user accessibility and convenience.

Keywords- HTML, CSS, Java Script (front end), Python (back end).

PRIVACY-PRESERVING FOR INTERNET ENGINEERING TASK FORCE UNDER STANDARDIZATION

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Abstract- Today there is a rapid growth in latest technologies but there is a lack of security when transferring the data. To protect the personal information which was accomplished by the end user causes very difficulties, so unnecessary of accessing their location when personal information and data is transferred. To avoid these critical issues, there are lot of privacy preserving which comes into a place of IETF play major role at basic level of privacy. It consists of 3 layer of standardization at the IETF. This paper mainly focuses on layer 5 of encrypted DNS classified as DNS-over-TLS (DoT), DNS-over-HTTPS (DoH), and DNS-over-QUIC (DoQ) and QUIC belongs to layer 4. Proposal is mainly focus on Privacy Protocol, Tokens Access and replacing password on application layer and also protect privacy at IP level and Private Relays and MASQUE which aims for designing, implementer and Internet privacy design.

Keywords- DNSPrivacy, Privacy Pass Protocol, Private Access Token, Passkeys, Private Relay, MASQUE.

EMOTION BASED MUSIC RECOMMENDATION USING MACHINE LEARNING

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Abstract - The customized recommendation framework for music should accurately represent private tastes. Music recommendation is the approach involve playing music manually, using wearable computing devices, or classifying based on audio features. Instead, to change the manual sorting and playing the music using Convolutional Neural Network by Emotion Detection. The system tends to reduce the computational time involved in obtaining the results and the overall cost of the designed system, thereby increasing the system's overall accuracy. Facial Expressions are captured using an inbuilt camera. Feature Extraction is performed on input face images to detect emotions such as happy, angry, sad, surprise, and neutral. Automatically music playlist is generated by identifying the current emotion of the user. This research contributes to the advancement of the music recommendation system by incorporating emotional intelligence ultimately leading to more personalized and immersive music discovery experience.

Keywords - CNN, Pygame, Music Player, Camera.

AGE DETECTION USING DEEP LEARNING

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Abstract -Age Detection is the process of automatically discerning the age of a person solely from a photo of their face. Typically, you'll see age detection implemented as a two-stage process. Our goal here is to create a program that will predict the age of the person using an image. But predicting age might not be as simple as you think, you might be thinking that age prediction is a regression problem, however, there are many uncertainties that researchers have faced when they treated this as a regression problem, like camera quality, brightness, climate condition, background, etc. Age Detection models need a vast range of facial data across all age groups. A curated dataset library would provide the necessary diversity, ensuring your models can accurately predict ages from various demographics. Age Detection is the process of automatically discerning the age of a person solely from a photo of their face. To do so, we utilized a pre-trained model, Age and Classification using Convolutional Neural Networks. This model allowed us to predict eight different age groups with reasonably high accuracy; however, we must recognize that age prediction is a challenging problem. Image processing has two main steps followed by simple steps. The other procedure is the most pursued strategy utilized for the extraction of data from a picture. The division of images into certain parts is called segmentation. To identify the age of several faces' procedures, are followed by several methods. From the neural network, features are taken by the convolution network. In light of the prepared models, the image is processed into one of the age the highlights are handled further and shipped off the preparation frameworks.

Keywords -CNN, Deep Learning, neural network, segmentation, prediction, detection, classification,

BREAST CANCER PREDICTION USING MACHINE LEARNING ALGORITHMS

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Abstract -Introduction to the significance of breast cancer prediction for early detection and treatment planning. Description of the dataset encompassing clinical, demographic, and tumor characteristics, along with data preprocessing steps. Exploration of three machine learning algorithms: logistic regression, random forest, and decision tree .Training process, including dataset division and parameter optimization . Performance evaluation using metrics such as accuracy, precision, recall. Comparative analysis revealing random forest as the top performer in breast cancer prediction .Conclusion highlighting the potential of machine learning algorithms, particularly random forest, in improving patient outcomes through early diagnosis and personalized treatment strategies. Suggestions for future research focusing on ensemble methods and advanced feature selection techniques. References to relevant sources and literature.

Keywords—Machine Learning, breast cancer ,Decision Tree.

EMPOWER WOMEN FITNESS

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Abstract-The project "Empower Women Fitness" aims to provide a platform for women to enhance their physical health and well-being through personalized fitness recommendations. By providing them with the tools and resources they need to make informed decisions about their health and fitness, fostering a supportive and inclusive environment for women's wellness. The project comprises a web application built using the Flask framework in Python. Users can input their age, weight, and height to calculate their Body Mass Index (BMI), which serves as a baseline for personalized recommendations. Based on the calculated BMI and age input, the application provides personalized recommendations for both food choices and exercises tailored to different BMI categories and age groups. The application suggests various food items categorized according to BMI and age, focusing on nutritionally balanced options to support overall health and fitness goals. Users receive exercise recommendations suitable for their BMI and age, including a variety of exercises targeting different fitness levels and preferences. The web interface features a clean and intuitive design, making it easy for users to input their information and view personalized recommendations. The application prioritizes accessibility by providing appropriate labels and input descriptions. The project is dedicated to empowering women of all ages and fitness levels to take control of their health and fitness journey, promoting inclusivity and diversity in the fitness community.

Keywords-*Flask web frame, BMI Calculator, Personalized Recommendations, User Interface.*

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PLANT SPECIES IDENTIFICATION

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Abstract - Current rates of species loss triggered numerous attempts to protect and conserve biodiversity. Species conservation, however, requires species identification skills, a competence obtained through intensive training and experience. Relevant technologies, such as digital cameras, mobile devices, and remote access to databases, advances in image processing and pattern recognition. Plant species identification involves assigning an individual plant to a taxon based on discriminatory and morphological characters. This process can be done using convolutional neural network models and deep learning methodologies with simple leaf image. To introduce plant nomenclature and classification. To become familiar with basic plant morphology. To begin to identify plants using morphological characteristics, automated plant species identification holds promise for ecological monitoring and biodiversity conservation. As technology evolves, we can expect more precise models and practical tools to enhance our understanding of plant diversity. The system was trained with in images of simple leaves on plain background from different plant species. They also tested their system with partially damaged leaves and demonstrated that it was able to successfully identify the plants name. However, no more information about the system is given.

Keywords - Machine Learning, CNN, Classification, MSVM, Framework.

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HAND WRITTEN DIGIT RECOGNITION USING CNN

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Abstract - Hand Written Digit Recognition is one of the significant areas of research and development with a streaming number of possibilities that could be attained. As the manually written digits are not of a similar size, thickness, position and direction in this manner, various difficulties must be considered to determine the issue of handwritten digit recognition. The uniqueness and assortment in the composition styles of various individuals additionally influence the example and presence of the digits. It is the strategy of perceiving and arranging transcribed digits. It has a wide range of applications, for example, programmed bank checks, postal locations and tax documents and so on. The aim of this project is to implement a classification algorithm to recognize the handwritten digits. The after effects of probably the most broadly utilized Machine Learning algorithms like SVM, CNN. Handwritten digit recognition is nothing but recognizing or identifying the digits in any document. Handwritten Digit Recognition is the capacity of a computer to interpret the manually written digits from various sources like messages, papers, and pictures and so on.

Keywords - CNN, SVM, ANN.

PREDICTING A HIGH POTENTIAL EMPLOYEE AND EMPLOYEES AT RISK AT THE EARLY STAGES TO PROTECT BUSINESS

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Abstract -This paper addresses the challenges of managing high-potential employees and those at risk, aiming to assist managers in identifying and addressing these challenges. It suggests actions such as involving top management, fostering a developmental culture, setting clear tracking criteria, ensuring transparency in selection processes, managing expectations regularly, and providing individual career development. It emphasizes that the high-potential label assesses future contribution, not just past results, and underscores the need to integrate management of high-potentials with broader organizational strategies. As succession planning gains importance, internal candidate identification becomes common, reflecting the emphasis on developing top performers for future roles and safeguarding at-risk employees. The study explores practices for nurturing high performers with leadership potential and outlines attributes and developmental approaches for both high-potential and at-risk employees.

Keywords- KNN, SVM, Naïve Bayes.

PERSONAL FINANCE TRACKER

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Abstract -The Personal Finance Tracker is a comprehensive tool designed to empower individuals in managing their finances effectively. It offers a user-friendly interface coupled with powerful features to track income, expenses, savings, investments, and financial goals. With customizable categories and detailed reporting, users can gain valuable insights into their spending habits and financial health. The tracker also provides budgeting tools, alerts for overspending, and goal tracking to help users stay on track with their financial objectives. Moreover, it ensures security and privacy through robust encryption methods, ensuring that users' sensitive financial information remains protected. Whether users are looking to budget better, save more, or invest wisely, the Personal Finance Tracker serves as an invaluable companion on their journey to financial success. The Personal Finance Tracker is an innovative digital solution for managing finances efficiently. It offers a user-friendly interface and powerful features for tracking income, expenses, savings, investments, and financial goals. With customizable categories and detailed reporting, users gain insights into spending habits and financial health. Budgeting tools, overspending alerts, and goal tracking features ensure users stay on track with their objectives. The tracker prioritizes security through robust encryption methods, safeguarding sensitive financial data. It empowers users to budget better, save effectively, and invest wisely, providing invaluable support on their financial journey.

Keywords—Income, Financial goals.

HANDGESTURES RECOGNITION USING CNN

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Abstract - Hand gesture recognition is a fundamental aspect of human-computer interaction, with applications ranging from sign language translation to virtual reality control. This paper proposes a novel approach to improving the accuracy and robustness of hand gesture recognition systems using Deep Learning techniques. By leveraging Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs), our method achieves state-of-the-art performance in recognizing a wide variety of hand gestures in real-time. We present a comprehensive review of existing hand gesture recognition methods, highlighting their strengths and limitations. Our proposed framework integrates spatial and temporal features extracted from hand gesture sequences, enabling the model to capture both static and dynamic aspects of gestures. We demonstrate the effectiveness of our approach through extensive experiments on benchmark datasets, showcasing superior performance compared to traditional methods. Furthermore, we discuss potential applications and future directions for research in the field of hand gesture recognition.

Keywords-CNNs, RNNs, Real-Time Recognition, Keras, Sequential, Dense.

TWITTER SENTIMENT ANALYSIS USING MACHINE LEARNING

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Abstract - Twitter sentiment analysis is a crucial task in understanding public opinion and trends. In this study, we explore the application of various machine learning algorithms to analyze sentiment in Twitter data. The process involves collecting tweets relevant to a specific topic, preprocessing the data to remove noise and irrelevant information, and extracting features from the text. Feature extraction techniques such as TF-IDF and word embeddings are employed to convert text data into numerical vectors suitable for machine learning models. Several machine learning algorithms are considered, including Naive Bayes, Support Vector Machines (SVM), Logistic Regression, and deep learning models like Recurrent Neural Networks (RNNs) and Transformers. Each algorithm is trained on labeled Twitter data to predict sentiment labels such as positive, negative, or neutral. The performance of each algorithm is evaluated using metrics such as accuracy, precision, recall, and F1-score. Hyper parameter tuning is performed to optimize the performance of the models. Finally, the best-performing model is selected and deployed for real-time sentiment analysis of Twitter data. This study provides insights into the effectiveness of different machine learning algorithms for Twitter sentiment analysis and demonstrates their potential applications in understanding public opinion and sentiment trends on social media platforms.

Keywords-Machine learning algorithms, Naive Bayes, SVM, Logistic Regression, RNNs.

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MISINFORMATION FILTER USING MACHINE LEARNING AND NATURAL LANGUAGE PROCESSING

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Abstract :

Fake news refers to false or misleading information presented as legitimate news. It can take various forms, including fabricated stories, manipulated images or video, and distorted facts. In this digital age, fake news is a huge issue considering it hurts real-world communities by disseminating misinformation, destroying reputations, and igniting social unrest. Now it has become harder and harder to recognize whether the news is legitimate news from fake news as social media has grown a lot. Machine Learning Techniques has been used to detection of false information. On the other hand, an automated solution would require a good understanding of NLP which is complex and may have difficulties producing an accurate output. Therefore, the main problem focused on his project is the viability of developing a system that can effectively and accurately detect the fake news. Furthermore, incorporating user behavior data into machine learning algorithms can improve the accuracy of misinformation filter. The proposed paper uses NLP techniques and it uses various machine learning models mainly logistic Regression, Decision tree classifier, Random Forest classifier on the dataset containing fake news and real news.

Keywords: Machine Learning, Classification, Natural Language Processing ,Logistic Regression ,Decision tree classifier ,Random forest classifier ,stemming ,vectorization

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CRAFT CONVERSATION WITH AI USING ML

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Abstract: Healthcare is very important to lead a good life. However, it is very difficult to obtain the consultation with the doctor for every health problem. The idea is to create a medical chatbot using Artificial Intelligence that can diagnose the disease and provide basic details about the disease before consulting a doctor. This will help to reduce healthcare costs and improve accessibility to medical knowledge through medical chatbot. The chatbot are computer programs that use natural language to interact with users. The idea is to create a medical chatbot using Artificial Intelligence that can diagnose the disease and provide basic details about the disease before consulting a doctor. This will help to reduce healthcare costs and improve accessibility to medical knowledge through medical chatbot. The score will be obtained for each sentence from the given input sentence and more similar sentences will be obtained for the query given. The third party, the expert program, handles the question presented to the bot that is not understood or is not present in the database.

Keywords-: Machine Learning, Classification, Natural Language Processing.

FAKE LOGO DETECTION WITH IMAGE PROCESSING

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Abstract- The trust of customers and the reputation of brands are seriously threatened by counterfeit goods. In response, this paper offers a novel method for identifying phony logos that makes use of Python machine learning techniques and convolutional neural networks (CNNs). The suggested technique accurately distinguishes between real and fake logos by using deep learning models to extract complex information from logo photos. To learn discriminative representations, pre-trained CNN architectures are fine-tuned on a collection of real and fake logo pictures. For categorization problems, machine learning methods are also used. The suggested method is effective in accurately and efficiently identifying fake logos, as shown by the experimental results. Combining machine learning algorithms with CNN-based image processing techniques provides a strong defence against fake goods and maintains brand integrity. By using deep learning to extract complex information from logo photos, the suggested technique makes it easier to distinguish between real and fake logos. By utilizing well-known Python libraries like scikit-learn, Tensor Flow, and Keras, the framework simplifies the creation and execution of the detection pipeline. Pre-trained CNN architectures, like ResNet, are refined using a large dataset that includes samples of real and fake logos. The efficacy of the CNN-based method is assessed and confirmed via a great deal of testing. To supplement the deep learning models, machine learning techniques like Random Forests and Support Vector Machines (SVM) are used for classification tasks. While testing comprises assessing model performance on untested data, training comprises adjusting model parameters using various machine learning techniques. Experimental findings show how robust.

Keywords- Fake logo detection, convolutional neural networks(CNNs), Machine Learning Algorithms, Python Programming.

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EMOTION – BASED MOVIE RECOMMENDATION SYSTEM

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Abstract- The Emotion-Based Movie Recommendation System presents a pioneering approach to movie recommendation by incorporating user emotions into the recommendation process. Utilizing sentiment analysis and collaborative filtering techniques, the system delivers personalized movie suggestions aligned with users' emotional states and preferences. By analyzing user-generated content such as reviews and social media posts, sentiment analysis identifies the emotional responses of users to different movies. Collaborative filtering then leverages this emotional data to identify patterns and similarities among users, enabling the system to recommend movies that match the current emotional state of each user. The objective is to enhance user satisfaction and engagement by offering more relevant and immersive movie-watching experiences. Through comprehensive experimentation and analysis, this paper demonstrates the effectiveness of the Emotion-Based Movie Recommendation System in providing tailored recommendations that resonate with users.

