5th International Conference on Engineering Science and Technology and Management (ICESTM-2024) Volume-2

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(ICESTM-2024)
Volume-2

Editors

Dr. Gangineni Dhananjhay

Dr. Akhib Khan Bahamani

Publishing in 2024

The following are the different tracks in this conference:

Track 1:

Electronics and Communication Engineering

Topics of interest but are not limited to the following:

1. Nanoelectronics and microelectronics
2. Power and Applied electronics
3. Microprocessor and Microcontroller
4. Very Large Scale Integration(VLSI)
5. Micro scale fabrication
6. Electro technologies
7. High Voltage and Insulation Technologies
8. Power Electronics and Drive Systems

Track 2:

Computer Science and Engineering

Topics of interest but are not limited to the following:

1. Computer Networks.
2. Data Communications.
3. Data Encryption.
4. Data Mining.
5. Database Systems.
6. Programming Languages.
7. Image processing and Pattern recognition
8. CAD-CAM.

Track 3:

Electrical and Electronics Engineering

Topics of interest but are not limited to the following:

1. Instrumentation
2. Electric Power Generation
3. Electrical Machines and Drive Systems
4. Electromagnetic Transients Programs
5. Digital Signal Processing
6. Microprocessor based Technologies
7. Economic aspects of power quality and cost of supply
8. Reliability and continuity of supply.

Track 4:

Mechanical Engineering

1. Industrial Planning
2. Maintenance Engineering
3. Intelligent Mechatronics
4. Robotics

5. Automation, and Control Systems
6. Intelligent System
7. Fault diagnosis
8. Engines and Heat exchangers

Track 5:
Civil Engineering
1. Advanced Concrete Technology
2. Concrete Science and Technology
3. Construction Planning, Scheduling, and Control
4. Geology
5. Mechanics of Solids and Fluids
6. Monitoring of Structures & Buildings
7. Architecture and Town Planning

TRACK 6
Mathamatics
1. Probability & Statistics
2. Number Theory & Linear Algebra
3. Mathematical Modelling and Simulation
4. Graph Theory
5. Geometry Analysis and Fluid Mechanics
6. Computational Methods in Fluid Dynamics

TRACK 7
Physics and Chemistry
1. Thin Film & Characterization
2. Single Crystals & Applications
3. Semiconductor Devices
4. Polymers, Glasses & Ceramics
5. Photonic Materials
6. Graphene & Novel Materials
7. Nano Chemistry
8. Metal Alloys & Composite Structures
9. Green Chemistry
10. Electroplating
11. Catalysis
12. Biomedical Applications of Polymers

TRACK 8 :
Emerging Trends in Business & Commerce
1. Creative and Innovation in Business
2. Finance, Economics and Insurance

3. Accounting and Banking
4. Internet Banking and Marketing Management
5. Entrepreneurship and Sustainable Development
6. Supply Chain Management
7. Hospitality and Tourism Management
8. Stress Management Quality Control and Product Development
9. Environmental Protection and Disaster Management

TRACK 9:
Emerging Trends in Economics & Statistics
1. Pedagogy of Economics
2. Innovative Practices of Economic
3. Interface between Economics and Mathematics
4. Key issues in Gender Economics
5. Nature of Economics
6. Modern Technique in Statistical Methods, Qualitative & Quantitative

REGISTRATION PROCESS

➢ Send the paper to icestm2024@gmail.com
➢ After the acceptance mail received, complete the payment process.
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➢ All submissions will be peer reviewed by experts in the field based on originality, significance, quality and clarity and it should be result oriented.
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➢ At least one author must register and present his/her accepted manuscript in the conference. Registration fee includes proceedings, Conference kit, Lunch, Tea& Certificate.
➢ Prior to submission, the paper should be checked for Plagiarism from licenced plagiarism software like Turnitin / iThenticate. The similarity content should not exceed 20% in any case (either self-contents or others).
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ABOUT NARAYANA ENGINEERING COLLEGE

Narayana Engineering College was established in the year 1998 under the chairmanship of Dr P Narayana. This is one of the most prestigious institutions sponsored by Narayana Educational Society, across India. Within a short period, the college has witnessed significant growth and established itself as one of the premier private unaided Engineering Colleges in Andhra Pradesh today and in recent times our college was ranked as 'A' Grade by the Govt. of AP. The Institute offers a 4-year B Tech Programme in six branches at UG level (EEE, ECE, CSE, EIE, ME, CE, CSE-AI, CSE-AI&ML, CSE-DS, ECE-VLSI, ECE-ACT) and seven courses at PG level (M.Tech EPE, EPS, VLSI, DSCE, CSE; MBA & MCA) with a total intake around 2500. All the Labs are well established with State-of-the Art facilities and are periodically updated with latest equipment. The Institution has got 9 well furnished Computer centres with the latest licensed software. In addition to disciplined education, the college consists of an Air-Conditioned Central Library with more than 45,000 volumes and a Digital Library with 24-hour Internet facility. A full-fledged Training and Placement Cell facilitates the aspiring professionals in acquiring corporate skills towards grabbing placements in MNCs.

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- Autonomous Institutions
- Accredited with NAAC A+ Grade in Andhra Pradesh, No.3 In India wide
- Permanent Affiliation with JNTUA, Anantapuramu
- Best Engineering College in Co-Curricular Activities
- Recognized by UGC under 2(f) & 12(B).
- Rated as College with Grade-A by Govt. of AP.
- Authorized Training Partner to NSDC, New Delhi as PMKVY-TI Center
- Authorized Nodal Centre from IIT-Bombay
- Offering consultancy services to Major Government and Private Organizations – Testing / Evaluation / Design

ABOUT THE CONFERENCE

5th International Conference on Engineering Science Technology and Management, will be held at Narayana Engineering College, Nellore, Andhra Pradesh on 24th to 25th May 2024. In this era of knowledge, the higher education institutes are not restricted just to knowledge transfer from teachers to students, but are also involved in knowledge assimilation, knowledge generation, and knowledge dissemination. The prime objective of ICESTM-2024 is to bring experts, researchers and innovators from academia, R&D and industry in the related fields together and provide them a forum for knowing what is happening in the research arena, identify and conceptualize new ideas and sharing their valuable findings and thoughts. The conference also aims to create research interest in the minds of young graduates to pursue research as their career. ICESTM-2024 will facilitate and promote interdisciplinary research among researchers and help in reducing the gaps between different disciplines.

Index

45.	**OIL SPILL DETECTION IN SEA SURFACE SAR IMAGES USING YOLO ALGORITHM** *Mrs. V. Devika, K. Mounika, D. Yogeswaramma, B. Nandini, G. Siri*	22
46.	**LOW POWER ARITHMETIC AND LOGIC UNIT USING REVERSIBLE GATES** *Dr. KH. Shakthi Murugan, K. Sreeja, A. Kovela, Sowmya Gangothri, E. Vasundhara , B. Sowmya*	22
47.	**IMAGE-BASED QUALITY CONTROL FOR PRECISION PRODUCTION USING VGG16 ALGORITHM** *Dr. B. Malakonda Reddy, K. Giribabu, G. Yaswanth, B. Sukesh Reddy, K. Ashwin Kumar Reddy, B. Arun Kumar*	23
48.	**CASHLESS BUS TICKETING SYSTEM WITH RFID TECHNOLOGY INTEGRATED WITH GPS MODULES** *Mrs. M. Divya Vani, N. Sreenath, A. Rahul, G. Dhanush, G. Lakshmi Narayana, J. Harshavardhan*	23
49.	**SMART CLUSTER HEAD ELECTION IN WSNs THROUGH PARTICLE SWARM OPTIMIZATION** *Dr. Y. Neeraja, M. Sai Veera Abhiram, B. Akhilesh, B. Tharun Kumar, A. Narasimha Teja*	24
50.	**AUTOMATIC VEHICLE ACCIDENT DETECTION AND RESCUE SYSTEM USING GPS & GSM** *Mrs. Ch. Padmavathi, M. Sivateja, K. Dinesh, O. Hariprasad, M. Srinivasulu*	24
51.	**ELECTRONIC VOTING MACHINE WITH FINGERPRINT SENSOR** *Mr. R. Ravi Raman, D. VinayTeja, P. V. Revanth, K. Rajesh, G. Prasanth*	25
52.	**WOMEN GPS SAFETY TRACKER WITH INSTANT ALERTS** *Dr. Y. Neeraja, Ch. Indupriya, G. Madhu Sri, C. Lakshmi Nikhitha, P. Juveeriya Banu, P. Hema*	25
53.	**SMART IOT SYSTEM FOR FOOD SPOILAGE DETECTION AND UV STERILIZATION** *P. Manjulamna, G. Sai Sangeetha, Sk. Thaseen, B. Meghana, K.N. Veena Madhuri, K. Babitha*	26
54.	**SMART AGRICULTURAL MONITORING AND HEAVY RAIN PROTECTION SYSTEM** *Dr. B. Malakonda Reddy, K. Annapoorna, SK. Jareena, K. Lakshmi Bhargavi, B. Sai Meghana*	26
55.	**EFFICIENT LOW POWER 4-BIT REVERSIBLE UNIVERSAL SHIFT REGISTER FOR QUANTUM COMPUTING APPLICATIONS** *Dr. K. H. Shakthi Murugan, Pygala Sravya Sri, Raavi Sravani, Durbhakula Nithya Sri, Pamujula Sucharitha*	27

PERFORMANCE IMPROVEMENT OF GRID INTERFACED HYBRID SYSTEM WITH IMPEDANCE SOURCE INVERTER BSED DISTRIBUTION POWER FLOW CONTROLLER

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ABSTRACT

The main aim of this paper is to introduce a framework for the design and modelling of a photovoltaic (PV)-wind hybrid system and its control strategies. The purpose of these control techniques is to regulate continuous changes in the operational requirements of the hybrid system; currently, in power system networks, the distribution of energy plays a major role in maintaining power reliability in distribution systems. In this study, the proposed hybrid system was incorporated with a combined PV and wind energy system. Maximum power point tracking (MPPT) methods have been proposed to achieve maximum efficiency from the designed system. In addition, this study focused on improving the stability of the hybrid system. To improve the power quality and transient stability of the proposed system, we introduce a novel control strategy called the distributed power flow controller (DPFC) implementation with an optimization technique called the Perturb and observe(P&O) technique. This P&O control technique was developed for the first time in the application of a DPFC controller in a grid-connected system. The control technique was developed using signals from the system parameters, that is, voltage and current. To tune these parameters, this study used Impedance Source Inverter and Perturb and Observe techniques. The proposed system with controllers was tested in MATLAB/Simulink and the results were compared.