Keywords - *Emotion-Based Movie Recommendation, Sentiment Analysis, Collaborative Filtering, Personalized Recommendations, User Emotions, Movie-Watching Experience, User Satisfaction, Data Analysis, Pattern Recognition, User Engagement.*

WHATSAPP INDIVIDUAL CHAT ANALYSIS USING MACHINE LEARNING

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Abstract - This study explores how machine learning can be used to analyse individual WhatsApp chats. The main goal is to find meaningful patterns, emotions, and communication habits within these conversations. By using natural language processing and various machine learning techniques, we examine the sentiment (emotional tone), main topics, and user behaviours in chat data. The process involves cleaning and preparing the chat data, then applying sentiment analysis tools to understand the emotions in the messages. We use topic modelling to discover the main themes discussed and employ clustering and classification techniques to group similar behaviours and predict future interactions. The results show that machine learning is effective in uncovering insights from chat data, revealing how specific conversation patterns are linked to user emotions and actions. These insights can improve user experiences, personalize communication strategies, and enhance automated customer support. In summary, this study demonstrates how machine learning can turn raw chat data into useful information, contributing to the broader fields of social media analysis and human-computer interaction. Future research will aim to improve the accuracy of these models and explore real-time chat analysis.

Key words- *WhatsApp chat analysis, Machine learning, Natural language processing (NLP), Sentiment analysis, Topic modelling, User behaviour prediction, Emotional tone, Conversational patterns, Data pre-processing, Social media analytics*

MEDICINE SEARCH ENGINE

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Abstract- The base concept of this project is Now a day's Health Pharmacy companies are focusing on developing on medicines for the various diseases but the less importance being shown towards the emergency of the patient health. The main focus should hold on the both as invention of new medicines as well as medication availability to the patient through our new technique on the pharma industry "Medicine Search Engine". MSE will help the patient to search the medicine that in which pharmacy it is available, instead of going to every pharmacy and enquiring about the medicine he can just use MSE, it will save the time and the customer can get the medicine in his emergency times quite quickly. Just by searching the particular medicine name or table name MSE generates pharmacy name, cost of the medicine and the location of the pharmacy. He or Her can find the medicine very easily in their locality. By our new search engine, the medicine searching time will reduce and the medicine will be available to patient hands in prescribed time.

Keywords *Medicine Search Engine, healthcare technology, medication availability, real-time search, emergency access, user-friendly interface, pharmacy information, Python, Flask, MongoDB, HTML, CSS, JavaScript, backend development, frontend development, data entry interface, database management, server-side logic, web development, healthcare solution, data retrieval, search functionality, pharmacy updates, patient access, healthcare improvement.*

STUDENT ATTENDANCE MANAGEMENT SYSTEM

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Abstract - This paper presents a comprehensive web-based attendance management system designed to enhance the efficiency and accuracy of tracking student attendance in educational institutions. The system automates the entire process from data collection to report generation, significantly reducing the administrative burden associated with manual attendance tracking. Key features include secure user authentication, seamless data upload capabilities, real-time attendance visualization, and automated generation of personalized attendance reports. By leveraging advanced web technologies such as Flask for the backend, pandas for data processing, python-docx for document generation, and report lab for creating downloadable reports, the system provides an intuitive and user-friendly interface for administrators. The implementation ensures the integrity of attendance data and facilitates timely identification of students with low attendance. The ability to generate comprehensive reports and personalized letters helps in addressing attendance issues promptly, thereby improving overall administrative efficiency and student engagement.

Key words- *Attendance Management System, Web-based Application, Data Collection, Data Processing, Automated Reporting, Educational Technology, Flask, Pandas, Python-docx, Report Lab, Real-time Visualization, Administrative Efficiency, Personalized Letters, Low Attendance Identification.*

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CRICKET WIN PREDICTOR USING MACHINE LEARNING CONCEPTS - IPL EDITION

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Abstract- Cricket, particularly the Indian Premier League (IPL), is known for its unpredictability. In this context, this project tackles the challenge of predicting the winning probability of an inning in IPL matches using machine learning techniques. By leveraging historical match data, team dynamics, player statistics, and environmental variables, a predictive model is constructed. The system not only delivers winning predictions but also offers insights into the critical factors influencing these predictions. The goal is to empower cricket enthusiasts, teams, and broadcasters with a tool that enhances their understanding of match dynamics and aids in making informed predictions. This project represents an exciting intersection of sports, data science, and predictive analytics, with the potential to reshape how cricket fans and professionals engage with the IPL.

Keywords- *preprocessing, feature selection, model training, evaluation, and deployment. Various machine learning techniques such as regression, ensemble methods, and deep learning may be explored to develop models capable of capturing the complex dynamics of cricket matches.*

ELECTION VOTING SURVEY USING WEB APPLICATION

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Abstract- Our web application is to conduct an election voting survey to gather opinions from participants. The survey form will be hosted on a web platform, allowing users to submit their votes electronically. The data collected from the survey will be stored in MongoDB, a NoSQL database, for efficient and scalable data management. Additionally, the application will feature data visualization tools to present the survey results in a clear and informative manner. The web application will provide a user-friendly survey form for participants to submit their votes. The form will include relevant fields such as candidate choices, demographic information, and optional comments. Data submitted through the survey form will be stored in MongoDB, a flexible and scalable NoSQL database. This allows for efficient storage and retrieval of survey responses. The application will utilize data visualization techniques to present the survey results in a visually appealing format. Charts, graphs, and other visual representations will be used to summarize and analyze the voting data. Participants will be able to see real-time updates of the survey results as they are submitted. This encourages engagement and provides transparency in the voting process. Overall, our election voting survey web application offers an intuitive and secure platform for gathering, storing, and visualizing voting data. It promotes transparency, accessibility, and engagement in the democratic process.

Keywords- *Voting, Web application, MangoDB, Analyze, Storing, Visualization.*

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ONLINE INTERVIEW MANAGEMENT SYSTEM USING FULL STACK DEVELOPMENT

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Abstract- The Online Interview Management System (OIMS) is a modern HR and recruiting solution designed to transform the interview process in the digital age. With the rise of remotework and global connections, traditional face-to-face interviews have become less practical. OIMS solves this by providing a user-friendly interface that simplifies programming and improves the interview experience for both employers and candidates. Employers can easily set and manage interview schedules, eliminating the traditional back-and-forth schedule, while candidates can choose convenient interview times. The system's integrated video interview feature allows candidates to participate in high-quality live interviews from anywhere, expanding the talent pool and reducing logistical issues. In addition, OIMS provides comprehensive applicant assessment tools, including assessments and answer sheets, to facilitate informed hiring decisions. Document management is simplified so that applicants can upload CVs, cover letters and references for employer review. As a communication hub, OIMS includes email notifications and chat features that maintain seamless communication between employers and candidates. To ensure security and privacy, OIMS uses strong encryption protocols and access controls to protect sensitive data.

Keywords- OIMS, online interview management system, HR, recruitment, remote work, user-friendly interface, interview scheduling, video interviewing, candidate reach, evaluation tools, document management, communication hub, security, encryption, access controls, sensitive data.

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ARTIFICIAL INTELLIGENCE BASED MONITORING AND EARLY WARNING SYSTEMS FOR EXTREME WEATHER EVENTS

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ABSTRACT: Extraordinary climate occasions pose critical dangers to human lives, framework, and the environment. In later a long time, the recurrence and concentration of such occasions have been exacerbated by climate alter, emphasizing the basic requirement for successful observing and early caution frameworks. This paper presents an outline of AI-based approaches utilized within the advancement of progressed observing and early caution frameworks for extreme weather occasions. The primary area talks about the significance of early caution frameworks in relieving the effect of extraordinary climate occasions, emphasizing the part of AI in improving the precision and opportuneness of notices. Different sorts of extraordinary climate occasions, including hurricanes, tornadoes, floods, heatwaves, and rapidly spreading fires, are highlighted, in conjunction with their related dangers and challenges. The moment segment gives an outline of the AI strategies utilized in observing and anticipating extraordinary climate occasions. Machine learning calculations, counting neural systems, back vector machines, and choice trees, are utilized to analyze tremendous sums of meteorological information, obsequious symbolism, and sensor information. Also, profound learning procedures, such as convolutional neural systems and repetitive neural systems, empower the extraction of complex designs and relationships from assorted information sources. The third segment investigates the integration of AI-based models into existing checking and early caution frameworks. Collaborative endeavors between meteorological organizations, investigative teachers, and innovation companies are significant for leveraging AI innovations viably. Real-time information handling, prescient analytics, and probabilistic determining are basic components of next-generation early caution frameworks. Besides, the paper examines the challenges and future headings in the field of AI-based observing and early caution frameworks for extraordinary climate occasions. Information quality, model interpretability, versatility, and moral contemplations are key zones that require consideration. Proceeded inquiry about and development in AI, coupled with intriguing collaboration, will play a significant part in upgrading the flexibility of communities and environments to extraordinary climate occasion within the confront of a changing climate.

KEYWORDS: Machine Learning, Profound Learning, Prescient Analytics, Normal Dialect Preparing, Geospatial Investigation, Meteorological Information.

SMART CONTRACT: LEGAL AND ETHICAL CONSIDERATION IN FINANCIAL TRANSACTIONS

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Abstract- Smart contracts represent a transformative technology that automates and executes contractual agreements using block chain-based protocols. While offering efficiency and transparency, smart contracts also raise significant legal and ethical considerations, particularly in financial transactions. This paper explores the legal and ethical dimensions of smart contracts in financial contexts, addressing issues such as contract formation, enforceability, liability, and regulatory compliance. By analyzing these considerations, the paper aims to provide insights into the challenges and opportunities posed by smart contracts in the realm of financial transactions.

Keywords- Smart contract, Block chain Technology, Legal Recognition, Ethical Consideration, Contract Automation, Future outlook.

Implementation of Solar Photovoltaic System with Universal Active Filtering Capability

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Abstract- In this work, a novel technique based on second order sequence filter and proportional resonant controller is proposed for control of universal active power filter integrated with PV array system (UAPF-PV). Using a second order sequence filter and sampling it at zero crossing of instant of the load voltage, the active component of distorted load current is estimated which is further used to generate reference signal for shunt active filter. The proposed method has good accuracy in extracting fundamental active component of distorted and unbalanced load currents with reduced mathematical computations. Along with power quality improvement, the system also generates clean energy through the PV array system integrated to its DC-bus. The UAPF-PV system integrates benefits of power quality improvement and distributed generation. The system performance is experimentally evaluated on an experimental prototype in the laboratory under a variety of disturbance conditions such as PCC voltage fall/rise, load unbalancing and variation in solar irradiation.

An evaluation has been conducted on the performance of a new control method for solar PV systems with universal active filtering. The essential nonlinear load positive sequence component a second order sequence filter and a zero cross detection method are used to extract current. A feed forward component and a proportional resonant controller constructed in the $\{-\}$ domain are used to regulate the series active filter. When there are disturbances like variations in solar radiation, load fluctuations, and PCC voltage dips and rises, the system functions satisfactorily. In addition to enhancing power quality, the technology feeds grid power from photovoltaic arrays. When the suggested control is compared to traditional control methods, the system performs better and requires somewhat less computing power. The system integrates distributed generation along with enhancing power quality of distribution system.

Keywords- Power quality, universal active power filter, adaptive filtering, photovoltaic system, maximum power point tracking, sequence filter.

BLOCKCHAIN AND SUPPLY CHAIN MANAGEMENT: ENSURING TRANSPARENCY AND TRACEABILITY

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Abstract – Block chain technology has emerged as a transformative solution for addressing challenges in supply chain management, particularly in ensuring transparency and traceability throughout complex global networks. This paper explores the applications of block chain in supply chains, focusing on its ability to enhance transparency and traceability of goods and transactions. We begin by elucidating the fundamental concepts of block chain, highlighting its decentralized ledger, consensus mechanisms, and immutability, which collectively contribute to data integrity and transparency. The discussion then delves into specific use cases of block chain in supply chain management, illustrating how it enables real-time tracking, provenance verification, and automated compliance through smart contracts. By leveraging digital identities and IoT devices, block chain facilitates the seamless integration of data across disparate supply chain entities, promoting visibility and accountability. Furthermore, we analyze the impact of block chain on regulatory compliance and industry standards, showcasing its role in meeting stringent requirements and enhancing interoperability. Implementation considerations and challenges, including scalability and integration complexities, are addressed to provide practical insights for organizations contemplating block chain adoption. In conclusion, this paper underscores the profound implications of block chain technology on supply chain transparency and traceability, outlining future trends and recommendations for harnessing its full potential in optimizing global supply chain operations.

Keywords- Block chain technology, Supply chain management, Digital identity, Distributed ledger technology.

A NOVEL MODEL FOR STORY VISUALIZATION USING NLP AND DEEP LEARNING

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Abstract-This paper proposes the integration of text-to-video generation, story to image generation, and audio generation systems to automate the creation of engaging multimedia content. Leveraging recurrent neural networks (RNNs) and convolutional neural networks (CNNs), this paper aims to translate text into video, generate corresponding images, and provide audio for further creativity. Through this integration, we seek to simplify multimedia storytelling and empower creators in various fields. This paper revolutionizes content creation, making it more accessible and inspiring for global audiences. By fostering a symbiotic relationship between technology and creativity, we aspire to push the boundaries of multimedia expression and captivate audiences worldwide.

Keywords: *Multimedia, Recurrent Neural Networks (RNNs), Convolutional Neural Networks (CNNs),*

TRANSLATING MULTI-LANGUAGE CODE TO PYTHON CODE WITH STELOCODER: A DECODER-ONLY APPROACH

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Abstract- In the realm of Large Language Models (LLMs), StarCoder and Code Llama have impressed with their code generation capabilities. However, there's still a need to enhance code translation efficiency. SteloCoder a specialized LLM built on StarCoder's foundation, tailored specifically for translating code from multiple languages to Python. SteloCoder doesn't require prior knowledge of the original language; it adeptly handles C++, C#, JavaScript, Java, or PHP and seamlessly translates it into Python. We've improved upon StarCoder's architecture by incorporating a technique called Mixture-of-Experts (MoE), featuring five experts and a gating network to manage various translation tasks. These experts are fine-tuned versions of StarCoder. To streamline training and optimize performance, we've implemented the Low-Rank Adaptive Method (LoRA) to constrain the size of each expert. This ensures efficient resource utilization without compromising quality. Additionally, we've employed curriculum learning and self-instruct data during training to expedite the process.

Keywords- Large Language Models (LLMs), SteloCoder, StarCoder, Code Llama, Mixture-of-Experts, Low-Rank Adaptive Method.

ADVANCING WITH AUTOMATED DATA SCRAPING AND PROCESSING

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Abstract- This paper addresses the challenge of acquiring sufficiently large training datasets for instance segmentation tasks in computer vision, and is crucial for real-world applications. This paper presents a fully automated pipeline that spans from data acquisition to the creation of a synthetic dataset. This approach involves scraping images from popular search engines based on text-based queries, providing a diverse range of images for analysis. Subsequently, it performs image selection to ensure relevance, thus alleviating the need for domain-specific datasets. The pipeline incorporates an object-agnostic background removal model and compares three image selection methods: object-agnostic pre-processing, manual selection, and CNN-based selection. In the subsequent step, generate random arrangements of objects and distracters on various backgrounds. Finally, it composes the images using four blending methods and illustrate the effectiveness of the approach through a case study on parcel segmentation.

Keywords- *Synthetic dataset, Data acquisition, object-agnostic background removal, CNN*

MULTILINGUAL VISUAL TEXT GENERATION AND EDITING USING DIFFUSION PIPELINE

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Abstract- A diffusion-based multilingual visual text generation and editing model, that focuses on rendering accurate and coherent text in the image. This paper comprises a diffusion pipeline with two primary elements: an auxiliary latent module and a text embedding module. The former uses inputs like text glyph, position, and masked image to generate latent features for text generation or editing. The latter employs an OCR model for encoding stroke data as embeddings, which blend with image caption embeddings from the tokenizer to generate texts that seamlessly integrate with the background. This project uses text-control diffusion loss and text perceptual loss for training to further enhance writing accuracy. It can write characters in multiple languages. It is worth mentioning that this proposed model can be plugged into existing diffusion models from the community for rendering or editing text accurately.

Keywords: Optical Characters Recognition (OCR) model, Multilingual, Visual text generation, Diffusion pipeline, Computer vision, Auxiliary latent module, Text embedding module.

DEEP LEARNING BASED VEHICLE DAMAGE SEVERITY ESTIMATION FOR INSURANCE CLAIMS FROM MOBILE IMAGES

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Abstract- This paper focuses on developing a system to estimate the severity of vehicle damage using images captured by mobile phones in real-world settings. This helps insurance companies quickly assess claims. The system is trained using lots of different pictures of damaged cars, so it can recognize different types of damages and how severe it is. By doing this, helps in making the insurance process faster and easier for everyone involved. Unlike existing approaches in car damage assessment, the proposed model uses semantic segmentation to understand which parts of the car are damaged, and to what extent. The proposed pipeline consists of several computer-vision models for the detection of damage and the determination of its extent. In this paper, vehicle damage severity estimation is done using in- the-wild mobile phone imagery, computer vision and deep-learning techniques.

Keywords- Computer vision, semantic segmentation, Insurance claims, Damage detection.

ENHANCED PRETRAINING CORPUS CURATION USING NEURAL WEB SCRAPING

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Abstract- Pretraining corpus curation involves the careful selection and preparation of text data to be used as input for pretraining a language model. Generally gathering, organizing and preparing data from web pages are the basic source of information to train language models. As webpages become more complex and advanced, traditional methods of extracting data from them, like rule-based or feature-based web scrapers, are not as effective as they used to be. However, rule-based and heuristic scrapers have notable limitations. On the one hand, web pages are becoming increasingly sophisticated, requiring more intricate underlying code to deal with the page layout. In this case, maintaining the scraper rules is time-consuming and requires much human effort. On the other hand, HTML functions as a markup language, enabling web designers to customize web pages according to individual preferences. Consequently, web pages frequently lack complete standardization, which may mislead the rule-based web scrapers. This paper introduces a novel technique called NeuScraper, which is a fast and efficient way to clean and extract the text from webpages. NeuScraper employs a shallow neural architecture and integrates layout information for efficient parsing.

Keywords: *Web scraping, Neural web scraping, Preprocessing, Primary text extraction, Clean text extraction.*

ESTIMATION OF AN INDIVIDUAL'S AGE AND GENDER IN CRAMPED AREAS USING REAL TIME AI-BASE

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Abstract-Gender identity is one of the most fundamental aspects of life. Automatic gender identification is increasingly being used in areas such as security, marketing, and social robots. The objective of this project is to address the challenges of gender and age identification in very crowded/noisy environments where faces are unclear and/or people are moving in relatively random directions. It presents an end-to-end real-time intelligent video analytics solution for instant people counting, gender and age estimation in crowded and open environments. The proposed solution includes a complete pipeline for training vision deep learning models and deploying them to edge devices connected to a distributed streaming analytics server. proposed final Deep Learning architecture is an extended version of Fair MOT, a multi-object tracking model, with two additional layers for multi-class gender classification and age regression. The training phase is performed using an enhanced and enriched version of the Crowd Human dataset, a public dataset for human detection, with gender and age annotation saddled.

Keywords: *Intelligent video analytics, deep learning, edge computing, multi-object tracking, deep learning model, Crowd Human dataset.*

CERTIFICATE AUTHENTICATION USING BLOCK CHAIN TECHNOLOGY

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Abstract- Block chain is revolutionizing data security and efficiency in multiple industries, marking its emergence as a transformative technology in the digital landscape. The validation-checking process, utilized in blockchain-based certificate management systems, begins with users providing the certificate hash, either manually or through QR code scanning. The proposed paper is to employ this input to search for correction data within the correction chain, a key area of blockchain technology. If no relevant information is found in the correction chain, the technique proceeds to search the certificate chain for the original certificate hash. Finally, based on these searches, the technique outputs the certificate status, indicating whether it is valid, corrected, or nonexistent.

Keywords: *Validation-checking process, Certificate hash, QR code scanning, Correction chain, Blockchain technology, Certificate chain, Certificate status.*

INTEGRATING INTERPRETABLE MODELS WITH LARGE LANGUAGE MODELS FOR UNDERSTANDABLE PREDICTIONS

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Abstract -In the era of advancing machine learning, interpretable models have emerged as pivotal tools, designed to bridge the gap between complex algorithms and human understanding. This proposed paper unveils an intriguing synergy between large language models (LLMs) and interpretable frameworks. Through a comprehensive exploration, This paper unveils the innate ability of LLMs to articulate, dissect, and troubleshoot Generalized Additive Models (GAMs). By harnessing the fluidity of LLMs alongside the nuanced statistical nuances encapsulated by GAMs, This unlocks new vistas for dataset summarization, insightful question answering, and rigorous model evaluation. LLMs serve as catalysts for fostering synergy between domain experts and interpretable models, fostering a fertile ground for hypothesis generation and deeper insights into the underlying phenomena.

Keywords: Machine learning, Interpretable models, Large language models (LLMs), Generalized Additive Models (GAMs), Synergy, Hypothesis generation.

MULTI MODAL MOBILE DEVICE SMART HELPER

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Abstract- The main goal of the proposed paper is to assist the mobile users. This proposed paper decomposes the given task into multiple operations and demonstrates the navigating steps visually. The technique is a Multi modal technique because it responds to various modes of communication like verbal, audio etc.. Mobile-Agent is like a smart helper for your phone or tablet. Unlike older methods, Mobile-Agent is flexible and can work on different devices without needing special changes. Overall, Mobile-Agent is a helpful technique that makes using mobile devices easier. Mobile-Agent allows for greater adaptability across diverse mobile operating environments in a vision-centric way, thereby eliminating the necessity for system-specific customization.

Keywords- Mobile-Agent, Multimodal, Large Language Models, Reinforcement Learning.

FINLANG: EMPOWERING FINANCIAL INSIGHTS WITH LARGE LANGUAGE MODELS

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ABSTRACT- Finance Large Language Model" (FinLLM) would likely refer to a large language model specifically designed and trained for applications in the field of finance. Large language models, such as GPT (Generative Pre-trained Transformer) models, can be adapted and fine-tuned for various domains and industries, including finance. A FinLLM would be trained on a vast amount of financial text data, such as financial reports, market news, economic analyses, and regulatory documents. It would then be capable of understanding and generating text relevant to finance, including tasks like financial document summarization, sentiment analysis of market news, financial risk assessment, portfolio management advice, and more. Developing a FinLLM could be particularly useful for financial institutions, investment firms, regulatory agencies, and other organizations operating in the finance industry, as it could help automate various tasks, improve decision-making processes, and enhance overall efficiency.

Keywords: *Finance, Large Language Model, FinLLM, GPT, Generative Pre-trained Transformer, Regulatory documents,*

PRIVACY PRESERVING USING GENERATIVE ADVERSARIAL NETWORK

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Abstract-Generative Adversarial Networks (GANs) and their variants offer a powerful means of generating realistic data representations, particularly in scenarios with limited data availability. However, when applied to sensitive data like medical records, there's a risk of inadvertently leaking private information. To address this, we propose a Privacy-preserving Generative Adversarial Network (PPGAN) model that integrates differential privacy principles into the GAN training process. By adding carefully designed noise to the gradient during training and implementing the Moments Accountant strategy to manage privacy loss, PPGAN ensures that sensitive information is protected while still generating high-quality synthetic data. Extensive experimentation with benchmark datasets demonstrates that PPGAN effectively balances data utility with privacy preservation, offering a promising solution for generating synthetic data in privacy-sensitive contexts.

Keywords: *Generative Adversarial Networks (GANs), Privacy-preserving, Differential privacy, Synthetic data generation, Moments Accountant, Benchmark datasets.*

ORGAN DONATION AND TRANSPLANTATION MANAGEMENT SYSTEM BY SMART CONTRACTS

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Abstract: - Organ donation and transplantation are crucial medical procedures that require efficient management system to ensure successful outcomes. Current systems often suffer from issues such as lack of transparency, lengthy processes and susceptibility to fraud. Streamline the entire organ donation and journey, from donor consent to recipient selection, promotes efficiency and reduces unnecessary delays, ultimately improving the overall patient experience. In this paper, this proposal an innovative approach to improve organ donation and transplantation management using smart contracts. This system leverages the transparency and security features of blockchain to create a decentralized platform for managing organ donation and transplantation processes. Smart contracts are used to automate and enforce the rules and agreements between stakeholders, elimination the need for intermediaries and reducing the risk of errors or fraud. This project Demonstrate the effectiveness of our approach through a prototype implementation and discuss its potential to revolutionize organ donation and transplantation management by enhancing transparency, efficiency and trust among stakeholders.

Keywords: *Organ donation, organ transplantation, smart contracts, decentralized*

A CRYPTO CURRENCY PRICE FLUCTUATION PREDICTION MODEL UTILIZING SENTIMENT ANALYSIS AND SOCIAL INFLUENCE

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Abstract: -Cryptocurrency, serving as an alternative payment method and virtual ledger system, garners considerable attention from investors. Public sentiment surrounding cryptocurrencies can significantly impact their prices. The Cryptocurrency with the highest market capitalization among digital currencies are Bitcoin, Ethereum and Litecoin poses unique challenges for price prediction due to its volatile nature and complex influencing factors. Unlike traditional financial assets, these prices dynamics are shaped by various factors including market demand, investor sentiment, regulatory developments, and technological advancements. To address these challenges, researchers have turned to sentiment analysis techniques applied to Google News and Reddit. By analysing sentiment expressed in social media platform, particularly from sources like Google News and Reddit, researchers aim to gauge market sentiment towards Bitcoin, Ethereum and Litecoin which may impact its price movements. Utilizing Long Short-Term Memory (LSTM) neural networks, researchers have developed models capable of incorporating historical cryptocurrency prices to predict future cryptocurrency values. Evaluating the model's performance using metrics such as Root Mean Square Error (RMSE), the study reports promising results with the LSTM model achieving a low test RMSE of 434.87, indicating improved predictive accuracy. This research underscores the importance of considering non-traditional data sources and sentiment analysis techniques in cryptocurrency price forecasting, offering valuable insights for investors, traders, and researchers navigating the dynamic landscape of digital asset markets.

Keywords: *Cryptocurrency, Price Fluctuation prediction, LSTM, ARIMA, IBWPS, HMSA, RMSE*

DETECTION AND PREDICTION OF DRIVER DROWSINESS USING RECURRENT NEURAL NETWORKS

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Abstract- Drowsy driving is a significant cause of road accidents worldwide, leading to injuries and fatalities. In this study, we propose a novel approach for the detection and prediction of driver drowsiness using Recurrent Neural Networks (RNNs). Our system integrates real-time data from various sources such as video feeds, vehicle sensors, and physiological signals to assess the driver's alertness level. The RNN model processes sequential data, capturing temporal dependencies and patterns indicative of drowsiness onset. We employ techniques such as Long Short-Term Memory (LSTM) cells to enable the model to learn and predict drowsiness states effectively. Furthermore, we evaluate the performance of our approach through extensive experimentation on diverse datasets, demonstrating its capability to accurately detect and predict drowsiness episodes. Our findings suggest that leveraging RNNs for driver drowsiness detection holds promise in enhancing road safety by providing timely alerts and interventions to prevent potential accidents.

Keywords- Driver drowsiness, traffic accidents, detection systems, RNN Model, LSTM

SELF-SUPERVISED FORECASTING IN ELECTRONIC HEALTH RECORDS WITH ATTENTION-FREE MODELS

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Abstract: This study introduces a novel approach to improving healthcare demand forecasting in Electronic Health Records (EHR) using self-supervised learning and attention-free models. Leveraging these techniques, we aim to enhance predictive accuracy and scalability in healthcare utilization predictions. By applying self-supervised learning methods and attention-free models to EHR data, our approach shows promising results in capturing the nuanced patterns within patient demographics, including those with rare diseases. Through rigorous evaluation, we demonstrate the effectiveness of our method in surpassing traditional baselines, highlighting its potential for enhancing healthcare service planning and resource allocation.

Keywords- Electronic Health Records (EHR), attention-free models, self-supervised learning

STRATEGIC AMBULANCE DEPLOYMENT FOR ROAD ACCIDENTS BY USING DEEP EMBEDDED CLUSTERING

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Abstract-Emergency medical services (EMS) play an important role in lowering the death and morbidity rates connected with traffic accidents. Optimal ambulance location can have a substantial influence on response times, eventually saving lives. In this article, we offer a unique technique that uses deep embedded clustering (DEC) to discover the best sites for putting ambulances in front of traffic accidents. The DEC approach takes advantage of deep learning and clustering techniques to learn representations of road accident data in a high-dimensional space and then sort them into clusters. By embedding road accident data in a lower-dimensional space, DEC allows for efficient grouping and identification of in determining ideal ambulance deployment sites. Our findings show that the DEC-based technique surpasses standard clustering approaches in terms of accuracy and scalability. Furthermore, we conduct a comparison study with existing ambulance positioning tactics, demonstrating the suggested method's superiority in lowering response times and increasing total emergency medical care efficiency.

Keywords: Include ambulance location, road accidents, deep embedded clustering, emergency medical services, and response time optimization.

ENHANCED SIGNATURE VERIFICATION: A MULTI-CLASSIFICATION APPROACH VIA HYBRID CNN AND HOG FEATURE EXTRACTION

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Abstract: The feature extraction of an offline signature verification system is regarded as crucial and has a significant impact on the performance of these systems, as the quantity and calibration of the extracted features determine how well these systems can differentiate between authentic and fake signatures. The paper introduces a hybrid method for feature extraction from signature images in offline signature verification systems. The method uses a combination of Convolutional Neural Network (CNN) and Histogram of Oriented Gradients (HOG) techniques, followed by a feature selection algorithm (Decision tree) to identify key features. The hybrid method was evaluated using classifiers (SVM-Support Vector Machine).

Keywords- *Convolutional Neural Network, Histogram Orientation Gradients, Digital Signature*

PERSONALIZED ANOMALY-ENCODED BEDSIDE DATA FOR ICU PATIENT RISK ESTIMATION

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Abstract-Our proposed framework offers a novel approach to continuously estimate the health risk of patients in intensive care units (ICUs) using anomaly-encoded patient data. Comprising two distinct modules, the first module employs Gaussian process models to discern changing trends and day-night circadian rhythms within temporal patient data, allowing for the annotation of abnormal data points. This module facilitates dynamically adaptable bedside patient monitoring, moving away from traditional threshold-based methods. In the second module, the abnormal data identified by the Gaussian models are utilized alongside learned patterns to estimate patients' risk levels, including in-hospital mortality and remaining ICU stay duration. We demonstrate that prediction models incorporating anomaly-encoded data outperform those relying solely on raw patient measurements and are comparable to state-of-the-art prediction models. This framework presents a promising avenue for improving ICU patient monitoring and risk assessment, potentially leading to enhanced patient outcomes and reduced false alarms. harnessed alongside learned patterns to estimate various risk levels for patients, such as in-hospital mortality and the duration of remaining ICU stay. By incorporating anomaly-encoded data, this module surpasses prediction models relying solely on raw patient measurements, showcasing comparable performance to state-of-the-art prediction models. Overall, this framework represents a promising advancement in ICU patient care, promising improved monitoring precision and risk assessment. By potentially reducing false alarms and enhancing patient outcomes, it opens doors for significant advancements in critical care medicine.