SOLAR POWER GENERATING SYSTEM WITH SMOOTHING FUNCTION OF POWER

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ABSTRACT

The output power from a solar power generation system (SPGS) changes significantly because of environmental factors, which affects the stability and reliability of a power distribution system. This study proposes a SPGS with the power smoothing function. The proposed SPGS consists of a solar cell array, a battery set, a dual-input buck-boost DC-AC inverter (DIBBDAI) and a boost power converter (BPC). The DIBBDAI combines the functions of voltage boost, voltage buck and DC- AC power conversion. The BPC acts as a battery charger between the solar cell array and the battery set. For the proposed SPGS, the DC power that is provided by the solar cell array or the battery set is converted into AC power through only one power stage. The solar cell array also charges the battery set through only one power stage. This increases the power conversion efficiency for the solar cell array, the battery set and the utility. The battery set is charged/discharged when the output power of the solar cell array changes drastically, in order to smooth the output power from the SPGS. In addition, the DIBBDAI can suppress the leakage current that is induced by the parasitic capacitance of the solar cell array. The proposed power conversion interface increases power efficiency, smooths power fluctuation and decreases leakage current for a SPGS A hardware prototype is completed to verify the performance of the proposed SPGS.

SUPER-CAPACITOR FOR ENERGY STORAGE WITH BIDIRECTIONAL POWER FLOW CONTROL STRATEGY
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Abstract

As renewable energy sources like solar and wind become more popular, we need better ways to store extra energy. Supercapacitors are a promising option because they charge and discharge quickly and last a long time. However, to use them effectively, we need a smart system to control how they store and release energy. This research proposes a new control system for supercapacitors that uses a special converter called an MMC. This system allows supercapacitors to charge and discharge faster and respond better to changes in power demand. It's also more efficient, flexible, and reliable than traditional systems. The researchers tested the system using computer simulations and studied how different factors affect its performance. This paves the way for using supercapacitors more effectively in storing renewable energy.

POWER QUALITY IMPROVEMENT AT GRID INTEGRATION USING PV DSTATCOM
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ABSTRACT

This project achieves the improved performance of PV DSTATCOM to establish the grid integration and power quality enhancement. In the proposed system, during PV-DSTATCOM state, photovoltaic (PV) array ower is used to maintain the dc-link voltage, by extracting the maximum power based on perturb and observe (P&O) algorithm and supplying the excess power into the grid. Whereas, during DSTATCOM state, a reference dc-link voltage control scheme is proposed based on the connected load on the point of common coupling (PCC), and thus regulates the dc-link voltage and enhances the PV DSTATCOM performance. The control signals for the VSI are generated based on the modified synchronous reference frame (SRF) control scheme. The effectuality of the proposed system is validated by the MATLAB simulation results.

DESIGN AND IMPLEMENTATION OF 5-LEVEL MULTILEVEL CASCADED INVERTER FOR ELECTRIC VEHICLE CHARGING STATION APPLICATIONS
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ABSTRACT

This paper presents the design and implementation of a 5-phase 5-level cascaded inverter for electric vehicle (EV) charging applications. The proposed inverter topology offers improved power quality, reduced harmonic distortion, and increased efficiency compared to traditional 2-level inverters. The 5-phase configuration enables reduced current stress on individual switches, while the 5-level cascaded structure provides a higher voltage output with reduced total harmonic distortion (THD). The design is suitable for high-power EV charging applications, supporting the widespread adoption of electric vehicles.

A REVIEW ON DYNAMIC ELECTRIC VEHICLE CHARGING IN WIRLESS MODE

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India*

ABSTRACT

The introduction of Electric Vehicles (EVs) signifies a promising transition toward a cleaner transportation future, addressing enduring challenges such as extended charging durations and limited infrastructure availability. In response to these persistent issues, a groundbreaking solution has emerged: a solar-driven wireless charging infrastructure tailored for EVs, operational even during travel. This pioneering system eliminates the need for conventional wired charging stations by harnessing solar power to sustainably fuel EVs. At its core, the system integrates essential components including a solar panel, battery unit, transformer, regulator circuitry, copper coils, AC to DC converter, an Atmega controller, and an LCD display. By strategically embedding copper coils within roadway infrastructure, the system leverages magnetic induction to facilitate wireless energy transmission to EVs traversing over them, thereby minimizing wear and tear. This innovative approach heralds a paradigm shift in EV charging dynamics, enabling uninterrupted replenishment without protracted halts, thus augmenting operational efficiency and convenience while reducing dependence on conventional energy sources, particularly advantageous for remote locales.

LATERAL LOAD ANALYSIS AND DESIGN MULTISTOREY BUILDING USING STAAD PRO

Mr. CH. Madhusudhan*1, Mr. J. Suryanarayana*2
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Andhra Pradesh, India

ABSTRACT

This Paper aims on comparative analysis between the design outcomes of a regular and a planned multistorey building structure using STAAD Pro exclusively. The final work involved the comprehensive analysis and design of a G+21 3-D RCC frame under various load combinations. The structure consists of a 3-D RCC frame with dimensions of 4 bays @5m in the x-axis and 3 bays @5m in the z-axis, with G+21 floors along the y-axis. Each floor comprises 28 beams and 16 columns. Load cases include self-weight, dead load, live load, wind load, and seismic loads, with wind load values generated by STAAD Pro according to IS 875 specifications and seismic load calculations following IS 1893-2000. Material specifications and cross-section assignments for beam and column members were determined, with fixed supports at the base of the structure. The design process adheres to Indian Standard Codes, focusing on structural safety through minimum design loads for various load types. STAAD Pro facilitates efficient analysis and design, offering a fast, accurate and user-friendly platform compared to conventional manual methods, particularly beneficial for complex and high-rise structures. In addition to structural analysis, the post-processing mode in STAADPro allows for the examination of generated diagrams and the evaluation of member deflection under different loading combinations, providing insights into structural behavior and performance. The project highlights the significance of strict adherence to loading standards recommended in the Indian Standard Codes to ensure the structural safety of buildings. By utilizing the Limit State Method, structural elements are designed to meet minimum requirements while considering factors such as material strength, stability, and serviceability. Furthermore, the project emphasizes the time-saving and efficiency benefits of using STAAD Pro for complex and high-rise structures. The software streamlines the design process, reducing the need for cumbersome manual calculations and enabling engineers to focus more on optimizing structural performance and ensuring safety.

Keywords: STAADPro, multistorey building, RCC frame, load combinations, Indian Standard Codes, structural safety, Limit State Method, post-processing analysis, seismic load calculations, wind load analysis

NON LINEAR DYNAMIC ANALYSIS OF MULTISTORY BUILDING BY USING ETABS

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ABSTRACT

Pushover analysis is a static non-linear analysis using simplified non-linear technique to find out seismic structural deformations. It is a static analysis used to determine force-displacement relation, or to find the capacity curve, for structural element. Pushover analysis involves applying horizontal forces, in a prescribed pattern, to the structure, le. pushing the structure and finding the total applied shear force and lateral displacement for each case till the collapse condition. In this technique computer models of buildings are subjected to a lateral load. Non-linear dynamic analysis utilizes the combination of ground motion records with a detailed structural model, therefore is capable of producing results with relatively low uncertainty. In nonlinear dynamic analyses, the detailed structural model subjected to a ground-motion record produces estimates of component deformations for each degree of freedom in the model and the modal responses are combined using schemes such as the square-root-sum-of-squares. The objective of this paper is to perform pushover analysis on reinforced concrete structure which are subjected to different structural systems. In which G+14 building was subjected to push in X and push in Y direction. Various cases of the structure are considered. Then the optimum location of outrigger is studied by the lateral deflection of the building. To study the effect of in-filled walls on the high rise structures equivalent strut method is used to model the walls. The analysis is done in ETABS 2016.

Key Words: Belt Truss, Core Wall, High-rise Building, In- filled Wall, Outriggers, Performance Point

A STUDY ON COMPARISION OF STEEL CONCRETE COMPOSITE STRUCTURE WITH RCC STRUCTURE

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ABSTRACT: This paper explores the application and benefits of steel-concrete composite structures in the construction of a residential building in earthquake zone IV, offering a detailed comparison with traditional reinforced cement concrete (RCC) structures. As urbanization and modern construction demands escalate in India, there is an increasing need for efficient, cost-effective, and resilient building solutions. Composite structures, which synergize the high tensile strength of steel with the compressive strength of concrete, present a promising alternative to conventional RCC buildings. The primary focus of this project is to assess the structural performance and economic viability of composite structures versus RCC using ETABS software for comprehensive analysis. This involves calculating various loads including dead load, live load, wind load, and seismic load following the relevant Indian Standards (IS) codes. The structural behavior under these loads is meticulously analyzed, with particular attention to displacement, base reactions, and story forces. The results reveal that composite

structures exhibit superior performance in seismic conditions, characterized by lower displacements and enhanced stability.

This is attributed to the ductility and strength of steel, which significantly improves the building's ability to withstand seismic forces. Additionally, a detailed cost analysis demonstrates that, despite the higher initial material costs for composite structures, they offer greater overall economic benefits due to reduced construction time and labor costs. This study underscores the importance of adopting steel-concrete composite structures in regions prone to seismic activity. The improved structural performance and cost-efficiency make composite structures a viable and advantageous option for modern construction projects in India. The findings advocate for a paradigm shift in the Indian construction industry, promoting the integration of composite structures to meet the dual objectives of safety and economic viability in the face of growing urbanization and development demands. Overall, this research provides a comprehensive comparison between composite structures and RCC, highlighting the significant advantages of composite construction. By adopting these innovative building techniques, the construction industry can achieve enhanced performance, cost savings, and faster project completion, ultimately contributing to the sustainable development of urban infrastructure.