Keywords- *Convolutional Neural Network, Random Forest, XGBoost*

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ENHANCING IMAGE TRANSPARENCY WITH LATENT DIFFUSION LAYER

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Abstract- This project aims to enable large-scale pretrained diffusion models to generate transparent images using latent diffusion layer model. The proposed method can produce single transparent images or multiple transparent layers. It learns a unique form of "latent transparency" that embeds alpha channel transparency into the latent space of a pretrained diffusion model. The high quality of the original model is preserved by adjusting transparency as a latent offset with minimal changes to the model's original latent distribution. This allows any diffusion model to function as a transparent image generator with fine-tuning. The model was trained with 1 million transparent image-layer pairs collected using human input. The technique can be implemented in various open-source image generators or adapted for different purposes such as foreground/background-conditioned layer generation or structural control of layer contents. This project serves as a valuable tool for graphic designers, digital artists, and anyone in need of high-quality transparent images.

Keywords: Image Enhancement, Transparency Enhancement, Latent Diffusion, Diffusion Models, Latent Space Manipulation, Image Processing.

COST-EFFICIENT LOGISTICS MANAGEMENT THROUGH AI ENSEMBLE LEARNING

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Abstract- The logistics industry is under constant pressure to streamline operations and cut costs while maintaining efficiency and meeting customer demands. To address this challenge, leveraging advanced technologies like artificial intelligence (AI) and machine learning (ML) has become crucial. The proposed AI-driven ensemble machine learning approach to optimize cost strategies within logistics businesses. The system integrates various ML algorithms, including decision trees, random forests, gradient boosting, and neural networks, to analyze complex datasets covering factors like transportation routes, fuel prices, vehicle maintenance schedules, and demand forecasts. By combining the intelligence of these algorithms through ensemble learning techniques, the system can provide more accurate predictions and recommendations for cost optimization. Input of the system includes data preprocessing to handle missing values and outliers, feature engineering to extract insights from raw data, model training using historical and real-time data, and model evaluation to ensure performance and robustness. The system incorporates feedback mechanisms to adapt to changing business dynamics continuously.

Keywords: *Logistics, Cost optimization, Artificial intelligence (AI), Machine learning (ML), Ensemble learning.*

YOLO WORLD REAL-TIME OPEN VOCABULARY OBJECT DETECTION USING ZERO-SHOT METHOD

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Abstract- In this project YOLO (You Only Look Once) method is a real-time object detection takes due to its speed and accuracy. Open vocabularies refer to sets of words or phrases that are not limited to a specific application. In this project convolutional neural network (CNN) is used. YOLO with open vocabulary detection capabilities through vision language modeling and pre-training on 1 system that can identify objects in images and videos. It is a popular choice for objects large-scale and LVIS (Large Vocabulary Interactive System) datasets. The proposed method excels in detecting a wide range of objects in a Zero-Shot method. YOLO World is a known and unknown object detected with the help of language. The input images or videos can come various sources such as recordings, cameras various formats JPEG (joint photographic experts groups), PNG (portable network graphics). YOLO detects objects within images or frames by outputting bounding boxes around each detected object. These bounding boxes specify the location and size of the identified objects.

Keywords: *YOLO, Convolutional neural network, vision language modeling, LVIS (large vocabulary interactive system), zero-shot, YOLO world, input images or videos, JPEG (Joint Photographic Experts Group), PNG (Portable Network Graphics).*

WILDTRACK– APPLIES COMPUTER VISION TO ANIMAL FOOT PRINT CLASSIFICATION

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Abstract- This paper introduces a cutting-edge real dog biometric system tailored for the identification and characterization of animal life in both images and videos, leveraging state-of-the-art machine vision methodologies, particularly convolutional neural networks (CNNs). A pivotal aspect of the system entails the intricate analysis of animal footprints, facilitated by innovative preprocessing techniques including the conversion of footprint images into grayscale boundaries and the extraction of discriminative features through Gabor filters. Furthermore, to streamline the classification process and alleviate the complexity of feature vectors derived from footprint images, dimensionality reduction techniques such as Principal Component Analysis (PCA) are applied. Subsequently, classification tasks are executed via a sophisticated Probabilistic Neural Network (PNN), ensuring accurate delineation of animal classes based on the extracted features. The performance of the system is evaluated through a comprehensive array of metrics, encompassing accuracy, precision, recall, and F1-measure. The utilization of the Footprints 0 dataset, comprising images across five distinct animal categories, facilitates robust training and evaluation procedures. This paper represents a significant breakthrough in the domain of animal biometrics within the context of machine vision, laying a solid foundation for future research endeavors aimed at augmenting system capabilities and expanding its applicability across diverse domains and scenarios.

Keywords- Probabilistic Neural Network, precision, recall, F1score

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LEVERAGING DEEP LEARNING FOR EMOTIONAL STATE CLASSIFICATION IN POETRY

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Abstract- The classification of emotional states from poetry or formal text has received less attention by the experts of computational intelligence in recent times as compared to informal textual content like SMS, email, chat, and online user reviews. In this project, an emotional state classification system for text is proposed using the latest and cutting-edge technology of Artificial Intelligence and a new technique proposes an emotional state classification system for poetry text that utilizes Deep Learning technology like CNN. For this purpose, a BERT model is implemented on the text corpus. The proposed approach classifies the poetry into different emotional states, like neutral, joy, fear, sadness, anger, etc.

Keywords:- *Deep Learning, BERT technique, Emotion classification.*

PERSON DETECTION AND TRAJECTORY ANALYSIS WITH ARTIFICIAL INTELLIGENCE

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Abstract- Electronic devices are used to count people entering and existing a building. This system relies on accurate artificial intelligence algorithm to process video from existing webcams setup. However, webcam cameras are usually placed at entrances and exits due to privacy concerns, not for optimal counting. This system can also identify people who are entering after hours, and it stores this data for management. This helps with security and discipline. In emergencies, the system can provide real-time counts of people in the building. This project presents an innovative approach leveraging state-of-the-art algorithms such as YOLO (You Only Look Once), CNN (Convolutional Neural Networks), and SVM (Support Vector Machines) to address the challenges associated with accurate person detection and trajectory analysis in complex environments.

Keywords- *Accurate person detection and Trajectory analysis in complex environments, CNN, YOLO, SVM.*

OPTIMIZATION OF PESTICIDES SPRAY ON CROPS USING MACHINE LEARNING

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Abstract-In contemporary agricultural practices, pesticides play a pivotal role in safeguarding crop yields from pest infestations. However, the indiscriminate use of pesticides poses significant challenges, including environmental degradation, human health risks, and the emergence of pesticide-resistant pests. To address these concerns, this research proposes an innovative methodology to mitigate the repetitive application of pesticides in agriculture. By integrating adjuvant, chemical agents designed to enhance pesticide performance, with advanced machine learning algorithms, a more precise and targeted approach to pesticide application is achieved. The study, focusing on insecticide usage in India, employs logical regression classification, polynomial regression, and the K-nearest neighbor algorithm to identify specific areas within crop fields requiring pesticide treatment. Through this approach, it is anticipated that the efficiency of pesticide application will be optimized, minimizing environmental impact, reducing health risks, and ultimately contributing to sustainable agricultural practices.

Keywords- *Logical regression, polynomial regression, K-nearest neighbor, Sustainable agriculture.*

ECOMGPT: E-COMMERCE INSTRUCTION TUNING OF LARGE LANGUAGE MODELS VIA CHAIN- OF-TASK TASKS

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Abstract- Recently, big language models like ChatGPT have been really good at understanding and working with all sorts of language tasks. But when it comes to e-commerce data, they struggle because it's different from regular language. We need a special kind of language model just for e-commerce stuff, one that can handle different tasks from different datasets really well. So, we made a new dataset called EcomInstruct, focusing on e-commerce instruction, with 2.5 million examples. We broke down e-commerce tasks into smaller steps called atomic tasks to cover a wide range of tasks. Then we trained a new model called EcomGPT is good at understanding the basics of e-commerce tasks, which helps it perform well even on tasks it hasn't seen before. We tested it a lot, and people think it's better than ChapGPT at handling e-commerce tasks from different datasets.

Keywords: ChatGPT, EcomInstruct, EcomGPT, e-commerce.

PUPIL PULSE: TRACKING HEART RATE VARIABILITY WITH PUPILLARY RESPONSES ON MOBILE DEVICES

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Abstract-Heart disease has become a highly frequent and serious condition that can be easily avoided if treated early. As a result, everyday monitoring of heart health has become more vital. This project aims to create a novel method for monitoring heart health through a mobile device. Traditional methods require specialized equipment's, but the proposed method provide a connection between pupil size and heart rate variability, a new method called Pupil Heart is proposed. Pupil Heart uses the Front-Facing camera to monitor pupil size changes when users unlock their phones. These Changes are analyzed using advanced computer algorithms on both phones and a server. Raw pupil size data is processed on a server using a 1-D CNN to identify HRV related features. An RNN with three hidden layers is trained to model pupil and HRV Data. By doing this, this project can predict your Heart rate variability and provide insights into your heart health every time you unlock your phone. This technology has the potential to revolutionize heart health monitoring, enabling early detection and intervention for better heart care.

Keywords- 1-D Convolutional Neural Network (1-D CNN), Pupil-Heart Model, Pupillary Response, Recurrent Neural Network (RNN).

BIOMETRIC BASED VOTING SYSTEM

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Abstract- The most severe and frequently happening situations while conducting elections is rigging (One person give multiple votes). Right now, we are using an electronic voting machine and to identify people who already gave their vote, people will be given an ink mark on the finger. But today because of rapid development in technology, that can be erased and there is a chance of rigging. Through this project, you are going to create a unique Finger print based Voting system in order to avoid the above-mentioned problem. Biometric Finger print devices are used in the Electronic Voting machine for voter verification. We have designed a finger print based voting machine where there is no need for the user to carry his ID which contains his required details. The person at the polling booth needs only to place his Finger on the device.

Keywords- Biometric identification, Digital identity, Voting system, Finger print authentication.

LOWER LIMB ACTIVITY RECOGNITION USING STACKED WEIGHTED RANDOM FORESTS AND SURFACE ELECTROMYOGRAPHY

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Abstract- Current surface electromyography-based pattern recognition systems (SEMG-PRS) often struggle with limited generalizability, hindering their practical use in the Weighted Random Forest (SWRF) algorithm to improve the long-term usability and user adaptability of sEMG. The imbalanced performance of standard Random Forests (RF) by introducing a Weighted Random Forest (WRF) layer. WRF assigns weights to individual decision trees based on their performance the randomness effect of sampling and feature selection. The strengths of both RF and WRF. In base learner uses an RF, while the meta-learning layer utilizes WRF. This two-stage approach enhances the overall generalizability of the model. SWRF against established classification algorithms, including RF, WRF, Long Short-Term Memory (LSTM), and Support Vector Machine (SVM), using both offline datasets and online experiments. The offline experiments demonstrate SWRF's superior performance, achieving an average classification accuracy. Online experiments further confirm SWRF's effectiveness in long-term usability and user adaptability.

Keywords: *Surface Electromyography, Weighted Random Forest, Long Short-Term Memory.*

A HYBRID FEATURE SELECTION AND ENSEMBLE APPROACH TO IDENTIFY DEPRESSION DETECTION

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Abstract- Changes in human lifestyle have led to an increase in the number of people suffering from depression over the past century. Although, in recent years rates of diagnosing mental illness have improved, many cases remain undetected. Automated detection method can help to identify depressed or individuals at risk. An understanding of depression detection requires effective feature representation and analysis of language use. In this text classifier are trained for depression detection. The key objective is to improve depression detection performance by examining and comparing two sets of methods: hybrid and ensemble. The results show that ensemble models outperform the hybrid model classification results. The strength and effectiveness of the combined feature demonstrate that better performance can be achieved by multiple feature combinations and proper feature selection. The techniques employed in the study encompassed text classification, feature representation, hybrid and ensemble modeling, feature selection, and performance evaluation. Leveraging these methodologies, the research aimed to define depression detection by analyzing language use effectively. Results demonstrated the superiority of ensemble models over hybrid ones, highlighting diverse feature selection for optimal performance. The conclusion emphasizes the pressing need for enhanced depression detection amidst rising prevalence rates, showcasing the potential of automated methods to improve mental health outcomes through early intervention and support for at risk individuals.

Keywords: *Depression detection, Text classification, Feature representation, Hybrid modeling, Ensemble modeling, Feature Selection, Language use, Mental illness, Detection rates, Machine learning.*

MEDICAL INSURANCE PREMIUM PREDICTION USING REGRESSION MODELS

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Abstract: Predicting medical insurance premiums accurately is crucial for both insurance companies and policyholders. In this study, we explore the use of regression models to estimate medical insurance premiums based on various factors such as age, gender, pre-existing conditions, lifestyle, and geographic location. We employ linear regression, ridge regression, and other regression techniques to develop predictive models using historical insurance data. Feature engineering is utilized to enhance the predictive power of the models. The performance of the models is evaluated using metrics such as mean squared error (MSE) and R-squared. Our findings suggest that regression models can effectively predict medical insurance premiums, providing valuable insights for insurance companies and policyholders alike.

Keywords: Regression models, Medical insurance, Premium prediction, Demographics, Risk factors. Mean squared error (MSE)

ADVANCE DEEP LEARNING APPROACH FOR ACCURATE ACCIDENTS DETECTION IN TUNNEL OF CCTV FOOTAGE

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Abstract-Accurate detection of accidents in tunnel CCTV footage is imperative for ensuring prompt response and mitigating potential hazards. Existing methods often suffer from limitations such as low accuracy and high false alarm rates. In this project, we propose an advanced deep learning approach for precise accident detection in tunnel surveillance videos. Leveraging convolution neural networks (CNNs) and other deep learning techniques, our method aims to efficiently extract relevant features and classify incidents with high accuracy. We conduct extensive experiments on real-world CCTV footage to evaluate the performance of our approach, demonstrating its effectiveness in accurately detecting accidents while minimizing false alarms. The proposed system holds significant potential for enhancing tunnel safety and emergency response capabilities.

Keywords: *Faster RCNN, Object Detection & Tracking system, CCTV, Convolution neural networks (CNNs)*

VISUAL HEALTH & NUTRITION ADVISOR: AI-POWERED CALORIE PROGNOSTICATION, BMI ANALYSIS, AND VISUAL MASS ESTIMATION FROM IMAGES.

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Abstract - Deep learning methods and several forms of artificial intelligence are used in research on food safety traceability systems, based on these technologies this project calculating the Calories content of the food, which assists individuals in crafting a balanced and healthy diet. This idea involves developing a diet chat-Bot for end users that is not only assists in planning their meals but also provides suggestions when they consume excess calories and also gives health tips. This idea also includes providing users with a feature to upload their images, allowing the system to calculate their Body Mass Index (BMI) based on their height and weight information extracted from the images. This project helps users to use food images consisting of various food classes and estimate automatically the calories gained and select the suitable one. This project presents an innovative approach leveraging state-of-the-art algorithm such as CNN(Convolution Neural Networks),RFR(Random Forest Regression).

Keywords: *Food safety traceability, Artificial Intelligence, Deep learning, Body Mass Index (BMI), Convolutional Neural Networks (CNN), Random Forest Regression (RFR).*

PASSPORTGUARD: ADVANCED PASSPORT VERIFICATION SYSTEM USING DEEPL EARNING

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Abstract- Detecting a fake passport poses a significant challenge to border security worldwide. However Traditional manual methods of passport authentication often struggle to detect forged documents. To address this issue we develop a deep learning –based approach for fake passport detection. The project aims to develop a fake passport detection using Shuffle Netv2 model. First the Shuffle Netv2 model is a light weight Architecture it helps in image classification and object detection. The Shuffle Netv2 also uses Pixel attention to focus on important features like in watermarks and holograms. It also checks the data imbalance in person age, place of birth and name etc. Secondly we use Convolutional Neural Network model (CNN) which differentiate between genuine and fake passports by extracting relevant feature from the input images. The dataset given in detecting fake passport is text images and documents. Now the training and testing is validated based on input dataset which we taken input in text images and documents. The data will be tested on various stages in shuffle Net v2. The proposed deep learning based approach in fake passport detection will be easy to identify the fake and forged passports in border security with enhanced passport authentication systems. By automating the detection process, our approach can improve efficiency, accuracy, and consistency in identifying fake passports, ultimately contributing to enhanced security and public safety.