Keywords: Composite Structures, RCC, ETABS, Seismic Load, Cost Analysis, Structural Performance, Indian Standard Codes, structural safety, post-processing analysis, seismic load calculations, wind load analysis.

COST ANALYSIS OF AUDITORIUM BUILDING USING BIM

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ABSTRACT

Architectural, Engineering and Construction (AEC) industry is undergoing a significant shift from labor-intensive methods to automation through the use of information technology, and Building Information Modeling (BIM) has played a crucial role in this transformation. Team of specialists is needed to participate in the process. Acoustical designer, lighting designer and air conditioning consultant in addition to the architect should be among this team. BIM isn't just another fancy tool in the construction toolbox – it's a game-changer. It's like taking all the puzzle pieces of a building project and effective and efficient through the development of three-dimensional (3D) model. Many researchers have found that Building Information Modeling (BIM) can facilitate various aspects of construction management, especially in the communication between and coordination of resources. Such management tools can also increase the likelihood of identifying problems prior to actual construction and thus avoid costly re-work. Although the advantages of BIM are generally recognized, the effort required and possible problems engineers may encounter when using BIM tools still need further investigation. In this paper, we observed an actual project, a nine-floor office building with one basement level, and recorded the steps taken during the process of creating a BIM model.

We recorded the time taken to create a BIM model from existing 2D drawings using Autodesk Revit Architecture, a BIM software application. We also recorded the time taken to link the schedule (built on MS-Project) with the BI model. The results provide decision-makers and construction professionals with an estimation of the time cost and human resource requirements involved in using BIM tools to build 3D/4D BIM models. The study also provides potential users with a better understanding of how BIM tools are applied in construction projects.

Keywords: building information modeling, revit architecture, cost analysis.

A MULTISTORY COMPOSITE STRUCTURE ANALYSIS USING STAAD PRO

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ABSTRACT

Reinforced concrete frame buildings are most common type of construction in urban India, which is subjected to several types of forces during their life time such as static forces and dynamic forces due to wind and earthquakes. The static loads are constant with time, while dynamic loads are time varying, causing considerable inertia effects. It depends mainly on location of building, importance of its use and size of the building. Its consideration in analysis makes the solution more complicated and time consuming and its negligence may sometimes become the cause of disaster during earthquake. So, it is growing interest in the process of designing civil engineering structures capable to withstand dynamic loads. The behaviour of building under dynamic forces depends upon its mass and stiffness properties, whereas the static behaviour is solely dependent upon the stiffness characteristics. Composite structures typically integrate steel and concrete, capitalizing on the strengths of both materials. Steel, known for its excellent tensile strength, and concrete, renowned for its compressive strength, work synergistically in composite systems to create buildings that are not only stronger but also lighter and more material-efficient. This integration leads to significant benefits in terms of construction speed, cost savings, and structural efficiency. In this paper we study static & dynamic analysis of composite structure by using staad pro.

Keywords:- Multistory Building, Composite Structure, Static Analysis, Dynamic Analysis, AutoCAD, Staad Pro, Finite Element Analysis, Indian Construction Industry

USING ARTIFICIAL INTELLIGENCE SPEECH RECOGNITION
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ABSTRACT

Speech recognition technology, bolstered by advancements in artificial intelligence, has emerged as a transformative tool in human-computer interaction. Our project, Speech Recognition Using AI Assistant, embodies this paradigm shift by introducing a cutting-edge virtual assistant capable of interpreting and executing voice commands. Through a combination of sophisticated algorithms and machine learning techniques, our AI assistant offers users a seamless and intuitive means of interacting with their devices, eliminating the need for traditional input methods such as keyboards or mice

Index Terms — Voice Recognition, Virtual Assistant, Speech Command, Text-to-Speech, Python, Natural Language Processing (NLP), Tkinter, pyttsx3, speech recognition, Wikipedia API, Web Automation, GUI

FAKE NEWS DETECTION USING SUPPORT VECTOR MACHINE
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ABSTRACT

Most of the smart phone users prefer to read the news via social media over internet. The news websites are publishing the news and provide the source of authentication. The question is how to authenticate the news and articles which are circulated among social media like WhatsApp groups, Facebook Pages, Twitter and other micro blogs & social networking sites. It is harmful for the society to believe on the rumors and pretend to be a news. The need of an hour is to stop the rumors especially in the developing countries like India, and focus on the correct, authenticated news articles. This paper demonstrates a model and the methodology for fake news detection. With the help of Machine learning and natural language processing, it is tried to aggregate the news and later determine whether the news is real or fake using Support Vector Machine. The results of the proposed model is compared with existing models. The proposed model is working well and defining the correctness of results upto 93.6% of accuracy.

Keywords: Artificial Intelligence, Fuzzy Logic, Fuzzy Inference, Machine Learning, Naive Based Classifier, News, Prediction, Recommendation, Support Vector Machine (SVM).

AUTOMATIC PARKING SPACE DETECTION USING MACHINE LEARNING
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ABSTRACT

The increasing urbanization and vehicle ownership have led to a pressing issue of parking space scarcity, exacter bating traffic congestion and environmental pollution. To address this challenge, this project proposes an innovative solution leveraging Artificial Intelligence (AI) for real-time parking space detection. The system utilizes advanced computer vision algorithms to analyze live camera feeds from parking lots or urban areas. Through deep learning techniques, the AI model is trained to identify and classify vacant and occupied parking spaces accurately.

Index Terms — Computer Vision, Parking Space Detection, Occupancy Detection, Open CV, Python, Video Processing, Image Segmentation, Parking Management

POLLUTION MONITORING
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ABSTRACT

This project aims to develop a comprehensive framework for air quality prediction and pollution monitoring using the Random Forest algorithm. The project encompasses various components, including data collection, preprocessing, model building, evaluation, and reporting. By leveraging data from diverse sources such as air quality monitoring stations, weather stations, and satellite imagery, the framework will enable the creation of robust predictive models capable of forecasting pollutant concentrations with high accuracy. The novelty of this project lies in the integration of advanced machine learning techniques with environmental science, providing real-time insights for policymakers and stakeholders. While traditional methods may suffer from limitations such as lack of accuracy and spatial coverage, the Random Forest algorithm offers advantages such as scalability, robustness, and interpretability. However, challenges such as model complexity and computational resource requirements need to be addressed. Through rigorous methodologies including data preprocessing, model training, and performance evaluation, this project aims to overcome these challenges and contribute to the advancement in practicing to manage the efficiency of air. The outcomes of our project have the potential to contribute rational choice-making, leading to improved environmental regulations and public health outcomes.

Keywords: Air quality prediction, Pollution monitoring, Random Forest algorithm, Data science, Real-time monitoring, Environmental management

AI MENTOR
P. MADHAVI

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ABSTRACT:

My project introduces a robust Customer Support Module into the Expense Manager Application, aimed at elevating user satisfaction and facilitating seamless issue resolution. This module empowers administrators to efficiently manage user inquiries and support tickets, streamlining communication channels and ensuring timely responses to user queries. By integrating comprehensive ticket management functionalities, we aim to enhance user assistance and foster positive user experiences within the Expense Manager App ecosystem.

The Customer Support Module provides administrators with intuitive tools to handle user inquiries effectively. Administrators can create, assign, prioritize, and track support tickets from a centralized dashboard, ensuring accountability and transparency throughout the resolution process. Additionally, the module offers 24/7 support to the user minimizing the downtime and enhancing overall user satisfaction.

Our goal is to prioritize user support and satisfaction by leveraging the capabilities of the Customer Support Module. By providing administrators with efficient ticket management tools, we aim to enhance communication, resolve user issues promptly, and foster trust and loyalty among Expense Manager App users. Through this initiative, we seek to establish the Expense Manager App as a reliable and user centric solution for financial.

Keywords: React disaccustomed support, user inquiries, Support Tickets, administrators, 24/7 support

STUDENT RECORD INFORMATION SYSTEM
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ABSTRACT:

Student Information System (SIS) provides a simple interface for maintenance of student information. It can be used by college to maintain the records of students easily. It tracks all the details of a student from the day one to the end of the course which can be used for all reporting purpose, tracking of attendance, progress in the course, semesters, years and all these will be available through a secure, online interface embedded in the college's website. Achieving this objective is difficult using a manual system as the information is scattered, can be redundant and collecting relevant information may be very time consuming.

Keywords: maintenance, record, tracking, information, collecting.

AN INTELLIGENT INTRUSION DETECTION SYSTEM FOR SMART CONSUMERS
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ABSTRACT:

The technological advancements of Internet of Things (IOT) have revolutionized traditional Consumer Electronics (CE) into next-generation CE with higher connectivity and intelligence. This connectivity among sensors, actuators, appliances, and other consumer devices enables improved data availability, and provides automatic control in CE network. However, due to the diversity, decentralization, and increase in the number of CE devices the data traffic has increased exponentially. Moreover, the traditional static network infrastructure-based approaches need manual configuration and exclusive management of CE devices. Motivated from the aforementioned challenges, this article presents a novel Software-Defined Networking (SDN) orchestrated Deep Learning (DL) approach to design an intelligent Intrusion Detection System (IDS) for smart CE network. In this approach, we have first considered SDN architecture as a promising solution that enables reconfiguration over static network infrastructure and handles the distributed architecture of smart CE network by separating the control planes and data planes. Second, an DL-based IDS using Cuda-enabled Bidirectional Long Short-Term Memory (Cu-BLSTM) is designed to identify different attack types in the smart CE network. The simulations results based on CICIDS-2018 dataset support the validation of the proposed approach over some recent state-of the-art security solutions and confirms it a phenomenal choice for next-generation smart CE network.

Keywords: Consumer Electronics, Cyber-Attacks, Deep learning, Internet of Things, Intrusion Detection System, Software-Defined Networking

CREATING AN INFRASTRUCTURE IN AWS

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ABSTRACT

This paper outlines the process of building a secure and scalable infrastructure on Amazon Web Services (AWS) using core services such as Virtual Private Cloud (VPC), subnets, route tables, security groups, internet gateways, and EC2 instances. AWS provides a comprehensive cloud platform that allows users to create a robust and flexible infrastructure tailored to their specific needs. We will detail the configuration steps for each component, starting with the creation of a VPC to establish a virtual network, followed by the addition of subnets to segment the network. Route tables will be configured to manage traffic flow, and security groups will be established to enforce firewall rules and protect resources. An internet gateway will be connected to enable external connectivity, and finally, EC2 instances will be deployed to provide computational power. Throughout the process, we will emphasize security best practices to ensure that the infrastructure is not only functional but also secure against potential threats. This guide is intended for beginners or those new to deploying infrastructure on AWS, providing a clear and practical approach to setting up a foundational cloud environment that can support a variety of use cases, from web hosting to development and testing environments.

Keywords: Amazon Web Services (AWS), Virtual Private Cloud (VPC),Public Subnet ,Route Table, Security Group, Internet Gateway,EC2 Instance, Cloud Computing.

FACE RECOGNITION BASED ATTENDANCE SYSTEM WITH REAL TIME DATABASE

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ABSTRACT

A face recognition-based attendance system is an automated solution that uses facial recognition technology to confirm attendance and record real-time attendance data accurately. The system aims to save time, increase efficiency, cut costs, increase workplace security, and provide a contactless and hygienic solution for attendance management. The system involves steps such as database construction, face detection, face recognition, and attendance updating. The technology works by capturing digital images of faces and comparing them against a database of previously collected data, and it can be implemented using techniques such as Face_recognition, and OpenCV-Python. The system can be used in various settings such as classrooms, universities, and organizations to accurately record attendance and reduce the risk of proxy data entry. While the system offers benefits such as improved accuracy and reduced risk of error, it's important to consider limitations such as issues with accuracy, ethical concerns, and the need for strong authentication methods. The system is designed to be efficient, time-saving, and simple to use, and it can be integrated with other technologies to further improve attendance management.

Index Terms- Face recognition, Attendance system, Real time database, Automated attendance marking, Machine Learning

ENGENDERING IMAGE CAPTIONS USING MACHINE LEARNING

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ABSTRACT

An image caption is a commodity that describes an image in the form of text. It's considerably used in programs where one needs information from any image in automatic textual format. We analyze three factors of the process: convolutional neural networks (CNN), Recurrent neural networks (RNN), and decision-making. It develops a model that decomposes both images and sentences into their rudiments, regions of intelligent languages in photography with the help of the LSTM model and NLP styles. It also offers the implementation of LSTM Methods with fresh effectiveness features. This article reviews Gated Recurrent Unit (GRU) and LSTM Methods. According to the evaluation and using BLEU Metrics LSTM is considered the best with 80% effectiveness. This system improves the good results.

Keywords: CNN, RNN, LSTM, GRU.

FORECASTING BIKE DEMAND USING LINEAR REGRESSION

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ABSTRACT

This project focuses on accurately predicting bike demand in urban bike-sharing systems using linear regression, aiding in optimal inventory management and customer satisfaction. Historical bike rental data is collected and pre-processed, including factors like temperature, humidity, wind speed, day of the week, and time of day. A linear regression model is trained using scikit-learn in Python, with performance evaluated through Mean Squared Error (MSE) and Root Mean Squared Error (RMSE). The results highlight the model's effectiveness in forecasting bike demand, providing valuable insights for operators to optimize inventory and enhance service quality. This study supports informed decision-making to improve the efficiency and reliability of bike-sharing services, benefiting urban commuters.

Keywords: Bike-sharing systems, Linear regression, Forecasting, Historical data, Data preprocessing

DESIGNING AN AI MENTOR – FRAME WORK
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ABSTRACT

The primary reason is due to their poor financial management. Some are lucky enough to get guidance from their parents, siblings and well-wishers. To fill this GAP and bring in best practices to upscale everyone's financial literacy there comes a need for every human being gets a dedicated mentor. This can be achieved only with the help of AI. "My Mentor" an SAAS mobile application will be available to all Indians free of cost. OPEX cost for running this platform will be collected from Google advertisements posted on this platform. People can use this application to record their daily expenses. AI mentor will monitor their transactions and guide them on the road to success. It performs budget projects and provides clarification on the next 12 months' financial needs. This will help users to plan their life better. People can also interact with this AI and get mentor guidance.

AI Mentor Framework:

AI mentor framework for an expense manager application marks a significant advancement in personal finance management. This framework leverages cutting-edge artificial intelligence to provide users with personalized financial guidance, streamline budgeting processes, and enhance overall financial literacy. By integrating natural language processing (NLP) and machine learning (ML) algorithms, the AI mentor can understand and respond to user queries, analyze spending patterns, and offer actionable advice tailored to individual financial goals. This intelligent system not only automates routine financial tasks but also empowers users to make informed decisions, ensuring a more efficient and user-friendly approach to managing personal finances.

Keywords - Career Growth, Employee Engagement, Personalized Guidance, Skill Development, Virtual Mentor.

AN CREDIT ANALYSIS USINGAUTOMATED RECURRENT CAT BOOST CLASSIFIER
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ABSTRACT

In Automated credit analysis has evolved significantly with the advent of advanced machine learning techniques, enabling more accurate and efficient credit risk assessment. This study proposes an innovative approach that combines the strengths of recurrent neural networks (RNNs) and CatBoost classifiers to enhance credit scoring models. RNNs are adept at capturing temporal dependencies in sequential data, making them ideal for modeling the time-varying aspects of credit behavior. CatBoost, a gradient boosting algorithm specifically designed for handling categorical features, complements RNNs by efficiently processing the categorical variables prevalent in credit datasets. By integrating these two methodologies, our approach

not only improves predictive accuracy but also enhances model interpretability, providing valuable insights into the factors influencing credit risk. Experimental results on benchmark credit datasets demonstrate the superiority of the combined RNN and CatBoost model over traditional credit scoring methods, highlighting its potential for deployment in financial institutions to facilitate more reliable and transparent credit decision-making processes.

Keywords- Automated credit analysis, Recurrent Neural Networks, CatBoost classifier, credit risk assessment, machine learning, temporal modeling, categorical data handling, predictive analytics, hybrid models, financial technology.

GENDER AND AGE PREDICTION USING WEB CAM
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ABSTRACT

The accurate prediction of gender and age from various data sources, such as images, text, and other biometric data, has become a critical area of research in the fields of computer vision, machine learning, and human-computer interaction. This paper reviews state-of-the-art methodologies for gender and age prediction, highlighting key techniques including convolutional neural networks (CNNs), deep learning architectures, and ensemble methods. We discuss the preprocessing steps necessary for improving prediction accuracy, such as data augmentation and normalization, as well as the challenges posed by imbalanced datasets and diverse demographic characteristics. The paper also explores the applications of gender and age prediction systems in areas such as targeted marketing, security, and personalized user experiences. Comparative analysis of different models demonstrates the effectiveness and limitations of current approaches, providing insights into future directions for enhancing the robustness and fairness of these prediction systems. Experimental results on benchmark datasets underscore the potential of advanced algorithms to achieve high accuracy, while also emphasizing the ethical considerations and privacy concerns inherent in deploying these technologies

FINANCIAL ASSISTANCE USING ARTIFICIAL INTELLIGENCE
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ABSTRACT

According to the WHO, over 7,000,00,000 people commit suicide each year. This percentage is rising annually. Their inadequate financial management is the main cause. For a fortunate few, parental figures, siblings, and well-wishers provide advice. In order to close this gap and implement best practices to raise everyone's level of financial literacy, it is necessary for each person to have a committed mentor.AI is the only tool that can help achieve this. The SAAS mobile application "AI Mentor" will be free of charge for all Indians. The Google ads that are displayed on this platform will cover the OPEX costs associated with maintaining it. This app allows users to keep track of their everyday spending. On the month-long journey to

success, an advisor will keep an eye on their transactions. It completes budget projects and offers details on the money requirements for the upcoming 12 months. This will make it easier for consumers to plan their lives. Additionally, users can communicate with the AI and receive instruction.

CHARACTERIZING AND PREDICTING REVIEWS ON E-COMMERCE WEBSITE
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ABSTRACT:

In the competitive landscape of e-commerce, customer reviews play a crucial role in influencing purchasing decisions. Understanding and predicting the sentiment of these reviews can provide valuable insights for businesses aiming to enhance customer satisfaction and product quality. This study focuses on characterizing and predicting reviews on e-commerce websites using advanced natural language processing (NLP) techniques. By analyzing a dataset of reviews, we explore various factors that contribute to positive and negative sentiments, such as product features, service quality, and user experience. Leveraging machine Learning algorithms, we develop predictive models to anticipate the sentiment of new reviews a proactive approach to managing customer feedback and improving overall performance. In the real mofe-commerce, customer reviews wield significant influence over consumer behavior and brand reputation. This study delves into the characterization and prediction of reviews one-commerce platforms, employing advanced natural language processing (NLP) techniques and machine learning models.

OPERATIONS OF VIRTUAL MACHINE SERVICE
Dr. V. Sucharita

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ABSTRACT:

The project explores the Virtual Machine (VM) service provided by Amazon Web Services (AWS), with a primary emphasis on the Elastic Compute Cloud (EC2) instances. It investigates methodologies for efficiently provisioning, managing, and optimizing EC2 instances to cater to diverse computing requirements within AWS. This study seeks to offer a thorough comprehension of EC2 operations, encompassing the entire lifecycle from initial instance creation through to scaling and continuous monitoring. Practical applications in cloud computing environments are highlighted, showcasing how EC2 enables organizations to dynamically adjust computing resources based on demand, thereby enhancing operational flexibility and cost-effectiveness. Keywords: Amazon Web Services (AWS), Elastic Compute Cloud (EC2), virtual machines (VM), cloud computing, instance provisioning, resource optimization, scaling, monitoring, operational efficiency

Keywords: Amazon Web Services, AWS, Elastic Compute Cloud, EC2, virtual machines, VM, cloud computing, instance provisioning, resource optimization, scaling, monitoring, operational efficiency.