Keywords: *Passport, Shuffle Netv2, Convolutional Neural Network (CNN), Image Preprocessing*

DEEP LEARNING TECHNIQUES FOR AYURVEDIC HERB EXTRACTION: ENHANCING MEDICAL PROPERTIES FOR IMPROVED HEALTH

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Abstract

The integration of deep learning techniques, specifically Convolutional Neural Networks (CNN), for the identification and classification of Ayurvedic herbs. Leveraging datasets comprising images of Ayurvedic herbs, collected through scanning leaves with high-resolution scanners and utilizing images captured via cameras, the study delves into preprocessing techniques and model training methodologies. Evaluation of model performance includes considerations of accuracy, loss, and validation metrics, with results depicted through confusion matrices. This underscores the importance of preserving and digitizing information on traditional medicinal systems like Ayurveda, which harnesses nature's resources to address a myriad of health ailments. Through the utilization of deep learning and transfer learning methods such as DenseNet121 and ResNet50, the study aims to facilitate the recognition and understanding of Ayurvedic herbs and their therapeutic properties. Furthermore, this emphasizes the significance of consulting qualified practitioners before adopting herbal remedies due to potential interactions with medications and individual allergic reactions. Ultimately, this project contributes to advancing the accessibility and utilization of Ayurvedic knowledge in the broader medical landscape, promoting holistic wellness grounded in centuries-old traditions.

Keywords: Convolutional Neural Network (CNN), Accuracy, Deep learning, Densenet121, Resnet50.

A STUDY ON FINANCIAL PERFORMANCE OF NATIONAL INSURANCE COMPANY

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Abstract- This paper presents a comprehensive analysis of the financial performance of the National Insurance Company over the past decade, leveraging ten years of meticulously gathered financial data and employing robust financial ratio analysis. The study aims to offer deep insights into the company's operational efficacy, profitability, liquidity, and overall financial robustness within the insurance sector. The findings not only provide stakeholders, policymakers, and industry experts with valuable perspectives on the National Insurance Company's performance trajectory but also illuminate strategic avenues for enhancing its competitive positioning and long-term sustainability. This research underscores the imperative of informed decision-making, prudent risk management, and adaptive strategies in navigating the dynamic landscape of the insurance market, thereby contributing to the advancement of financial performance evaluation methodologies in the insurance sector.

Keywords: *National Insurance Company - Financial Performance - Strategic Decision Making*

A STUDY ON CAPITAL STRUCTURE DECISION FOR WEALTH MAXIMIZATION OF FOODS AND INNS LTD

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Abstract - This study investigates the pivotal role of capital structure decisions in maximizing wealth within the food processing industry, with a specific focus on Foods & Inns Ltd as a case study. Through an in-depth analysis of financial data, industry trends, and market dynamics, it also explores the optimal balance between debt and equity financing to enhance the firm's value and long-term sustainability. Utilizing a blend of quantitative methods and financial modeling techniques, it evaluates various capital structure strategies to identify the most advantageous one for Foods & Inns Ltd. The study analysis delves into the complex relationship between leverage, risk management, and shareholder wealth creation, providing insights into the strategic approaches that can drive value optimization in the food processing sector. Moreover, the study also discusses the implications of our findings for financial practitioners, investors, and policymakers, emphasizing the significance of aligning capital structure decisions with organizational objectives and industry-specific challenges. By discerning the determinants of optimal leverage and capital allocation, companies like Foods & Inns Ltd can better navigate competitive pressures and capitalize on growth opportunities in the dynamic food processing landscape.

Keywords: *Capital Structure - Wealth Maximization - Financial Analysis*

A STUDY ON FINANCIAL PERFORMANCE OF ANDHRA PRADESH SOUTHERN POWER DISTRIBUTION COMPANY LIMITED (APSPDCL)

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Abstract - This paper explores the financial performance of the Andhra Pradesh Southern Power Distribution Company Limited (APSPDCL) over the past decade, employing a comprehensive analysis of financial ratios. The study aims to assess APSPDCL's operational efficiency, profitability, liquidity, and overall financial viability of the company for the last ten years by applying financial tools. It provides valuable insights into APSPDCL's financial health and performance trends over time. The study offers critical perspectives for stakeholders, regulators, and policymakers in the energy sector, informing strategic decision-making and facilitating efforts to enhance the company's financial sustainability and operational effectiveness. This study contributes to the existing literature on power distribution company performance evaluation and offers practical implications for management strategies and regulatory frameworks in the energy industry.

Keywords: *APSPDCL - Financial Performance - Suggestions.*

A STUDY ON FINANCIAL PERFORMANCE OF CANARA BANK

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Abstract - This study investigates the financial performance of Canara Bank over the past decade through an analysis of key financial ratios. Leveraging ten years of financial data, the research aims to provide insights into the bank's operational efficiency, profitability, liquidity, and overall financial health. By utilizing established financial metrics, such as return on assets, return on equity, and debt-to-equity ratio, a comprehensive evaluation of Canara Bank's performance is conducted. The findings of this study shed light on the bank's strengths, weaknesses, and areas for potential improvement, offering valuable insights for stakeholders, investors, and policymakers. Understanding the financial dynamics of Canara Bank is crucial for strategic decision-making and ensuring the bank's long-term sustainability in a competitive banking landscape. This research contributes to the existing literature on banking performance evaluation and offers practical implications for the management and regulation of financial institutions.

Keywords: *Canara Bank - Financial Health - Strategic Decision Making - Sustainability.*

IMPACT OF TRAINING AND DEVELOPMENT ON EMPLOYEE PERFORMANCE

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Abstract Absenteeism among employees in an organization cause many problems in the organization. At the same time absenteeism cannot be completely avoided. Hence a study on the effect of absenteeism on employee performance has to be made. If the impact of absenteeism is very much unfavorable and deteriorates the employee performance, the organization should makes its human resource policies more rigid and control absenteeism. The reasons for absenteeism could be either personal or official. The family environment and the financial pressure as well the health conditions are found to be the major reasons for employees not being able to attend their task on a regular basis. The organization factors such as peer pressure, attitude of superior and the nature of work are the major causes for absenteeism. Hayath foods in Chittoor employs around two hundred people and the absenteeism is one of the major personnel issue that need to be addressed by the organization. A descriptive study with an hypothesis of absenteeism has no significant impact on employee performance is made. The primary data is obtained from the sample employees. The collected data is analysed using hypothesis testing methods. The result concluded that absenteeism has an impact on the performance of task among the employees.

Key words : *Absenteeism, Employee Performance And Policies*

RECRUITMENT AND SELECTION EFFECTS ON ORGANIZATIONAL PERFORMANCE OF TASA FODS PVT LTD

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Abstract : Recruitment refers to the process of identifying, attracting, interviewing, selecting, hiring and onboarding employees. In other words, it involves everything from the identification of a staffing need to filling it. Depending on the size of an organization, recruitment is the responsibility of a range of workers. Selection is the process of choosing employees to fill specific jobs within an organization. This process typically includes reviewing applications or resumes, interviewing candidates, and making a final decision. A study on the recruitment and selection effects on organizational performance of Tasa Foods Pvt Ltd would likely summarize the research findings, methodology, and key insights. It could touch upon how Tasa Foods' recruitment and selection practices impact various aspects of organizational performance such as productivity, employee satisfaction, and overall effectiveness. The study might also highlight any unique factors or strategies employed by Tasa Foods in its recruitment and selection processes and their implications for organizational success .

Keywords: *Recruitment and selection ,Organizational performance.*

IMPACT OF TRAINING AND DEVELOPMENT ON EMPLOYEE PERFORMANCE

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Abstract: The study aims to analyse the Consumer Perception towards services of Cholamandalam Insurance Company Ltd. This abstract presents an overview of consumer attitudes and behaviors towards the services provided by Cholamandalam Insurance Company Ltd. Through surveys, interviews, and social media analysis, this study investigates customer satisfaction levels, perceptions of service quality, and areas for improvement. By examining factors such as brand image, customer demographics, and the overall consumer journey, insights are gleaned to enhance the company's offerings and improve customer satisfaction. Understanding these perceptions is crucial for Cholamandalam Insurance to tailor its services effectively and maintain a competitive edge in the insurance market.

Keywords: *Consumer Perception, Service Quality, Cholamandalam Insurance, Customer Satisfaction, Insurance Industry, Market Research*

HRM PRACTICES AND ITS IMPACT ON EMPLOYEE PERFORMANCE

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Abstract- This study investigates the relationship between Human Resource Management (HRM) practices and employee performance in Foods and inns, Chittoor. Specifically, it examines how various HRM strategies such as recruitment and selection, training and development, performance appraisal, compensation, and employee engagement influence individual and organizational performance metrics. Drawing from a comprehensive review of existing literature and empirical research, the study identifies key HRM practices that significantly enhance employee productivity, motivation, job satisfaction, and overall performance. The findings underscore the importance of strategic HRM in fostering a high-performance culture within organizations. Practical implications for HR professionals and managers are discussed, highlighting the need for tailored HRM practices to meet organizational goals and improve competitive advantage. This research contributes to the broader understanding of HRM's role in optimizing workforce capabilities and achieving sustainable organizational success. The study provides actionable insights for HR professionals, highlighting the importance of aligning HRM practices with organizational goals to cultivate a motivated and high-performing workforce. These findings offer a roadmap for organizations aiming to leverage HRM practices to achieve sustainable competitive advantage.

Key words- *HRM practices, Training and Development, Motivation & Compensation, organizational goals.*

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A STUDY ON EFFECT OF SERVICE QUALITY FACTORS ON PURCHASE INTENTION

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Abstract This study explores how service quality factors influence purchase intentions in the Indian market. It examines dimensions such as reliability, responsiveness, assurance, empathy, and tangibility to understand their impact on consumer behavior. Utilizing a mixed-method approach, data is collected through surveys and interviews to gain insights into consumer perceptions. Findings reveal that service reliability and responsiveness significantly affect purchase intentions, followed by assurance and empathy. Tangibility, while important, exhibits a lesser impact. These results offer valuable implications for businesses aiming to enhance customer satisfaction and drive purchase decisions in the dynamic Indian market landscape. Findings reveal that service reliability and responsiveness play crucial roles in shaping purchase intentions in India. Assurance and empathy also contribute significantly, while tangibility exhibits a moderate impact. These insights provide valuable guidance for businesses aiming to enhance customer satisfaction and drive purchase decisions in the Indian market.

Keywords-*Service Quality, Purchase Intention*

IMPACT OF TRAINING AND DEVELOPMENT ON EMPLOYEE PERFORMANCE

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Abstract: Training is a continuous process to improve the caliber of employees. The main objective of this study is to assess and investigate the impact of training on employees' performance in TASA FOODS PVT LTD. In this study the primary and secondary data collection methods are used to collect the data and for analysis purpose. From total number of employees in the company the sample of 109 is taken by using the sample size calculator. And the Questionare was given to the employees of the company and reponses was been recorded. Data is analysed by using the descriptive and statistical tools like percentage method and chisquare test. Results show that training design, training needs assessment, training delivery style and training evaluation have significant positive effect on employees' performance. Finally, the study recommended that human resource management should engage in increasing the qualities and quantities of the training program and properly apply the four phases of the systematic training processes to increase the performance of employees.

Keywords: *Training and Development, Employee performance.*

A STUDY ON EFFECTIVENESS OF FINANCIAL MANAGEMENT OF SUNDARAM FINANCE LTD, CHITTOOR

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ABSTRACT - The term financial management refers to the strategic planning, organizing, directing, and controlling of an organization's financial resources to achieve its objectives efficiently and effectively. The purpose of the study is to diagnose the information content in financial statements so as to judge the profitability and financial soundness of the firm. This study examines the effectiveness of financial management of Sundaram Finance Ltd, a prominent player in the Indian financial sector. And it evaluates various financial management strategies, including budgeting, investment decisions, and risk management, to determine their effectiveness in achieving organizational goals. Additionally, the study explores the role of technological advancements, regulatory frameworks, and organizational culture in shaping financial management outcomes. A tool utilized for the purpose of data analysis is Ratio Analysis. The findings shed light on best practices and potential areas for improvement, offering valuable insights for both practitioners and policymakers seeking to enhance financial performance and sustainability. By analyzing these financial ratios, this study aims to provide valuable insights into Sundaram Finance Ltd financial performance, aiding informed decision-making and facilitating a deeper understanding of the company's financial health and future prospects.

KEY WORDS: *Financial planning, Indian financial sector, Stake holders, Ratio Analysis*

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EMPLOYEE WELFARE MEASURES AND ITS IMPACT ON EMPLOYEE PERFORMANCE WITH REFERENCE TO BSNL

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ABSTRACT: This study examines the relationship between welfare measures and employee performance in Bharat Sanchar Nigam Limited (BSNL), one of India's largest telecommunication companies. The paper explores how welfare initiatives implemented by BSNL affect various aspects of employee performance, including productivity, job satisfaction, motivation, and retention. The research employs a mixed-methods approach, combining quantitative analysis of employee performance metrics and qualitative data gathered through surveys and interviews. Quantitative data will be collected from official records and performance indicators provided by BSNL, while qualitative insights will be obtained through in-depth interviews with key stakeholders. The analysis will focus on identifying the most influential welfare measures within BSNL, such as healthcare benefits, flexible work arrangements, training and development programs, and employee assistance programs. Furthermore, the study will investigate how these welfare measures correlate with employee performance indicators, including efficiency, job satisfaction, absenteeism rates, and turnover rates. The findings of this study are expected to contribute to both academic literature and managerial practices. By understanding the impact of welfare measures on employee performance in BSNL, this research can provide valuable insights for HR practitioners and organizational leaders in designing and implementing effective welfare policies.

KEYWORDS – *Employees, Welfare measures, Employee performance*

A STUDY ON IMPACT OF CASH FLOW ON THE PROFITABILITY OF APSPDCL

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Abstract - Cash flows refers to the movement of cash within the company in various aspects. Cash flow analysis is essential for assessing a company's liquidity, financial health, and ability to meet its obligations. By examining the movement of cash in and out of the business, organizations can identify trends, evaluate operational efficiency, and make informed decisions about budgeting, investments, and financing. There are three most important cash flows. They are Cash Flow from Operations, Cash Flow from Investment and Cash Flow from Financing. The importance of cash management in any industrial enterprise cannot be overemphasized. In the current inflationary environment, cash management may be more important than profit management, which requires the most attention and efforts of financial managers.. This report examines the crucial relationship between cash flow and profitability within firms. The main tool for data collected is the secondary data and the data from the annual reports published in the websites. By analyzing various financial indicators such as Cash Flow ratios and Profitability ratios, it investigates how effective cash flow management directly influences a company's bottom line. The study highlights the importance of maintaining healthy cash flow levels to ensure sustained profitability, while also exploring strategies to mitigate cash flow challenges. Through a comprehensive review of literature and real-world examples, this report aims to provide valuable insights for business leaders and stakeholders seeking to enhance their firm's financial performance in dynamic market environments.

Key words - *Cash flow ratios, Profitability ratios.*

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A STUDY ON JOB SATISFICATION AND ITS IMPACT ON EMPLOYEE COMMITMENT WITH REFERENCE TO JAIN FRESH FOODS LTD

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ABSTRACT - Job satisfaction refers to employees' overall feelings about their jobs. It is the state of well-being and happiness of a person concerning performance in the workspace and its environment. It can be an excellent determinant of productivity within a company. Employee job satisfaction is essential for organizations. Commitment is the bond between employees experience with their organisation. Jain Farm Fresh Ltd, a leading agricultural company.

Using structured questionnaire, data was collected through to understand employees' perceptions of job satisfaction and its impact on their commitment to the organization. The findings reveal a significant positive correlation between job satisfaction and employee commitment, indicating that satisfied employees are more likely to be committed to their organization. Key factors influencing job satisfaction and commitment include work environment, compensation, career development opportunities, and interpersonal relationships. The study underscores the importance of fostering a positive work environment and implementing effective HR practices to enhance job satisfaction and ultimately increase employee commitment of an organization

KEYWORDS: *Job satisfaction, employee commitment, organizational culture, work environment, compensation, career development, Jain Farm Fresh Ltd.*

A STUDY ON FINANCIAL PERFORMANCE AND POSITION OF UNION BANK OF INDIA

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ABSTRACT - The Indian banking sector, a pivotal element of the nation's economy, has undergone significant transformation due to technological advancements and enhanced regulatory oversight by the Reserve Bank of India (RBI). The adoption of the CAMEL model, a uniform financial rating system has become instrumental in evaluating the performance of banks amidst intensifying competition. This study delves into the financial performance of Union Bank of India (UBI), a government-owned public sector bank, through the lens of the CAMEL model, which assesses five critical parameters: Capital Adequacy, Asset Quality, Management Efficiency, Earning Capacity, and Liquidity Position. Our analysis reveals that while Union Bank of India maintains a robust capital base and liquidity to support growth, there are areas requiring strategic improvement, particularly in Asset Quality and Management Efficiency. The study suggests that enhancing the bank's asset quality by mitigating credit risk and reducing non-performing assets is imperative for profitability and reputation. Simultaneously, elevating management efficiency can lead to better operational outcomes and cost optimization.

KEYWORDS: *Financial Performance, CAMEL Model, Capital Adequacy, Asset Quality, Management Efficiency, Earning Capacity, Liquidity.*

A STUDY ON FINANCIAL PERFORMANCE OF INDIAN BANK BY USING RATIO ANALYSIS

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ABSTRACT: Ratio analysis is referred to as the study or analysis of the line items present in the financial statements of the company. It can be used to check various factors of a business such as profitability, liquidity, solvency and efficiency of the company or the business. Ratio analysis is mainly performed by external analysts as financial statements are the primary source of information for external analysts. The analysts very much rely on the current and past financial statements in order to obtain important data for analysing financial performance of the company. The data or information thus obtained during the analysis is helpful in determining whether the financial position of a company is improving or deteriorating. Financial performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. Analysts and investors use financial performance to compare similar firms across the same industry or to compare industries or sectors in aggregate the financial performance of Indian Bank, one of the leading public sector banks in India. Using financial statements for the period from 2017 to 2022, key financial ratios such as profitability, solvency and asset quality are analysed to assess the banks financial health. The study provides insights for investors, regulators, and policymakers on the financial health of Indian Bank and highlights areas that require attention for sustainable growth. This paper focuses on the relation between ratio analysis and financial performance of an organisation and how it is useful for doing an operation in an organisation.

KEYWORDS: *Financial performance Analysis, Ratio analysis*

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IMPACT OF FINANCIAL EFFICIENCY ON PROFITABILITY OF NATIONAL INSURANCE COMPANY LIMITED

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Abstract-This study aims to examine the influence of the financial efficiency on profitability of National Insurance Company Limited (NICL). The insurance industry being considered as the most competitive industry and the organization taken for study majorly covers the general insurance along with entry into new insurance products, identifying the strength of relationship between profitability and financial efficiency is essential for success and growth. However, there is a gap in research as far as the impact of financial efficiency on profit aspects in the context of NICL. The organization is a reputed insurance service provider serving a diverse customer base with a range of insurance products. Within the insurance industry, factors such as underwriting practices, investment strategies, and operational efficiency significantly influence profitability and financial performance. The profitability dimensions in case of insurance company varies from other organization in terms of premiums, investment income and net income. The financial efficiency are measured using ratio analysis as a tool and the major ratios are expense ratio, combined ratio and return of assets ratio. This research seeks to provide insights into factors influencing the financial efficiency and the financial success in terms of profit. Analytical research design is adopted in the study. Secondary data obtained from the annual reports of the company are analysed through the statistical techniques such as regression analysis to establish the relationship between profitability and financial efficiency indicators. Additionally, in depth reviews are collected to define the methods of analysing financial management strategies within the insurance sector to provide practical recommendations for NICL's financial optimization.

Keywords: *Profitability, Financial Efficiency, National Insurance Company Limited (NICL), Insurance Sector, Financial Performance.*

S

STUDY ON EVALUATION OF RISK

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Abstract- Evaluation of financial risk is an important aspect in the insurance company is inevitable. Maximized risk leads to maximized returns and at the same time chances of losses are also high. Hence while evaluating the financial efficiency and position of insurance or any financial service organization, the risk should be evaluated. Chola Insurance Distribution Services Pvt., Ltd., is one such financial service organization. A study is conducted for evaluating the risk using CAMEL model. The research design adopted for the study is analytical and secondary data obtained from the financial statements such as profit and loss account as well balance sheet forms the basis for the study. Review of literatures related to application of CAMEL model has been carried out. The CAMEL model includes six dimensions such as capital adequacy, asset management, capacity of management, profitability and earnings, as well liquidity. The benefit of the study would be evaluation of financial risk and rating the financial efficiency of the organization.

Keywords: *CAMEL, Financial Risk, Financial Services*

IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF SREE SANNIDHI FOODS COMPANY LIMITED

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Abstract- The study aims to evaluate the financial performance of Sreesannndhi Foods Pvt., Ltd., by analyzing the profitability and liquidity position of the company. The changes in working capital position at the organization for a period of five years is analyzed to bring out the efficiency in management of working capital as it is a crucial aspect of finance centre of a corporate organization. The important factors to be considered for effective management of working capital are liquidity and profitability. The company is engaged in manufacturing of fruit pulp, tomato paste and trading of fruits; it commenced full-fledged commercial operations from. Andhra Pradesh based (Chittoor) SreeSannidhi Foods Private Limited (SSFPL) was incorporated in 2010. During January 2014, the company was taken over by the current management. SreeSannidhi Foods Private Limited is an unlisted private company incorporated on 31 August, 2010. It is classified as a private limited company and is located in Cuddapah, Andhra Pradesh. Any organization must have to maintain adequate working capital which is the crucial managerial activity and is concerned with controlling of the firm's financial resources. Ratio analysis is used as the tool for analysis to bring into light the profitability and working capital position of the company. Analytical research design is used to analyze the secondary data obtained through the annual report and website resources.

Keywords: *Working capital Management, Profitability, Ratio Analysis*

IMPACT OF HUMAN RESOURCES POLICY ON EMPLOYEE PERFORMANCE IN NEW RANGA FRUIT PRODUCTS PVT LTD

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Abstract- The main aim of the study is to analyse the impact of human resource policies on employee performance in New Ranga Fruit Products Pvt Ltd., at Chittoor. The organization falls under the food processing industry which is a very fast growing industry. The company has excellent human resource policies in terms of recruitment and selection, training, compensation, job design, employee welfare measures, performance appraisal and career development. The effectiveness and its implementation determines the employee performance which has to be studied. Descriptive research design is adopted in the study. Primary data obtained from the sample respondents who are the employees of the organization are used as the base for the study. The secondary data is obtained from various online resources, journals and books. Null hypothesis is formulated as there is no significant relationship between human resources policies of the organization and employees performance. The hypothesis is further subdivided into various dimensions. A structured questionnaire consisting of Likert scale was used for collecting the responses. Statistical tools such as ANOVA, correlation and regression are used to test the significant relationship between various dimensions. The major outcome of the study would be the importance of framing and executing the human resource policies which would result in enhanced performance of the employees.

Keywords: *Human Resources Policy, Employee Performance, Job Design, Performance Appraisal*

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IMPACT OF CONSUMER PERCEPTION ON CONSUMER EXPERIENCE FOR PARAG PVT LTD

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Abstract- The consumer experience is influenced by the perception of consumers towards quality, availability, package and price. The relationship established between consumer experience and marketing mix increases the satisfaction among the consumer. Hence a Study on impact of consumer perception on consumer experience for Parag Pvt Ltd., had been carried out. The marketing principles and practices, if applied professionally in real life practices results in business growth. The dairy companies face a massive competition from large and small scale units and the consumer expectations are also very high towards dairy products. The objectives of the study is to analyze the consumer perception towards QUALITY of Parag products, to analyze the consumer perception towards AVAILAILITY of Parag products, to analyze the consumer perception towards PACKAGE of Parag products, t o analyze the consumer perception towards PRICE of Parag products and to establish the relationship among the variables. Descriptive research design is followed that studies the population characteristics and establishes relationship. The important hypothesis is quality, availability, package and price does not predict consumer experience and consumer perception.

Keywords: *Consumer perception, Consumer Experience, Marketing Mix*

IMPACT OF AWARENESS AND PERCEPTION ON BUYING BEHAVIOR TOWARDS LIFE INSURANCE

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Abstract-This study aims to explore the relationship between awareness, perception, and buying behaviour in the life insurance sector. It seeks to understand how people's awareness and perceptions of life insurance influence their decision to buy it by conducting surveys and interviews. The study is to examine people's thoughts about life insurance and use statistical analysis to find patterns. The goal is to identify factors that influence buying decisions and suggest ways to improve understanding. This research can help policymakers, insurance companies, and sellers make life insurance more accessible and understandable for everyone. Many people don't know much about life insurance or have misconceptions about it, which can affect their choices about buying it. In the life insurance industry, companies offer financial protection to individuals and families in case of unexpected events like illness or death. National Insurance Company Limited is one of India's oldest and largest insurance providers. With a strong presence and customer-centric approach, National Insurance Company plays a vital role in protecting the financial well-being of millions of Indians. There is a need to explore how people's awareness and perceptions impact their decisions about life insurance. This study will help identify ways to improve understanding and promote greater uptake of life insurance, benefiting both consumers and the insurance industry.

Keywords: Awareness, Perception, Buying Behaviour.

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FINANCIAL STATEMENT ANALYSIS OF NATIONAL INSURANCE COMPANY

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Abstract- The project report deals with the research area of analysing the financial efficiency of the company based on the financial statements. Finance function is the imminent function of the organization which projects profit or loss of the organization and asset position of the organization. National Insurance Company is a public limited company. Five years financial statement of the company is collected from the annual reports. Ratio analysis is used as a tool for analysing the financial statements. The importance of the study lies in helping the company to determine the pitfalls in its financial performance. The financial efficiency of the company is required for survival of any organization and also its growth. Analytical research design is adopted for the study. A well defined research methodology is adopted. The study also attempts to infer various ratios related to operational and financial efficiency. Profitability, liquidity and solvency ratios are used as tools for analysis.

Keywords: *Financial Performance, Ratio analysis, Analytical research*

A STUDY OF FUNDAMENTAL ANALYSIS

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Abstract- This research paper conducts an extensive fundamental analysis of BDL Company within the defence industry sector industry. The study aims to provide stakeholders with insights into the financial health, operational efficiency, and investment potential of BDL Company. Through a meticulous examination of its financial statements, including balance sheets, income statements, and cash flow statements, key financial metrics such as profitability, liquidity, and solvency ratios are evaluated. Additionally, the analysis extends to BDL Company's market position, considering factors like market share, competitive landscape, and growth prospects within the defence industry sector industry. Moreover, external factors such as macroeconomic trends, regulatory environment, and industry dynamics are taken into account to forecast BDL Company's future performance. By integrating quantitative financial analysis with qualitative assessments, this study aims to provide stakeholders with a comprehensive understanding of BDL Company's current standing and potential trajectory, facilitating informed decision-making.

Keywords: *BDL Company, Fundamental Analysis, Financial Health, Performance Evaluation, Investment Potential, Financial Statements, Market Position, Industry Dynamics*

A STUDY ON EFFECTIVENESS OF RECRUITMENT AND SELECTION

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Abstract- This study aims to evaluate the effectiveness of the recruitment and selection processes within Food and Inns, a prominent player in the hospitality industry, with a focus on identifying areas for improvement and enhancing talent acquisition strategies. In the competitive landscape of the hospitality industry, attracting and retaining top talent is essential for organizational success. However, the efficiency of Food and Inns' recruitment and selection practices in securing qualified candidates and promoting employee engagement remains uncertain. Food and Inns operates within the dynamic hospitality sector, which is characterized by high employee turnover rates, evolving consumer demands, and stringent service standards. As a leading provider of hospitality services, Food and Inns' ability to recruit and select skilled personnel directly impacts its operational efficiency and customer satisfaction levels. By assessing the effectiveness of recruitment channels, selection criteria, and onboarding processes, this research aims to identify strengths and weaknesses in Food and Inns' talent acquisition framework. The study seeks to provide actionable recommendations to streamline recruitment processes, enhance candidate experience, and optimize employee retention strategies, thereby contributing to Food and Inns' long-term organizational success. This study employs a mixed-method approach, combining quantitative analysis of recruitment metrics and employee performance data with qualitative insights gathered through surveys, interviews, and focus group discussions.

.Keywords: *Recruitment and Selection, Effectiveness, Hospitality Industry, Food and Inns, Talent Acquisition, Employee Engagement, Organizational Success, Onboarding Processes, Recruitment Channels, Selection Criteria, Employee Retention, Research Methodology.*

IMPACT OF STRESS MANAGEMENT ON EMPLOYEE PERFORMANCE

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Abstract- The purpose of the study is to examine the relationship between stress management and employee performance. Stress has both positive and negative effect. Stress up to a certain level is required to drive a person towards the goals. If the stress crossed the normal level, it results in poor performance and health issues among the employees. The objective of the study was to investigate the influence of the stress management, work load, role ambiguity, conflict, effectiveness, efficiency and commitment towards employee performance. The study concludes that the stress management has a positive and significant influence on employee performance. The management design task and jobs in a way that the company should make employees effective, efficient and committed that will bring improvement in the performance of the work. Job schedule should be well planned and combined with human resource policies. The human resource plans should be simple and easy to enhance employee performance which will result in organizational growth.

Keywords: *Stress, Stress Management, Employee Performance, Job Schedule*

FINANCIAL PERFORMANCE ON KALPAVRIKSHA HOSPITALITIES PRIVATE LIMITED.

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Abstract- Ratio analysis is a powerful tool employed to dissect a company's financial statements, extracting valuable insights into its financial health by calculating ratios that compare various financial data points, analysts and investors can assess a company's performance across key areas like profitability, liquidity, solvency, and operational efficiency. This analysis delves into the financial statements, primarily the balance sheet and income statement, to unearth these relationships. by calculating metrics like current ratio, debt-to-equity ratio, and profit margin ratio, A comprehensive picture of the company's financial standing emerges. these ratios provide a standardized way to compare a company's performance over time and against its industry peers. ratio analysis isn't without its limitations. The financial data used can be subjective due to accounting policies, and industry benchmarks need to be considered for meaningful comparisons. additionally, ratios only reflect past performance and may not necessarily predict future results. Despite these limitations, ratio analysis remains a cornerstone of financial analysis. when used judiciously, it equips stakeholders with a deeper understanding of a company's financial well-being, aiding in informed investment decisions and strategic business planning.

Keywords: *Current Ratio, Debt to equity ratio, Performance*

A STUDY ON TRAINING EFFECTIVENESS ON EMPLOYEE PERFORMANCE

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Abstract- This study investigates the relationship between training effectiveness and employee performance in the Indian context. With the dynamic nature of today's business environment, organizations recognize the significance of investing in employee development through training programs. The effectiveness of these training initiatives is crucial for enhancing employee performance and organizational success. Through a comprehensive literature review, this research explores various factors that influence training effectiveness, including training design, delivery methods, employee engagement, and organizational culture. It examines how these factors interact to shape the outcomes of training programs and subsequently impact employee performance. The study employs a mixed-methods approach, combining quantitative analysis of survey data with qualitative insights from interviews or case studies. By collecting data from employees across different industries and organizational levels, it aims to provide a holistic understanding of the relationship between training effectiveness and employee performance.