DETECTION OF PHISHING USING MACHINE LEARNING

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ABSTRACT

Phishing attacks pose a severe and persistent threat to cybersecurity, exploiting social engineering techniques to deceive users into divulging sensitive information. Traditional methods, such as blacklisting and heuristic-based approaches, have proven inadequate against the sophisticated and evolving nature of these attacks. In response, this study introduces a hybrid machine learning-based approach for phishing detection, focusing on URL features to distinguish between legitimate and malicious websites. The proposed system integrates logistic regression and random forest classifiers, leveraging their complementary strengths to enhance detection accuracy and robustness. The dataset, comprising labeled URLs from a publicly available repository, underwent extensive preprocessing, including handling missing values, label encoding, and removing duplicates. Text features were extracted using Count Vectorizer, and models were trained and evaluated to assess their performance. Experimental results demonstrate that the hybrid model achieves high accuracy rates, outperforming individual classifiers. By leveraging both logistic regression and random forest classifiers, our system aims to enhance the accuracy and reliability of phishing detection. The system was trained and tested on a publicly available dataset, and the results demonstrate promising performance with high accuracy rates.

Keywords: Machine Learning, Phising, cybersecurity, regression

BRUTE FORCE ATTACKS

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ABSTRACT :

Brute Force has become the most serious problem, harming individuals, corporations, and even entire countries. The availability of multiple services such as online banking, entertainment, education, software downloading, and social networking has accelerated the Web's evolution in recent years. As a result, a massive amount of data is constantly downloaded and transferred to the Internet. Spoofed emails pretending to be from reputable businesses and agencies are used in social engineering techniques to direct consumers to fake websites that deceive users into giving financial information such as usernames and passwords. Technical tricks involve the installation of malicious software on computers to steal credentials directly, with systems frequently used to intercept users' online account usernames and passwords

CRYPT- DAC: ILLUSTRATES HOW DYNAMIC ACCESS CONTROL CAN BE ENFORCED IN THE CLOUD USING ENCRYPTION

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ABSTRACT

Enabling access control to data managed in an untrusted cloud is attractive to many users and organizations. However, designing a dynamic access control system in the cloud is still a challenge. In this paper, we consider Crypt-DAC, a system that provides a cryptographic application for dynamic access control. Crypt-DAC sends access permissions by sending an update of the encrypted data to the cloud. In Crypt-DAC, a file is encrypted with asymmetric key array that records the file key and the sequence of decryption keys. With each deletion, a dedicated administrator sends a new encryption key to the cloud and instructs the file to be encrypted with a new encryption layer and updates the list of encryption keys. Crypt-DAC offers three main methods to limit the size of the key list and encryption layers. Finally, Crypt-DAC uses dynamic access control, which ensures efficiency as it does not require expensive decryption/encryption and download/retransmission of large data together with the administrator, and security as it will be deleted immediately. access permission. We use a formal framework and systems implementation to demonstrate the safety and efficiency of our construction.

IndexTerms - access control, cloud, revocation.

RETAIL REVOLUTIONIZATION: NEXT-GEN E-COMMERCE INFRASTRUCTURE

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ABSTRACT

eCommerce has emerged as a key component of retail in the current digital era, providing consumers with ease and accessibility throughout the globe. The goal of this project is to develop a state-of-the-art eCommerce platform by utilizing React JS. This project aims to reinvent the online buying experience by combining cutting-edge functionality, intuitive navigation, and creative UI/UX design. In addition to providing interns with an educational experience, this project advances eCommerce technology and meets the increasing need for effective, user-focused online shopping solutions.

The process of buying and selling goods or services via the internet utilizing an electronic media is called electronic commerce, or ecommerce. It enables the purchasing and sale of products and services from all over the world utilizing the internet.

Keywords: User Experience, Performance Optimization, Responsive Design, Research Paper, Technical Writing and Technology.

NETWORK INTRUSION DETECTION FOR IOT SECURITY BASED ON LEARNING TECHNIQUES

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ABSTRACT

The system, review and analyze intrusion detection systems for Agriculture 4.0 cyber security. Specifically, we present cyber security threats and evaluation metrics used in the performance evaluation of an intrusion detection system for Agriculture 4.0. Then, we evaluate intrusion detection systems according to emerging technologies including Cloud computing. Intrusion detection is one of the important security problems in today's cyber world. A significant number of techniques have been developed which are based on machine learning approaches. So for identifying the intrusion we have designed the machine learning algorithms. A Network based Intrusion Detection System (NIDS) is usually placed at network points such as a gateway and routers to check for intrusions in the network traffic.Based on the machine learning technique used, we provide a comprehensive classification of intrusion detection systems in each emerging technology. Furthermore, we present public datasets, and the implementation frameworks applied in the performance evaluation of intrusion detection systems for Agriculture 4.0. Finally, we outline challenges and future research directions in cyber security intrusion detection for Agriculture 4.0. To detect malicious behaviours, the IDSs use artificial intelligence-based techniques, such as machine learning and cloud computing. Finally, with the help of machine learning, we can detect the IDS and store the detected data in free cloud storage

TOOTH SEGMENTATION IN PANORAMIC X-RAY IMAGES

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ABSTRACT

The "Tooth Segmentation in Panoramic X-ray Images Using U-Net" project aims to employ state-of-the-art deep learning techniques to automatically segment individual teeth in panoramic dental X-ray images. Accurate tooth segmentation is a critical step in computer-aided diagnosis and treatment planning in dentistry. The project involves the collection of a dataset comprising panoramic X-ray images along with corresponding manually annotated masks highlighting the boundaries of individual teeth. The U-Net model is then trained to learn the intricate features and spatial relationships within the dental images to accurately segment each tooth. Key phases of the project include data collection, data preprocessing, model architecture design (U-Net), model training, and evaluation. Various preprocessing techniques such as histogram equalization and data augmentation may be applied to enhance the robustness and generalization of the U-Net model.

Keywords: Tooth segmentation, Panoramic X-ray, U-Net, Convolutional neural network, Dental imaging, Medical image analysis, Deep learning, Image segmentation, Dental diagnostics, Orthodontic planning, Automated analysis.

A STUDY OF BLOCKCHAIN TECHNOLOGY FOR FARMERS PORTAL USING MACHINE LEARNING

Dr. P. K. Venkateswar Lal

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ABSTRACT

Blockchain be a innovate method that utilizes a cryptocurrency for securely confirming transactions. It maintains a distributed ledger across numerous computers in an peer-to-peer network. Contracts, transactions, and their records be pivotal in defining an country's economic system, establishing boundaries, and safeguard assets. This paper underscore the potential of blockchain technology within an farmer's portal to documenting transactions involving the buying and selling of crops. By leveraging the Python programming language alongside blockchain, a proposed solution aim to enhance transparency and security while preserving trade contracts. A designed interface enable farmers to input essential details such as seller and buyer information, item descriptions, and transaction values, all securely stored within the blockchain network. Ultimately, this integration benefit farmers, vendors, and individuals by providing a reliable platform for managing agricultural transactions!

Keywords: Blockchain, Digitization, Cryptocurrency, Immutability, Public-ledger, ICT, Farmer's Portal

ORGAN DONATION MANAGEMENT SYSTEM

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ABSTRACT

Organ donation is a critical and sensitive aspect of healthcare. The management of donor and recipient information, as well as the matching process, is crucial for the success of organ transplantation. This paper presents the design and implementation of an Organ Donation Management System using modern web technologies to streamline and improve the efficiency of the process.

Index Terms: Organ Donation, Management System, Web Application, Healthcare, Node.js, React.js

SUICIDAL IDEATIONDETECTION A REVIEW OF MACHINE EARNING METHODS AND APPLICATIONS

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ABSTRACT

Suicide is a critical issue in modern society. Early detection and prevention of suicide attempts should be addressed to save people's life. Current suicidal ideation detection (SID) methods include clinical methods based on the interaction between social workers or experts and the targeted individuals and machine learning techniques with feature engineering or deep learning for automatic detection based on online social contents. This article is the first survey that comprehensively introduces and discusses the methods from these categories.

Domain-specific applications of SID are reviewed according to their data sources, i.e., questionnaires, electronic health records, suicide notes, and online user content. Several specific tasks and data sets are introduced and summarized to facilitate further research. Finally, we summarize the limitations of current work and provide an outlook of further research direction

EVENT MANAGEMENT - CLIENT SETUP MODULE
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ABSTRACT

The Event Management - Client, Project, and Payment Setup Module is a specialized tool tailored to the needs of event planners and organizers. It offers a comprehensive solution for managing clients, projects (events), and financial transactions. By centralizing event-related information, streamlining project workflows, and automating payment processes, this module enhances efficiency, ensures clear communication, and facilitates successful event execution.

Key words: event, client, project, efficiency

BOOST YOUR PRODUCTIVITY WITH REACT.JS CODE GENERATORS
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ABSTRACT

The paper describes the design, construction and working of React JS Source Code Generator. The React JS Source Code Generator is a powerful tool designed to streamline the documentation process for React developers. This innovative solution automates the generation of source code snippets, enabling developers to effortlessly create clear and concise documentation for their projects. By simply inputting relevant information such as component names, props, and functions, the generator produces ready-to-use code snippets tailored to Redact's syntax and best practices. This not only saves valuable time but also ensures consistency and accuracy across documentation, empowering developers to focus more on building exceptional user experiences. With its intuitive interface and customizable options, the React JS Source Code Generator revolutionizes the way developers document their React applications, promoting efficiency and collaboration in software development workflows. To provide detailed and helpful assistance for understanding easy navigation of each feature involved in React.JS Source Code Generator.

Keywords: React JS, source code generator, streamline documentation process, automate

BRAIN TUMOR DETECTION USING DEEP LEARNING AND IMAGE PROCESSING

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Abstract

Brain Tumor Detection is one of the most difficult tasks in medical image processing. The detection task is difficult to perform because there is a lot of diversity in the images as brain tumors come in different shapes and textures. Brain tumors arise from different types of cells and the cells can suggest things like the nature, severity, and rarity of the tumor. Tumors can occur in different locations and the location of tumors can suggest something about the type of cells causing the tumor which can aid further diagnosis. The task of brain tumor detection can become aggravating by the problems which are present in almost all digital images eg. illumination problems. Tumor and non-tumor images can have overlapping image intensities which makes it difficult for any model to make good predictions from raw images. This paper proposes a novel method to detect brain tumors from various brain images by first carrying out different image preprocessing methods ie. Histogram equalization and opening which was followed by a convolutional neural network. The paper also discusses other image preprocessing techniques apart from the ones that are finalized for training and their impact on our dataset. The experimental study was carried on a dataset with different tumor shapes, sizes, textures, and locations. Convolutional Neural Network (CNN) was employed for the task of classification. In our work, CNN achieved a recall of 98.55% on the training set, 99.73% on the validation set which is very compelling.

Keywords— Brain Tumor Detection, Computer-aided Diagnosis, Computer Vision, Convolutional Neural Networks, Deep Learning, Image Processing, Transfer Learning.

DYNAMIC TRAFFIC CONTROL SYSTEM USING INTERNET OF THINGS

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ABSTRACT

Traffic in metropolitan cities have increased enormously. Due to increase in population and the increased use of automobiles it has become a huge challenge for emergency vehicles. The Proposed system electronic device to communicate between themselves to serve the purpose of the human. The one of the major field that concentrate on the automation is Internet of Things creatively called as IoT. This project is to establish the communication between the traffic signals and the vehicles so that the traffic signal can respond to the arrival of the vehicles and respond according to that. When the traffic signals are changes its states according to the position of the density of vehicles it can able to make a free way for the ambulance. Thus, this project will act as a time saver. In this way it also acts like a lifesaver project as it saves time during emergency by controlling the traffic lights.

RECONFIGURABLE 16-BIT ADDER USING REVERSIBLE GATES WITH LOW POWER

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ABSTRACT

One of the most well-known technologies that is making a bigger contribution to current technological environment is DSP systems. With multiple applications, such as readily transportable electronic gadgets, the system that accepts films and audio as input, etc., embedded systems have gained popularity all over the world. The project is mainly focused on low-power, efficient, and programmable adders. Reversible logic gates, which are mostly employed for designing, provide the basis of this adder. The adders are developed and implemented using the Xilinx tool. These adders can be used in aerospace applications. There was a comparison made between the current and proposed methods in that the proposed way resulted in a reduction of 2005.34 nanowatts compared to the existing method.

A LOW-POWER, QUANTUM COST-EFFICIENT REVERSIBLE 8-TO-1 MULTIPLEXER DESIGN

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ABSTRACT

Low power architectures are more pronounced for different applications that extend from Internet of Things to Quantum computing. Primitive combinational logic circuits induce from bit deletion due to information loss during the processing of input information which results in energy loss. The computations involving reversibility cancel the loss of information by sustaining the input bits from output. In the basic arithmetic and logic units, the combinational circuits play a significant role in determining the performance of the processor. The principals involved in the design of reversibility is an upcoming technology for ultra-low power applications. The reversible logic circuits furnish a thoroughly new way to progress in Quantum computing. In this article, we propose an energy tolerant low power reversible multiplexer with optimum energy loss. The proposed multiplexer also reduces the ancillae, garbage outputs and quantum cost considerably.

CARD-FREE TRANSACTIONS USING FINGERPRINT AND FACIAL RECOGNITION

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ABSTRACT

In the field of biometric security, this study presents a Card-less ATM system leveraging fingerprint and face recognition techniques with a focus on Convolutional Neural Networks

(CNN) and deep learning, implemented in the MATLAB domain. The methodology involves the acquisition of a dataset comprising fingerprint and face samples, followed by their training through a CNN model. During testing, both fingerprint and face images must belong to the same individual for authentication success, and a message box displays, granting access for transactions. In the case of a mismatch between the provided images or when they correspond to different individuals, the system responds with an "Authentication failed. Please try again." message. The system's accuracy relies on the efficient pre-processing of images, including resizing, ensuring reliable recognition and reducing false positives. This research contributes to enhancing ATM security by combining multiple biometric modalities to verify the user's identity, ultimately improving the accuracy and reliability of the authentication process.

OIL SPILL DETECTION IN SEA SURFACE SAR IMAGES USING YOLO ALGORITHM

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ABSTRACT

Identification of an oil spill is additionally essential to evaluate the potential spread and float from the source to the adjacent coastal terrains. In such a manner, usage of Synthetic Aperture RADAR (SAR) information for the recognition and checking of oil spills has gotten extensive consideration as of late, because of their wide zone inclusion, day-night, and all-weather capabilities. The present examination studies an oil spill that occurred in some regions by applying Sentinel 1 SAR- C images. Approaches dependent on MATLAB images examination have been produced for distinguishing oil spills from referred common leaks just as oil slick procedures. In this work, the Oil spill is located on the ocean/sea using the YOLO algorithm. An oil spill is the release of a liquid petroleum hydrocarbon into the environment, especially the marine ecosystem, due to human activity, and is a form of pollution. The term is usually given to marine oil spills, where oil is released into the ocean or coastal waters. Hence, oil spill detection should be considered an essential research issue. So, here oil spill will be located with the YOLO algorithm with MATLAB. The results will give better outputs when compared to existing works.

LOW POWER ARITHMETIC AND LOGIC UNIT USING REVERSIBLE GATES

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ABSTRACT

In today's world, digital electronics are small and fast. However, the main problem with these systems is power consumption. There are different types of power supplies: static power supplies, dynamic power supplies, short-circuit blocking and power supplies. Power consumption plays an important role in VLSI circuit design. To reduce power consumption,

22

various power consumption techniques are used, such as multiple Vth technology, clock gate, and inverse logic gate technology. The main advantages of using inverse logic devices for power generation are compatibility with the source and lack of heat generation by inverse logic devices. Arithmetic and logical units are the main components of a calculator. This article presents the design of an odd inverter arithmetic logic block, which consists of adder, subtractor and multiplier blocks. Design characteristics, waste, and quantum cost analysis. The design consists of 11 particles and 57 quantum values. The design was encoded in Verilog HDL and synthesized and simulated using Xilinx software.

IMAGE-BASED QUALITY CONTROL FOR PRECISION PRODUCTION USING VGG16 ALGORITHM

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ABSTRACT

This paper proposes a framework for applying Python libraries and deep learning algorithms to improve image quality. By utilizing the VGG16 convolutional neural network architecture [2] and many Python frameworks, such as Tensor Flow and Keras, our method seeks to efficiently evaluate and improve picture quality. The process includes gathering and preparing datasets, augmenting data, building models with the VGG16 architecture, training, assessing, and integrating the model with a UI for interactive quality modifications. The outcomes show how well the suggested method works to accurately evaluate and improve image quality, with implications for a range of practical uses.

CASHLESS BUS TICKETING SYSTEM WITH RFID TECHNOLOGY INTEGRATED WITH GPS MODULES

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ABSTRACT

The Smart Ticketing System proposed here revolutionizes public transport by eliminating paper-based tickets, addressing the environmental concerns of deforestation and paper waste. Through RFID technology integrated with GPS modules, passengers can conveniently tap their RFID cards at entry and exit points, enabling accurate fare calculation based on distance traveled. This innovative approach not only streamlines ticketing processes but also promotes environmental sustainability. By transitioning to a rechargeable RFID card system, passengers can effectively manage fares while reducing paper consumption. Embracing digitalization and sustainable practices, this system represents a significant step towards greener, more efficient public transport systems globally.

SMART CLUSTER HEAD ELECTION IN WSNs THROUGH PARTICLE SWARM OPTIMIZATION

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ABSTRACT

Efficient energy use is vital for the longevity of Wireless Sensor Networks (WSNs). A key method to achieve this is by clustering, where certain nodes, called cluster heads (CHs), collect and send data from other nodes to the base station. Choosing the best CHs is crucial for the network's performance and energy efficiency. This paper introduces a new way to select cluster heads using Particle Swarm Optimization (PSO). PSO is inspired by the way groups of animals, like birds or fish, move together to find the best solutions. Our approach uses PSO to pick the best CHs based on their energy levels, how many connections they have, and their distance from the base station. Our simulations show that this PSO-based method is better than traditional methods. It saves more energy, distributes the workload more evenly among nodes, and extends the overall network life. This makes it a strong and practical solution for managing energy in WSNs.

AUTOMATIC VEHICLE ACCIDENT DETECTION AND RESCUE SYSTEM USING GPS & GSM

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ABSTRACT

Human loss by road accidents has been a devastating issue, which possess negative implications on the socioeconomic development of the societies. Most developing countries are recording higher volumes of fatalities whenever a road accident occurs due to the lack of a proper and quick system that reports accidents to the emergency services for an immediate rescue. Moreover, the chances of survival of any casualty of an accident is mostly dependent on how quick the emergency medical services arrive at the scene and quickly reaches the nearest hospital with the victims for treatment. However, these emergency vehicles are sometimes delayed by heavy traffic en route to and from the accident scene. This paper introduces a robust automatic vehicle accident detection and alert system, which uses an accelerometer to detect the tilting and the crashing of the vehicle, sends the Global Positioning System (GPS) location of the accident scene to intended security, medical and family contacts. The proposed design achieved a turnaround response, which is faster than conventional rescue system without these features. Hence, saving more lives as possible through technology.

ELECTRONIC VOTING MACHINE WITH FINGERPRINT SENSOR

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ABSTRACT

Election is essential and unavoidable part of democratic country and also it is a right of each and every person in the country. Everyone is responsible for secure and valid vote during the election. Government plays a major role during the election to achieve a successful election. Electronic voting machine is currently employed during election also it is possible to do misuse and man power is required to verify the details of the voter. This paper overcomes the cons of the existing method using biometric verification. This system ensures more secure, reliable and less manpower than the existing method.