Keywords- Training Effectiveness, Employee Performance

IMPACT OF EMPLOYEE MOTIVATION ON JOB PERFORMANCES

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Abstract: This study is aimed at determining the impact of motivation on employee's job performance in various industries. The purpose here is to investigate and identify factors responsible for the satisfaction and dissatisfaction of the employees and henceforth to find practical solution for lack of staff motivation and job performance. The management should try as much as possible to increase satisfaction of the employees by pacifying them. The effects of this dissatisfaction can hinder the job performance of the industry as money is considered to be a highly motivating factor. The research here is based on primary and secondary data which has been collected from books, journals, reports, articles, websites. The primary data was collected through purposive sampling. Motivation can be increased by practicing motivational techniques in the industry.

Keywords- *Employee Job Performance , Employee Motivation*

EFFECTIVENESS OF RECRUITMENT AND SELECTION ON EMPLOYEE SATISFACTION

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Abstract:-In any kind of organization, recruitment and selection processes are considered useful, because they help in finding the most suitable candidates for the jobs. Recruitment and selection are important operations in human resource management, designed to make best use of employee strength in order to meet the strategic goals and objectives of the employers and of the organization as a whole. It is a process of screening, sourcing, shortlisting, and selecting the right candidates for the vacant positions. The employers put into practice recruitment strategies and methods that would be the most beneficial to achieve organizational goals and objectives. The main purpose of this research paper is to understand recruitment and selection procedures. Employees who are satisfied with their jobs are those who are exceptionally committed to the organization and will stay with them even in the worst-case scenario. They don't work because they have to, but because they want to drive their company to the next degree. The objective of the research is to study the recruiting and selection practices and various sources adopted. And to analyze the satisfactory level of the employees with regards to Recruitment and Selection process. The study adopted the methodology such as primary data which is collected from the company .

Keywords-*Recruitment & Selection, Employee Satisfaction*

A STUDY ON IMPACT OF PERFORMANCE APPRAISAL SYSTEM

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ABSTRACT: The human resource policy of the organization has an important dimension termed performance appraisal which is also termed as evaluating the outcome of the employees. The performance appraisal is used as the base for promotion and deciding the training requirements. Every company has its own methods of measuring the performance of the employees. There are good old methods that measure performance and modern methods of measuring performance from every aspect and all perspectives. This study is carried out to analyse the effectiveness of performance appraisal practices among the employees of the organization. It is found through the collection and analysis of data based on a descriptive research design and applying descriptive statistics that the performance appraisal system of the company is very effective. It can be further enhanced by including more feedbacks from various stakeholders including subordinates, superior, peers and clients. The null hypothesis which was framed stating that the performance appraisal system of the company is ineffective is rejected. Hence it was proved the current system of measuring the performance in the organization is very effective.

Keywords: *Performance appraisal, Sample, Descriptive statistics*

A STUDY ON TRAINING AND DEVELOPMENT IMPACTS ON EMPLOYEE PERFORMANCE

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Abstract- The aim of this paper is to bring out the impact of Training and Development its impact on employee's job satisfaction. There are certain activities which are imperative for Training and Development of employee's policies like work environment, Performance Evaluation, Employee Compensation, Training and Development etc. These all together gives the job satisfaction to the employees. The research design is Exploratory under Descriptive type of study. A 5-point Likert scale structured questionnaire was used to collect the data from the employees using "individual sampling" technique. If the employees are happy the productivity rate will definitely be high in other terms productivity will touch the sky and if the job satisfaction is not there then the organisation will definitely suffer. It is both management and employee's responsibilities, and in their interest, to ensure that employees work in a positive atmosphere because relationship with the management can either maximize or minimize productivity and cause or prevent stress and fatigue.

Keywords- *Employee Satisfaction, , Job Satisfaction, Training and Development,.*

A STUDY ON EMPLOYEE RETENTION STRATEGIES AND ITS IMPACT ON JOB PERFORMANCE

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Abstract: The aim of this paper is to bring out the employee retention strategies and its impact on job performance. This paper examines various strategies employed by the organization to retain talent and their subsequent effects on job performance. There are some activities which are imperative for employee retention strategies like training, compensation, reward, supervisory support etc., These all together help to retain the talent of employee. Through a descriptive type of study and empirical analysis, we examine the correlation between retention initiatives and job performance metrics. A 5-point Likert scale structured questionnaire was used to collect the data from employees using “individual sampling” technique. It explores how these strategies foster employee engagement, satisfaction, and commitment, thereby enhancing job performance and organizational outcomes and the importance of continuous evaluation and adaptation of retention strategies.

Key words: *Employee retention, Training, Compensation, Job performance, Reward, Employee Engagement*

A STUDY ON EMPLOYEE STRESS MANAGEMENT

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Abstract The aim of this paper is to study about the measures and activities that are used to reduce the employee's stress and increase employee's job satisfaction. Employee stress became a pervasive issue in modern work places. The employees feel stress due to workforce etc. This study is to understand what kind of stress employees are facing and methods used reduce stress of employees. For this study I have taken 5 point Likert scale for collecting data among the employees . "Percentage Method" is tool used analyse the data collected on questionnaire data collected from employees. Based on that we can know how the employees are satisfied with their job in organisation. Stress Management within the organization and implementing pro-active measures to address stress-related issues and foster a healthier working environment conducive to employee engagement and productivity

Keywords-*Stress Management, Employee Satisfaction, HR Policy, Employee Management Relationship, Performance Evaluation , Job Satisfaction, Training and Development, Performance, Work Environment, Compensation.*

A STUDY ON EFFECTIVENESS OF HR POLICY ON JOB SATISFACTION

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Abstract- The aim of this paper is to bring out the impact of HR Policy on employee's job satisfaction. There are certain activities which are imperative for job satisfaction of employee's policies like work environment, Performance Evaluation, Employee Compensation, Training and Development etc. These all together gives the job satisfaction to the employees. The research design is Exploratory under Descriptive type of study. A 5-point Likert scale structured questionnaire was used to collect the data from the employees using "individual sampling" technique. If the employees are happy the productivity rate will definitely be high in other terms productivity will touch the sky and if the job satisfaction is not there then the organisation will definitely suffer. It is both management and employee's responsibilities, and in their interest, to ensure that employees work in a positive atmosphere because relationship with the management can either maximize or minimize productivity and cause or prevent stress and fatigue.

Keywords- *Employee Satisfaction, HR Policy, Employee Management Relationship, Performance Evaluation, Job Satisfaction, Training and Development, Performance, Work Environment, Compensation.*

A STUDY ON PERFORMANCE APPRAISAL IMPACTS ON JOB SATISFACTION

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Abstract: This study explores on how employee's performance appraisal impacts on job satisfaction performance appraisal is important among evaluation of employee's performance and it can lead to employee's job satisfaction. This study explores on how employee's performance appraisal impacts on job satisfaction. There are certain activities which are imperative for job satisfaction of employee's policies like working environment, Rules & Regulations, communication, incentive, Benefits etc. This study is about the effectiveness of performance appraisal in employee job satisfaction and understanding the performance appraisal important in the company. The research design is used to take mainly two data primary and secondary data, the research design is used on Descriptive type research of study. In these study through a structured questionnaire method is used to collect the data from the employees and in the research, study using 5-point Likert scale, we assess employees' perceptions of appraisal practices and satisfaction levels. By analysing data, we aim to uncover insights into the relationship between performance appraisal and job satisfaction. In the performance appraisal employees happy with the company performance appraisal their performance will increase and higher the outcome of the production rate and the employees are happy with the company's performance appraisal and hr policy of the company it will lead to the employees' job satisfaction, in the analysis the both management and employee's responsibilities, to ensure the job satisfaction of the employees and the management is needed to ensure that employees work in a positive atmosphere and friendly environment with co-workers to maintain the relationship with the management and to make employees to prevent stress, health problem and mental loss to the employees.

Key words: *Performance Appraisal, Job Satisfaction, Work environment communication*

A STUDY ON TRAINING AND DEVELOPMENT IMPACTS ON EMPLOYEE PERFORMANCE

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Abstract: This paper delves into the multifaceted relationship between training and development initiatives and their consequential effects on employee performance within contemporary organizational contexts. Drawing from an extensive array of theoretical frameworks and empirical research studies, it aims to provide a nuanced understanding of the mechanisms by which training and development programs exert influence on various dimensions of employee performance. The review underscores the pivotal role of aligning training and development initiatives with organizational objectives, emphasizing the importance of strategic integration to maximize their impact. Furthermore, it elucidates the significance of fostering a culture of continuous learning within organizations, wherein employees are encouraged and empowered to enhance their skills and knowledge continually. Additionally, the review examines the evolving landscape of training methodologies, particularly the increasing integration of technology-driven solutions such as e-learning platforms, virtual reality simulations, and mobile applications. It explores how these innovative approaches not only enhance the accessibility and flexibility of training programs but also contribute to their effectiveness in promoting skill acquisition and retention among employees. Ultimately, the findings underscore the imperative for organizations to invest strategically in employee development as a means of fostering a skilled and adaptable workforce capable of driving organizational performance and maintaining competitive advantage in an increasingly dynamic and uncertain business environment.

Keywords-*Employee Satisfaction, HR Policy, Employee Management Relationship, Performance*

A STUDY ON IMPACT OF TRAINING AND DEVELOPMENT ON JOB SATISFACTION IN CRP (Charoen Pokphand Foods)

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ABSTRACT : The study attempts to analyse the impact of training and development on job satisfaction. Training and development refers to skill enhancing activities with in or outside the company related to job or career development. Training results in refreshing the knowledge and skills of employees while providing information and hands on practice on how to better perform specific tasks. Almost all the organizations conduct training and spend a huge amount on it. Hence it is essential to find out the employees satisfaction before training and after training . The changes in the performance of the employees before training and after training need to be analysed. The study aims at analyzing the employee reports and primary data collected through questionnaire to examine the effectiveness of training provided by the organization. The overall development of employees in terms of the skills and abilities are measured to identify the impact of training. The changes in the output and performance because of training are important inputs to measure to know the training effectiveness. The training cost involved and the benefits derived from training also need to be measured.

Keywords : *Training, Knowledge, Skills*

EFFECTIVENESS OF TRAINING AND DEVELOPMENT ON EMPLOYEE PERFORMANCE

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Abstract: The effectiveness of training and development on employee performance is a critical aspect of organizational success. This abstract explores the impact of structured training programs on enhancing employee skills, knowledge, and job satisfaction. Through comprehensive training initiatives, organizations can improve employee performance, productivity, and retention rates. Furthermore, tailored development programs contribute to a more skilled and adaptable workforce, better equipped to meet evolving business challenges. Understanding the relationship between training investments and performance outcomes is vital for strategic human resource management and sustainable organizational growth.

Key words: *Training and Development, Organizational success, Employee skills, Job satisfaction, Adaptable workforce.*

A STUDY ON EMPLOYEE MOTIVATION AND ITS IMPACT OF JOB PERFORMANCE

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ABSTRACT: This project explores the intricate relationship between employee motivation and job performance. The study aims to identify the key factors that drive employee motivation and examine how these factors influence various dimensions of job performance. Utilizing a mix of theoretical frameworks and empirical research, the analysis focuses on intrinsic and extrinsic motivational drivers, including rewards, recognition, work environment, and personal growth opportunities. The findings reveal that motivated employees exhibit higher levels of productivity, job satisfaction, and commitment, which collectively enhance overall organizational performance. Practical recommendations are provided for managers and HR professionals to develop effective motivation strategies that align with organizational objectives and foster a motivated workforce. This research contributes to the ongoing discourse on enhancing job performance through targeted motivational practices, offering valuable insights for both academic and practical applications. The results indicate that highly motivated employees tend to exhibit increased productivity, higher job satisfaction, and stronger organizational commitment. The study provides actionable insights for managers and HR professionals on how to effectively enhance employee motivation through strategic initiatives, ultimately leading to improved job performance and organizational success. This research contributes to the understanding of motivation's role in performance enhancement, offering practical implications for fostering a motivated and high-performing workforce.

Key words: *Job satisfaction, Motivation strategy, Motivation practices, Work place Environment*

HRD CLIMATE AND ITS IMPACT ON JOB SATISFACTION

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Abstract: The Human Resource Development (HRD) climate significantly influences job satisfaction within organizations. A positive HRD climate fosters an environment where employees feel valued, supported, and motivated, leading to higher levels of job satisfaction. Conversely, a negative HRD climate characterized by poor communication, lack of opportunities for growth, and ineffective leadership can result in decreased job satisfaction among employees. Understanding and cultivating a conducive HRD climate is crucial for enhancing overall employee satisfaction and organizational performance.

Keywords: *Job satisfaction, HRD, Leadership*

EFFECT OF ORGANIZATION DEVELOPMENT ON JOB SATISFACTION

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Abstract : This study investigates the impact of organization development (OD) initiatives on job satisfaction among employees. The research employs a mixed-methods approach, combining qualitative interviews with quantitative surveys to gather comprehensive insights. Through a sample of diverse organizations, the study examines the implementation of various OD strategies and their correlation with job satisfaction levels. Findings suggest a significant positive relationship between OD interventions and job satisfaction, highlighting the importance of organizational initiatives in enhancing employee well-being and engagement. Implications for practitioners and future research directions are discussed.

Keywords: *Organizational development, Surveys, Mixed methods*

APPLICATION OF EXPERT SUPPORT SYSTEM IN MANAGEMENT

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Abstract: An expert support system is a computer based system that provides assistance, guidance, or solutions in a specialized domain. It typically relies on expert knowledge encoded in software to help users solve problems, make decisions, or learn about complex topics. These systems can range from simple decision trees to sophisticated AI-powered platforms, depending on the complexity of the domain and the tasks they aim to support. The components of an expert system include a knowledge base and software modules that perform inferences on the knowledge in the knowledge base and communicate answers to users questions

Keywords: *Expert Support System, Knowledge Base*

MORPHOLOGICAL AND THERMAL CHARACTERIZATION OF FIBRE-REINFORCED POLYMER HYBRID COMPOSITE WITH VARYING VOLUME PERCENTAGE OF NANO-FILLERS

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Abstract: This paper gives an investigation into the morphological analysis and thermal properties of the Jutton-Glass hybrid polymer nano composite. As reinforcements, hybrid nanoparticles comprising of CNT and graphene nano platelets were used. For laying the composites, the vacuum assisted resin transfer moulding (VARTM) method was used with the composition of hybrid nano-material taken as 0, 0.25, 0.5 and 1 wt. % of Gr and CNT and the samples are tested for thermal properties as per ASTM standards. The samples prepared have been subjected to various testing's and the results are reported. Prior to the preparations of composites, the polymer is mixed with surface modified nanomaterial and stability tests were conducted to assess uniform dispersion the aid of U.V. Spectroscopy, and the outcomes showed that the samples had been exceptionally uniform over a period of time. It is determined that the hardness and thermal behaviour of hybrid composites, which include 1% CNT and Gr, shows more improved properties than 0.5% CNT and Gr. But the multi-layered samples with graphene also showcased encouraging properties like thermal conductivity, effusivity, resistance, diffusivity and specific heat.

Keywords: TEM analysis, Stability, CNT, Gr, thermal properties.

FABRICATION OF PORTABLE 3D PRINTER

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Abstract- This project aims to explore the innovative intersection of 3D printing technology and DIY electronics by constructing a 3D printer predominantly from 3D printed components and controlled by an Arduino microcontroller. Leveraging the accessibility and affordability of 3D printing, coupled with the versatility of Arduino, the project demonstrates a cost-effective and customizable approach to manufacturing additive manufacturing equipment. The project report outlines the design, construction, and optimization process of the 3D printer, emphasizing the integration of Arduino for precise control and automation. Through a comprehensive examination of the components, assembly, and programming involved, this project offers insights into the potential for democratizing manufacturing processes through open-source hardware and software. The results showcase the feasibility and practicality of building a functional 3D printer using predominantly 3D printed parts, thereby contributing to the ongoing evolution and accessibility of additive manufacturing technology.