WOMEN GPS SAFETY TRACKER WITH INSTANT ALERTS

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ABSTRACT

The world is becoming unsafe for women in all aspects. Incidents of crime against women have been increasing at an alarming pace in Indian cities, most common incidents being rape, kidnapping, sexual harassment and eve teasing. Security for women is still a major issue as the number of crimes over women and girls is increasing day-by-day. In this age of technology, mobile phone is one gadget almost everyone uses to keep in touch with family and friends. All they need is a device that can be carried around easily and worn whenever the woman feels unsafe. This paper proposes a quick responding mechanism that helps women during trouble. When someone is going to harass, she can press the button that is attached to the device and the location information is sent as an SMS alert to few predefined emergency numbers in terms of latitude and longitude. In this project, we are using a Zapper circuit for electric shock.

SMART IOT SYSTEM FOR FOOD SPOILAGE DETECTION AND UV STERILIZATION

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ABSTRACT

In the context of the COVID-19 pandemic, ensuring food safety and minimizing waste has become a critical concern. This project presents an IoT-based solution for detecting food spoilage and providing UV sterilization to extend the edibility of food items. The system utilizes a Node MCU microcontroller integrated with an MQ-135 gas sensor, DHT11 temperature and humidity sensor. When food is placed near the MQ-135 gas sensor, the sensor detects the levels of spoilage- indicating gases such as ethanol. If the gas concentration exceeds a predefined threshold, the system alerts the user by illuminating a red LED. The system then suggests UV sterilization to eliminate harmful microorganisms, making the food safe for consumption. A UV lamp is activated for a specified duration to sterilize the food, thereby reducing the risk of foo d borne illnesses. An accompanying mobile application provides real-time monitoring of sensor values, including gas levels, temperature, and humidity. The app notifies the user when spoilage is detected and guides them through the sterilization process. This integrated approach ensures that food, even on the verge of spoilage, can be safely consumed after appropriate sterilization, thus reducing food waste during times when access to fresh supplies may be limited.

SMART AGRICULTURAL MONITORING AND HEAVY RAIN PROTECTION SYSTEM

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ABSTRACT

Agriculture is the basic source of food supply for all countries in the world. Water is the Essential resources for agriculture. The automated irrigation and crop field monitoring system is used to optimize the use of water resource for agriculture. This paper is mainly focused on improving the agricultural fields yield by providing a monitoring system with effective and efficient usage of water resource. If moisture sensor detects dryness in the field, the water motor will be on. If rain sensor detects the rain the automatic roof will open.

EFFICIENT LOW POWER 4-BIT REVERSIBLE UNIVERSAL SHIFT REGISTER FOR QUANTUM COMPUTING APPLICATIONS

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ABSTRACT

This paper proposes an efficient design of a 4-bit Reversible Universal Shift Register (RUSR) using Reversible Logic Gates. RUSR performs shifting operations the same as CMOS-designed universal shift registers, such as left shift, right shift and parallel load, respectively. In this project, we are designing a 4-Bit RUSR using a Reversible MasterSlave D-Flipflop (RMSDFF) and Reversible 4X1 Multiplexer (RMUX41). The proposed RMSDFF and RMUX41 are designed using Feynman (FG), Fredkin (F) and Modified Fredkin (MF) gates. Modified Fredkin gate plays a remarkable role in the implementation of the proposed optimized architecture. The efficiency of the proposed architecture is demonstrated in terms of Garbage Outputs (GO) and Quantum Cost (QC). The proposed architecture reduces the power consumption with a low quantum cost, a minimum number of reversible logic gates and garbage outputs. Due to this, the proposed design is particularly beneficial in Quantum Computing, Low-power CMOS design, and other applications. In this project, the RUSR is designed by the proposed RMUX41 and RMSDFF, which are designed with the reversible logic gates using VHDL and verified with the simulated results using the Xilinx 14.7 ISE tool.

ARECANUT PATHOLOGY IDENTIFICATION USING CONVOLUTIONAL NEURAL NETWORK

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ABSTRACT

Arecanut is a tropical crop, which is popularly known as betel nut. India ranks second in producing and consuming arecanut in the world. Throughout its life cycle, it is affected by a variety of diseases, from root to fruit. The current approach for detecting diseases is simply observation with the naked eye and farmers have to carefully analyse each and every crop periodically to detect the diseases. In this project, we proposed a system that helps in detecting the diseases of arecanut, leaves, and its trunk using Convolutional Neural Networks and suggests remedies for it. A Convolutional Neural Network (CNN) is a Deep Learning algorithm that takes input as an image, assigns learnable weights and biases to various objects in the image, and then learns from the results to distinguish one from the other.

VITAL DOCUMENT SECURITY SYSTEM

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ABSTRACT

The task demonstrates electronic protection for exam paper leakage, which is a highly secure system. Examinations are a crucial aspect of the educational system to assess students' skills through online, oral, or written tests. The question paper is sent from the university to the college in an electronic fixed box, which is an embedded system designed with Arduino. A password is provided to the college authorities and will be sent 10 minutes before the test. By entering the correct password, the lock of the electronic fixed box opens. If anyone tries to open the electronic sealed box before or after the password is entered, a buzzer will sound, indicating a potential exam paper leak.

ESP32 RAINMAKER USAGE FOR EFFECTIVE HOME AUTOMATION SYSTEM

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ABSTRACT

Home automation systems offer convenience, energy efficiency, and enhanced security to homeowners. In this project, we present "Home Automation with ESP32 Rainmaker," a comprehensive solution leveraging the ESP32 microcontroller and the Rainmaker framework to create a scalable and customizable home automation platform. Our system integrates various sensors, actuators, and communication protocols to enable remote monitoring and control of household devices. We demonstrate the versatility and effectiveness of our solution through practical implementation and performance evaluation. By combining the power of ESP32 with the flexibility of Rainmaker, our project aims to simplify the deployment and management of smart home applications while ensuring reliability and user-friendly operation.

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SMART ROBOTIC GRASS CUTTER WITH SOLAR POWER AND IOT

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ABSTRACT

This paper presents an innovative IoT-enabled grass-cutting robot designed to streamline lawn maintenance processes with enhanced efficiency and convenience. The robot, controlled through the Blynk mobile application, operates in both Manual and Automatic modes, offering users versatile control options tailored to their preferences and works efficiently through the solar power. In Automatic mode, the robot utilizes ultrasonic sensors for obstacle avoidance, ensuring safe and efficient navigation across the lawn area. Through seamless integration with the Blynk app, users can effortlessly switch between modes, customize cutting parameters. The incorporation of ultrasonic sensors represents a significant advancement in the robot's capabilities, enabling it to detect obstacles and autonomously adjust its course to avoid collisions while ensuring continuous grass cutting. This feature enhances the safety of the lawn maintenance process, minimizing the risk of damage to both the robot and surrounding objects.

SMART PATH LEARNING ROBOT WITH ARDUINO

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ABSTRACT

The "Path Memorizing Robot using Arduino" project aims to design and develop a robotic system capable of autonomously memorizing and navigating predefined paths using Arduino microcontroller technology. The robot will utilize sensors such as ultrasonic or infrared sensors to detect obstacles and determine its location within the environment. The Arduino microcontroller will serve as the brain of the robot, processing sensor data and executing control algorithms to navigate the designated paths while avoiding obstacles. Additionally, the system will incorporate memory storage capabilities to store and recall learned paths for future navigation tasks. The project combines principles of robotics, embedded systems, and artificial intelligence to create a versatile and adaptable robot capable of performing path memorization and navigation tasks in various environments. This project aims to contribute to the advancement of autonomous robotic systems for practical applications such as warehouse logistics, indoor navigation, and educational purposes.

AI-POWERED VOICE ASSISTANT FOR INTERACTIVE COMMUNICATION

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ABSTRACT

We propose a Voice Assistant system that integrates the ESP32 microcontroller, Google Cloud API, and ChatGPT API to enable seamless, intelligent voice interactions. The ESP32 provides the necessary hardware foundation with its connectivity, processing power, and interfacing capabilities for voice input and output. Utilizing its Wi-Fi capabilities, the ESP32 connects to Google Cloud API for advanced speech recognition and natural language processing. This allows the system to transcribe user inputs accurately and generate natural responses. By leveraging Google's language understanding algorithms, the system can interpret user intent and context effectively. The ChatGPT API adds conversational intelligence, enabling the assistant to engage in natural dialogues. This integration offers a versatile, efficient voice-based interface for executing tasks, retrieving information, and enhancing productivity in various settings. The result is an intuitive voice assistant that enhances user experience through sophisticated interaction capabilities.

SPATIAL BOUNDARY MONITORING AND CLOUD GPS TRACKING

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ABSTRACT

The system is designed to track the real-time location of a device equipped with a GPS module, which communicates with a NodeMCU to update the location data to the ThingSpeak server. Additionally, GSM technology enables message communication, facilitating alerts and location sharing functionalities. An Arduino UNO serves as the main processing unit, orchestrating the system's operations. A key feature of the system is the implementation of geo-fencing, where users can define virtual boundaries. Whenever the tracked device crosses these boundaries, an alert message is sent to registered mobile numbers, providing timely notifications. Furthermore, the system responds to incoming messages on the GSM module by transmitting the current location coordinates to registered mobile numbers, enhancing its versatility and usability. Through this integration of hardware and cloud technologies, the system offers an effective solution for real-time tracking and communication needs, with geo-fencing adding an extra layer of security and functionality.

SMART HEALTH MONITORING SYSTEM USING SENSORS

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ABSTRACT

In India, everyday many lives are affected because the patients are not timely and properly operated. Also, for real time parameter values are not efficiently measured in clinic as well as in hospitals. Sometimes it becomes difficult for hospitals to frequently check patients' conditions. Also, continuous monitoring of ICU patients is not possible. To deal with these types of situations, our system is beneficial. Our system is designed to be used in hospitals for measuring and monitoring various parameters like temperature, ECG, heart beat etc. The results can be recorded using Arduino displayed on a LCD display. Also, the results can be sent to server using Wi-Fi module. Doctors can login to a website and view those results.