Keywords- *Arduino microcontroller, 3D printer.*

DESIGN AND FABRICATION OF SPUR GEARS BY USING CREO 8.0.2.0 AND ANSYS 2022 R1 SOFTWARE

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Abstract-This project focuses on the design and analysis of spur gears, which are fundamental components in mechanical power transmission systems. The primary objective is to develop a robust spur gear design that optimizes performance and durability while minimizing manufacturing costs. This study includes a comprehensive review of existing literature on spur gear technology and current advancements in the field. The design process begins with selecting appropriate materials and defining key design parameters, followed by detailed calculations to ensure optimal gear geometry. Using advanced CAD software, a 3D model of the spur gear is created, which is then subjected to Finite Element Analysis (FEA) to assess stress distribution, deformation, and fatigue life under various load conditions. The manufacturing process is also examined, highlighting different fabrication techniques and quality control measures to ensure precision and reliability. The designed spur gears undergo rigorous testing to validate their performance, focusing on load capacity, efficiency, and wear resistance. The results indicate that the optimized spur gear design meets the desired performance criteria and demonstrates enhanced durability. The project concludes with a cost analysis to evaluate economic feasibility and suggestions for future improvements. This comprehensive approach provides valuable insights into spur gear design and serves as a reference for further research and development in gear technology. Our presentation aims to share our findings and methodologies, sparking discussions on innovative approaches to gear system optimization in industrial applications.

Keywords-Spur Gears, CAD Software.

FABRICATION OF CAMPUS WAGON INREAL TIME

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Abstract- In response to the evolving needs of urban mobility and the quest for sustainable transportation solutions, this paper introduces the Fabrication Campus Wagon (FCW) equipped with a petrol engine. Amidst the transition towards electric propulsion, the integration of a petrol engine in the FCW offers a pragmatic approach to meet the diverse demands of urban transportation while addressing sustainability concerns. The FCW with a petrol engine is conceived as a versatile and efficient urban vehicle tailored to navigate the complexities of urban environments. Combining the reliability of traditional internal combustion engines with contemporary design principles, the FCW presents a compelling alternative for urban commuters, businesses, and communities. The integration of a petrol engine in the FCW is accompanied by a focus on sustainability and environmental responsibility. While acknowledging the imperative for reducing carbon emissions, the FCW employs advanced engine technologies, emission control systems, and fuel efficiency measures to minimize environmental impact and optimize resource utilization. Functionally, the FCW with a petrol engine offers flexibility and adaptability to accommodate diverse urban mobility requirements. Whether utilized for personal transportation, goods delivery, or public transit, its robust chassis, spacious interior, and ergonomic design ensure comfort, convenience, and utility for occupants and operators alike.

Keywords-FCW, petrol engine, combustion engines

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MECHANICAL AND CORROSION RESISTANCE OF METAL MATRIX COMPOSITE BY USING STIR CASTING METHOD

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Abstract- This present paper discusses the preparation and characterization of magnesium based metal matrix composite with reinforcement of graphene particles. Composites are prepared and experiments have been conducted to investigate the impact of addition of 0.5%, 1%, 1.5% graphene particles in magnesium alloy. The magnesium alloy was successfully cast by stir casting. As part of this study, Izod, Charpy tests are conducted to assess the mechanical properties of graphene composites. To study the fracture mechanism of corrosion resistance and porosity testing by using Scanning Electron Microscopy (SEM). As a result, the addition of graphene particles increased the properties of the composite in terms of hardness, tensile strength, impact and ductility.

Keywords- stir casting, corrosion resistance, porosity

3D PRINTED ROBOTIC ARM (PICK AND PLACE MODEL)

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Abstract- This paper presents the design of a robotic manipulator which simulates movement to the grip and an object is also known as Robotic Arm. The Manipulator arm is made up to a infinite number of individual rigid segments, each rigid segment is called as link. The robot model is mounted on a reference base, to which three links that form the robot arm are connected. The 3d printed robotic arm which is capable to use in education, this type of 4 degrees of freedom robotic arm is designed. In AutoCAD fusion of 180° software the body of each joint is manufactured by designing in CATIA V5 software and slicing work is done with a Cura software. This function of the arm is done by using Arduino code and each joint will have a servo motor, the project is a proto type showing how the 3d printing product works.

Keywords: 3D Printer, Servo motor, Arduino Board.

ASSEMBLING OF CIRCULAR ROTATION OF ALL WHEELS IN FOUR-WHEEL AUTOMOBILE

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Abstract: Assembling of circular rotation of all wheels in four - wheel automobile is a concept that envisions a vehicle capable of rotating in any direction, offering and flexibility in navigation. This concept integrates advanced technologies like omni-directional wheels, rotational mechanisms, and advance control systems to achieve seamless movement in all directions. The vehicle's design includes a central axis allowing the entire body to rotate freely, enabling it to turn on the spot or move sideways. This innovative mobility solution could revolutionize transportation in crowded urban areas, tight spaces, or complex a stretch land, where traditional vehicles struggle. Its key features include precise control, swift response to changes in direction, and the ability to navigate through tight spaces effortlessly. Such a vehicle could have applications in various fields, from urban commuting and logistics to search and rescue operations, providing a versatile and efficient mode of transportation for diverse environments.

Keywords: *Safety, Functionality, Performance, Durability*

ATMOSPHERIC WATER GENERATOR

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Abstract-Water scarcity is one of the burning issues of today's world. Though water covers more than two third (about 70%) of the Earth's surface but still fresh water which can be used for drinking and carrying out every day remains scarce (only about 2.5%). The sensitive problem of water shortage, is mainly faced by the countries with long coastlines and the island nations, which do not have fresh water sources like rivers and ponds. As a result, most of these countries meet their water difficulty by desalination of sea water which is a very costly affair. Also, it has happened that these desalination plants may fail which will cause sensitive water shortage. This is what just recently happened in Maldives. So, there is an burning need for countries like Maldives and others, who depend exclusively on desalination plants to meet their water requirements, to find alternative methods to generate water in order to meet their water security needs. India also needs to research in this direction in order to address this issue. Even though it has a very large coastline but still people face water scarcity. Till now India has not devise any way by which water from sea can be used to provide drinking water to the people. This project objective is to solve this problem. In the coastal areas the relative humidity is quite high (around 70-80%). So, the air in coastal areas can be used to meet the water needs of people by using a dehumidifier unit. Further the solar insolation is quite high in these areas round the year. This can be used to provide necessary power to the dehumidifier unit. Thus, drinking water can be obtained from the atmosphere by harnessing solar energy. Such a device is called Atmospheric Water Generator. In our project to overcome the water scarcity we are going to propose the Atmospheric Water Generator(AWG). An AWG is that collects water by processing the condensation of moisture from the air. This device which is exposed to the atmosphere consists of a heat sink and fan setup which is used to pump humid air in to the device continuously by using solar as electricity. Once the air temperature comes below its condensation temperature, it condenses as a water droplet and the water collected by using copper coil and the water store in jar. Atmospheric Water Generator depends on the variable parameters like Temperature and Relative Humidity etc.

Keywords-Peltier, Heat sink, Atmospheric air, dew point temperature, copper pipe, Relative humidity, water, etc.,

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SOLAR POWERED SEED SOWING MACHINE

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Abstract- Agriculture Sector is the spinal column of Indian Economy. There is a need for improvement in agriculture sector, which can be achieved by using advanced technological methods for farming processes like digging, sowing and irrigation etc. Atomization reduces labour cost and improves the overall productivity without affecting the quality of soil. This Project represents a machine which can carry out various farming activities simultaneously. To wipe out these problems, this machine uses Solar Energy as an eco-friendly energy resource. Solar Panel is used to convert solar energy into electrical energy and a DC Motor converts this electrical energy into mechanical energy to rotate a cutter for digging operation. Seed Hopper is used for seed sowing and irrigation operations respectively. This machine maintains seed to seed spacing and row to row spacing. It also decreases the cost of sowing the seeds and requirement of labour.

Keywords: DC motor, Atomization, seed hopper, solar energy etc.

FABRICATION OF SPRAY PAINTING DRONE

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Abstract-The quadcopter assisted painting spray pump is equipment which is used for painting the high altitude building utilizes the same principle as that of the quadcopter for lifting purpose. In which rotary motion high speed brushless DC motor, whose shaft is connected to propeller can be converted to the upward thrust which lift the equipment, spraying pump is working on the principle of rotary pump which is used for spraying colorful paints. Four high speed, four torque DC motor utilizes battery power for there working. Propeller blades are connected to DC motor shaft. Due to the rotation of blades the thrust is produced because of air suppression from upward to downward direction and because of this, pressure on the top of the propeller reduces and pressure underneath the propeller increases, hence equipment gets lifted. for spraying the colors we used submersible liquid spraying pump. The controlling of the quadcopter is the part of electronics. The radiofrequencies are used for transmission of control signals from remote to the quadcopter. The quadcopter will paint the tall buildings just like how the remote will be operated. The main application of the quadcopter is to fly and paint the building where human approach is difficult.

Keywords-Drone technology, spraying, remote

EXPERIMENTAL INVESTIGATION ON METAL MATRIX COMPOSITE (Mg alloy + Gr) BY USING ELECTRICAL DISCHARGE MACHINING (EDM)

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Abstract- This study proposes a novel approach to fabricate metal matrix composite (MMC) materials by integrating stir casting method with wire cut Electrical Discharge Machining (EDM) technology. The synergistic combination of these techniques aims to overcome limitations associated with conventional fabrication methods, such as uniform dispersion of reinforcement materials and precise shaping of complex geometries. The stir casting method facilitates the homogenous distribution of reinforcements within the matrix material, while wire cut EDM enables the machining of intricate shapes with high precision. The proposed methodology offers versatility in material selection and reinforcement options, making it suitable for a wide range of applications in industries such as aerospace, automotive, and electronics. Experimental investigations are conducted to optimize process parameters. The results demonstrate the feasibility and effectiveness of the proposed approach in producing high-quality composite components with enhanced performance characteristics. This research contributes to advancing the state-of-the-art in composite material fabrication techniques, offering new opportunities for design and manufacturing in various engineering fields.

Keywords- Metal Matrix Composite, EDM, ANNOVA, Taguchi Technique.

A DETAILED SCRUTINY ON SHIP BUILDING PROCESS, NDT TESTING OF WELDING DEFECTS, THICKNESS CRITERION OF SHIPS, ACQUISITION METHOD OF SHIP COATINGS

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Abstract- Ship building industry performs a significant role in supporting national defense, stimulating shipping and industrial development, rising employment and overseas currency inflow. The basic objectives of this study are to overview the potentials, performances and identifying the problems related to this industry, which may significantly encourage the shipbuilding industry performance, as well as the problems will also be addressed to assess and measure the effect within the industry and finding the answers accordingly. Weld defect detection is a crucial aspect for improving the productivity and quality of the welding process. Several non-destructive methods exist for the identification of defects post weld deposition like a new non-destructive testing (NDT) system focusing on micro size superficial defects in welded joints. The existing methods for NDT of weld joints involve Rudimentary methods like visual inspection, Radiography, Magnetic particle inspection etc involve surveying the weld bead for any defects like undercuts, slag inclusion, blowholes, surface cracks, and porosity. Ultrasonic non-destructive testing (NDT) a method of characterizing material thickness, integrity, or other physical properties by means of high frequency sound waves is a widely used technique for product testing and quality control. Most engineering materials can be measured using UTG including metals, plastic, ceramics, composites, epoxies, and glass, Online or in-process measurement of extruded plastics or rolled metal is often possible, as is measurement of individual layers or coatings over substrates in multilayer materials. Painting, as an effective means of corrosion protection, is a key part of the product design and manufacturing process of ships.

Key words: non-destructive, Radiography, Magnetic particle inspection

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FABRICATION OF AGRICULTURAL DRONE

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Abstract- The Agricultural drone represents a advancement in autonomous pa technology, merging the versatility of unmanned aerial vehicles (UAVs) with precision painting capabilities. This abstract explores the key features, operational mechanisms, and potential applications of drones across various industries. The significance of automation and the efficiency gains, cost-effectiveness, and environmental benefits offered by this innovative solution. Moreover, it discusses the challenges and future prospects associated with the widespread adoption and enhancement of Agricultural drones, underscoring their transformative potential in revolutionizing traditional painting methodologies.

Keywords-*Drone technology*

TO STUDY ON HUMAN HAIR FIBER REINFORCED CONCRETE WITH PARTIAL REPLACEMENT OF CEMENT BY PALM SEED ASH

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Abstract- One of the most advanced inventions in term of new material being employed in concrete has been development of fiber reinforced concrete which proves to be a solution for problems relating to the formation of micro cracks. Concrete acquires poor tensile properties which must be rectified by adopting certain alternative measures. One such alternate measure could be the usage of human hair as a fiber reinforcement material since it is better in tension. Hair fiber is a widely available material which is also economical it remains non biodegradable and thereby creates environment problems, hence can be used in concrete.

Another material that can be used as a partial replacement material for cement is the Palm Seed Ash (PSA) which is the waste product obtained from palm fruit. It enhances the concrete quality and also minimizes the quantity of cement utilized. This project influence of human hair and PSA on the mechanical properties of the reinforced cement concrete and thereby reducing environmental problem by proper utilization .In this investigation, M25 grade concrete was used and the tests were performed on concrete (cubes and cylinders) with and without addition of human hair fiber as 0.5% 1%,1.5% by the weight of concrete and partial replacement of Palm Seed Ash as 10%,20%,30% by weight of cement. The Optimum use of PSA in concrete is to be experimental study on human hair fiber reinforced concrete with partial replacement of cement by PSA determined. The mechanical characteristics were determined for finding the optimum percentage of human hair fiber and PSA.

Keywords: *Palm Seed Ash, Human Hair Fiber*

AN EXPERIMENTAL INVESTIGATION ON EFFECT OF PARTIAL REPLACEMENT OF COARSE AGGREGATE BY USING KADAPA STONES ON DIFFERENT GRADES OF CONCRETE

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Abstract- This project represents the experimental results of replacement of coarse aggregate with that of Kadapa stones. The basic objective of the study is to identify an alternative source of coarse aggregate because the natural sources of aggregates are depleting very fast due to the fast pace of construction activities in India. In this study concrete of M25&M30 grade were considered with a W/C ratio of 0.4&0.45 for the replacement of 25%&30% of coarse aggregate by Kadapa stones. It could be recommended that the Kadapa stones could be utilized as coarse aggregate in various applications of concrete. This study investigates the performance of concrete mixture containing Kadapa stones at various percentages such as (25%and30%) and compressive strength, at the age of 7 and 28days. Result shows that concrete with replacement of Kadapa waste stones had higher compressive strength and flexural strength when compared with the conventional concrete.

Keywords- Aggregates, Kadapa stones.

EXPERIMENTAL INVESTIGATION ON STABILIZATION OF BLACK COTTON SOIL USING PLASTIC

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Abstract- Soil is a most essential component of the earth's ecosystem. But now a day's the soil is getting polluted due to disposal of waste plastic materials by human beings. For engineering consideration's ,black cotton soil is one of the challenging material for construction purpose, which will not easily get stabilized due to shrinking and swelling as an effect of change in moisture content. It will minimize the stability and shear strength of black cotton soil when compared to other types of soil. This paper explains stabilization of black cotton soil through application of PET (Polyethylene Terephthalate) bottles which is efficiently used to come across the challenges of society, to reduce the quantities of plastic wastes, to improve the physical properties of soil , such as shear strength, bearing capacity through controlled compaction. PET (Polyethylene Terephthalate) bottles are used in different proportion (3%, 5% and 7%) in size is less than 0.5mm. Then index properties test, Standard Proctor, Unconfined Compressive, Moisture Content and California Bearing Ratio are conducted to find the properties of soil which will increases the bearing capacity of soil.

Keywords- Soil stabilization, black cotton soil, plastic wastes, PET bottles.