SMART VEHICLE PROTECTION USING FACE DETECTION TECHNOLOGY

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ABSTRACT

The increasing incidents of vehicle theft have highlighted the need for advanced security measures. This project presents a sophisticated anti-theft vehicle system that utilizes facial recognition technology to authenticate and grant access to authorized individuals. Leveraging Python, OpenCV, and the face recognition library, the system captures real-time video from a camera mounted in the vehicle. Authorized personnel's facial features are pre-encoded and stored in a secure database. Upon detecting a face, the system compares it against the stored encodings to verify identity. If a match is found, the system grants access, otherwise, it triggers an alert, denying entry to unauthorized individuals. This face detection and recognition approach provides a robust, contactless security solution, enhancing the vehicle's safety by preventing unauthorized access. The system's effectiveness is augmented by its integration with the vehicle's locking mechanism, ensuring that only verified users can operate the vehicle. This project not only offers a practical application of computer vision and machine learning techniques but also addresses the pressing need for improved vehicle security systems in today's society.

SECURE AND RELIABLE PROTECTION FOR THE INDUSTIES USING IOT

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ABSTRACT

Nowadays, gas leakage is a major issue in the home and as well as industries. The sense of the gas is very low means we can't find it because of human negligence or lack of patience or some other external condition. If the gas level is increased, it causes some disaster, to avoid this disaster in advance, the alternative idea is discussed in this paper. The system is developed with embedded sensors, controllers, and some IoT-based software. In this system, we are monitoring the detection of LPG gas leakages with some alerting features. Some sensors are used to monitor the different parameters like Smoke sensors, gas sensors (MQ6), float sensors, PIR sensors, and WiFi module (ESP8266). The sensors all are collect their information in their respective field and send data to the IOT.

LPG GAS, CO2 LEAKAGE DETECTION AND AUTOMATIC BOOKING USING IOT

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ABSTRACT

There is a rapid development in technology which influencing the human life in several aspects due to rapid development in different fields but we still need to adopt that technology such that we can make human life more easier to live. In our Country it is not possible to supply LPG through Pipes to each and every home as production of LPG is too short. At present we are having an system Advance LPG cylinder booking through IVRS or online which is most difficult for the illiterate and busy schedule people to book the LPG cylinder in advance. This paper proposes a system that will make entire LPG cylinder booking procedure automated without human intervention. This system continuously measures the weight of the cylinder and once it reaches minimum threshold it will automatically sends message to the authorized LPG Agent so that they can deliver the LPG cylinder in time. Along with the Automated cylinder booking we also designed feature related to the safety of the user in which it continuously monitor the leakage of LPG gas and alerts the user regarding leakage to avoid major accidents which costs human lives mostly.

IOT BASED WIRELESS VEHICLE CHARGING STATION

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ABSTRACT

World is shifting towards electrified mobility to reduce the pollutant emission caused by non-renewable fossil fuel vehicles. So electric vehicle came into existence. In electric vehicle charging of battery through charger and wire is expensive, hazardous and inconvenient and drawback of wire charging technology is waiting at charging stations for hours. So now wireless charging gives us opportunity to charge our vehicle just by parking the vehicle on parking spot or even while driving we can charge our electric vehicle. As if now we are very much familiar with wireless transmission of data, audio and video signals than why not transfer power over the air. Wireless power transfer can be implemented as a static and dynamic charging system. This paper presents how the electric vehicle and development of charging methods.

IOT BASED SMART CRADLE SYSTEM FOR BABY MONITORING

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ABSTRACT

Smart Cradle System using IOT helps the parent to monitor their child even if they are distant from the home and detect the activity of the baby from any distinct corner of the world. It is an Innovative, smart and protective cradle system to nurture an infant in an efficient way. This system consists of all the care and protection details of the baby in the cradle. The design of smartness and innovation comes with the use of technologies which include Internet of Things (IOT) modules like Arduino Uno, Humidity and Temperature sensing, cry detecting mechanism, Servo motor. All the conditions which is been taken from the modules will be stored in cloud (thing Speak) and analyzed at regular intervals.

WIRELESS ZONAL VEHICLE SPEED DETECTION AND CONTROL USING ZIGBEE TECHNOLOGY

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ABSTRACT

The project develops a vehicle speed control system using electronic components and microcontroller technology. A DC motor simulates the vehicle's motion, with a motor driver module regulating speed. Zigbee modules enable communication between the vehicle and zone stations. Audible alerts via buzzers and visual feedback through LEDs activate when speed thresholds are breached. An LCD displays data for user interface, and four-pin switches define zones, such as school zones, with real-time mapping from an RTC DS1307 module. Push-button switches configure school zone timings. The Arduino UNO coordinates system functions, ensuring speed regulation and safety compliance in sensitive areas. An additional switch allows vehicle speed increment.

OBJECT DETECTION AND TRACKING USING ARDUINO

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ABSTRACT

During the old days (World Wars), detecting, identifying, and tracking the object was done manually which was difficult. Even for predicting the weather, it was difficult for a mere human. As the water bodies are huge and what lies beyond them isn't visible, it was difficult for humans to travel or explore. Therefore, to solve these and many other problems, Radio Detection and Ranging (RADAR) was invented.

COIN BASED WATER DISPENSER SYSTEM

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ABSTRACT

Coin-operated water dispensing machines are becoming more and more common because of how convenient and simple they are to operate. One of the major problems faced by most of the large institutions is maintaining drinking water in water dispensers at various places inside the institution. Monitoring a large number of water dispensers in huge buildings require a considerable amount of manual supervision. This paper proposes a prototype system design, implementation and description of required tools and technologies to develop Internet of Things (IoT) based water level monitoring system which can be implemented in offices, colleges or buildings where many numbers of water dispensers are present. The smart water dispenser sends a notification when the level of water becomes low in the dispenser through an application to the authorized person.

SMART VEHICLE SECURITY AND ALCOHOL DETECTION SYSTEM

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ABSTRACT

The Smart Alcohol Detection and Vehicle Security System with Owner Alert (SAVES) is a pioneering project aimed at mitigating the risks associated with drunk driving and unauthorized vehicle access. This paper introduces SAVES, outlining its components, functionalities, and objectives. By integrating alcohol detection technology with advanced security features, SAVES offers a comprehensive solution to promote responsible driving behavior and enhance vehicle security. The paper elucidates the significance of SAVES in addressing road safety concerns and highlights its potential impact on reducing accidents and thefts.

AUTOMATIC GAS LEAKAGE DETECTION USING IOT

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ABSTRACT

Gas pipes play very important roles for cities, industries and thus in growing economies. So, gas leakages lead to losses as well as are a threat because they can also lead to fire accidents. Placing sensors at each section of pipe is very costly. So here we propose an innovative robot that clings on to the outer surface of the gas pipe and moves with the pipe to check for leakages. The robot consists of gas sensor that is used to detect gas leakages. As the robot keeps moving along the metal pipe it keeps monitoring for any gas leakage, on detection it uses an interface gps sensor to transmit location of the leakage detected over to the IOT login system, here we use IOT to receive and display the gas leakage alert and location over IOT. Thus, we have a fully automated robot that moves with the gas pipe and detects gas leakages instantly at a low budget.

SMART VEHICLE ANTITHEFTING SYSTEM

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ABSTRACT

The Smart GPS Geofencing System, featuring an Arduino Pro Mini and an A9G module, offers an innovative solution for real-time location tracking and virtual boundary management. This IoT device provides a compact and customizable platform for various applications, from logistics

and fleet management to security and beyond. The Arduino Pro Mini serves as the central processing unit, connecting to cellular networks for data transmission. The A9G module continuously monitors the GPS coordinates of devices, enabling precise geofencing capabilities. By utilizing the A9G module, users can define geofences—virtual boundaries based on geographic coordinates—directly within the system. When a device crosses these boundaries, the system triggers predefined actions such as sending alerts or notifications. This feature enhances the device's usability, allowing users to monitor spatial movements and receive real-time updates.

TRANSIENT SECURITY CLASSIFICATION WITH NORDIC CASE 60 POWER SYSTEMS USING EXTREME LEARNING MACHINES

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ABSTRACT

The reliable operation of power systems is fundamental to the stability and functionality of modern society. Transient security assessment (TSA) plays a critical role in ensuring the resilience and robustness of these systems in the face of sudden disturbances, such as short circuits, line outages, and sudden load changes. These disturbances can cause rapid and significant changes in the operating conditions of power systems, potentially leading to instability or even widespread blackouts if not managed effectively. This process typically includes the identification of critical scenarios, simulation of system responses, and the implementation of preventive or corrective actions to maintain system stability. Extreme Learning Machines is a neural network based learning algorithm with a single hidden layer that achieves good generalization performance with high learning speed. The input weights are randomly selected by ELM and the output weights of the SLFNs are analytically determined. The large dimensionality of the input data or variables for complex problems is reduced by partitioning the problem into a smaller size using appropriate feature selection methods. In this article, the use of F-value criterion for feature selection is investigated. The effectiveness of the proposed ELM classifier is demonstrated by comparing it with Artificial Neural Networks such as Deep Neural Network and Backpropagation Neural Network. The proposed strategy is tested on a standard Nordic Case 60 Power system. This work mainly focused to ensure adequate system security operation within acceptable limits. Conversely, unsafe operation can lead to failures that have far-reaching consequences for the power system equipment and users. In order to explore that, Three-phase faults were applied in the power system model to investigate the proposed ELM-based classifier and the test results were validated. The classifier has shown high classification efficiency. The simulation results prove that the proposed method can be evaluated quickly and can accurately predict the security status of the power grid with the ELM classifier.

KEYWORDS: Artificial Neural Network, Extreme Learning Machine, F-value feature selection, Transient security assessment

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