National Level Student Technical Symposium

Lakshya 2K24

March 6th, 2024

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Institution

Vision

Producing globally competent and quality technocrats with human values for the holistic needs of industry and society.

Misson

- Creating an outstanding infrastructure and platform for enhancement of skills, knowledge and behaviour of students towards employmentand higher studies.
- Providing a healthy environment for research, development and entrepreneurship, to meet the expectations of industry and society.
- Transforming the graduates to contribute to the socio-economic development and welfare of the society through value based education.

Department of EEE

Vision

To be a center of excellence in imparting knowledge, skills and ethical values, while fostering innovation, sustainability and globally competent to make exemplary contributions to the field of Electrical and Electronics Engineering.

Mission

- *To impart technical education using state-of-the-art infrastructure, laboratories and instructional methods ensuring students acquire comprehensive knowledge and skills.*
- *To foster industry-oriented learning by facilitating internships, industrial visits, collaborative projects with industries.*
- *To create a congenial environment for higher education, employment and entrepreneurship by delivering quality education, enhancing professional skills and promoting research and innovation.*
- *To promote societal commitment and ethical leadership by instilling moral values and encouraging responsible engineering practices among students*

Program Educational Objectives (PEOs)

PEO1: Graduates will possess a strong foundation in core and interdisciplinary areas of Electrical and Electronics Engineering along with analytical and computational skills, enabling them to tackle global challenges through innovative and critical problem-solving.

PEO2: Graduates will actively engage in research, entrepreneurship, and innovation to address contemporary challenges in Electrical and Electronics Engineering while promoting sustainable and inclusive technological development for the betterment of society.

PEO3: Graduates will exhibit effective communication skills, collaborative abilities, and ethical values, preparing them for successful careers, higher education, and leadership roles in a rapidly evolving competitive environment.

Program Specific Outcomes (PSOs)

PSO1: Capable of design, develop, test, verify and implement electrical and electronics engineering systems and products.

PSO2: Succeed in national and international competitive examinations for successful higher studies and employment.

Program Outcomes (POs)

PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of Solutions: Design solutions for complex engineeringproblems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-Long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Patrons Messages

It gives me an immense pleasure to note that the Department of EEE is organizing a National level Student Technical symposium on 6th March, 2024. I am sure this event will draw talent from all the students' fraternity and create a great learning experience for all participants. Lendi believes in value-based education and allows engineers in strengthening the society ethically. Since its inception is striving hard to meet this goal and I wish, this event would also add value to the Institution's vision. I appreciate the efforts undertaken by the Department of EEE in the organization of this event and hope this event will be an improvement of high standards.

Sri.P.Madhusudhana Rao
Chairman

Sri.P.Srinivasa Rao
Vice Chairman

Learning is a process, which extends beyond classrooms. In an effort to widen our horizon, it is necessary to take part in events where different perspectives meet and ignite, resulting in fresher and more innovative outcomes. This Student Technical symposium is no doubt a platform to exchange the ever-expanding styles and strategies in the field of their study to benefit the students of the coming generations. Livelihood in the society is not only through jobs, but it is also a pleasure for an engineer when he creates more jobs through entrepreneurship. For having that exposure, he would use this kind of conventions. I also congratulate the Head of the Department, his team and students for their efforts in organizing this event.

Lendi has carved a niche in the field of education in its region. Its quest for knowledge and pursuit of excellence has led to becoming one of the most sought-after education destinations. The Institution has been home for many academic and literary events, which have enlightened student's faculty and educationists in their respective areas. This National level Student Technical symposium organized by the Department of EEE is an attempt to assemble the student creativity and ideas in the field. I appreciate the efforts taken by Department of EEE, faculty members and students for the success and I wish them all the best.

Dr.Siva Rama Krishna
Secretary

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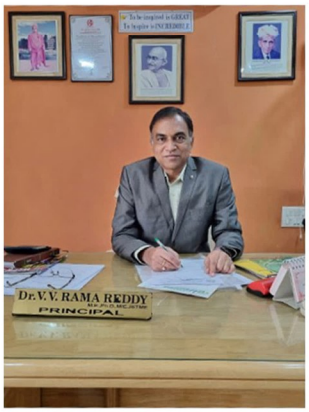
In addition to our ongoing efforts to cultivate a world class learning environment, we are also mindful of the recent changes in educational policies as per NEP 2020 that emphasizes the holistic learning and skill development. The integration of the new education policy aligns seamlessly with our commitment to inspire change, foster understanding, and cultivate knowledge among our students and the broader learning community. We are delighted to announce that our annual student meet, Lakshya, stands as a significant milestone in the history of the department of Electrical and Electronics Engineering (EEE). Through this event, we aspire to facilitate robust knowledge exchange and enriching learning experiences for all participants, thereby empowering them to contribute meaningfully to the advancement of global technological standards. We extend our best wishes to the Lakshya team as they embark on this journey of knowledge dissemination and success.



Dr.V.V.Rama Reddy
Principal

Mr.G.Prakash Babu
Dean,T&P

Today's concept of education has changed in a huge and seemingly unmanageable way and has opened new vistas in the recent time. The faculty have a more important role to play in the life of a student as they are challenged to accomplish more than just imparting knowledge. We at Lendi are proud to say that our faculty who are par excellence are able to do it with ease. There has never been a greater need to respect a child's sensitivities. The onus of respecting these personalities is well shouldered by the strong pillars of our college. Our faculties are also encouraged to enhance their skill set from time to time to keep up with the fast-paced world. The college aims at all round growth and development of the students apart from providing quality education.

Students Association's aims may involve the practice and propagation of a certain professional hobby or cause, or to promote professional development. They play an important role in college life by bringing together like-minded students to engage in activities the association seeks to promote. I am delighted to know that the Students Association of Department of EEE is organizing its Technical Fest on March, 6th 2024. It is always an exciting moment in life when students' associations celebrate such occasions. In the case of Lakshya, its activity planning, execution and outcome always look astounding. I extend my warmest wishes to all the members of the Association. I am sure that it will continue to maintain its excellence and character with greater distinction.

Dr.T.Hari Babu
Vice Principal(Administration)

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"Some people dreamt of success while others wake up and work". "Success isn't just about what you accomplish in your life; it's about what you inspire yourself and others to do". In order to be successful every student ought to possess the qualities of being positive, being approachable, and expressing affirmative thoughts and feelings through both verbal and nonverbal communication. I strongly believe that the regular activities undertaken by "LAKSHYA" will definitely inculcate such virtues in students to make them emotionally intelligent and Self-Reliant. I congratulate the team "LAKSHYA" on their flourishing and relentless journey.

Prof. K.V.Narasimham
Vice Principal(Academics)

Dr.K.Subbaramaiah
Professor & HOD,EEE

This event is targeted towards students to share innovative ideas, issues, recent trends and future directions in the fields of electrical and electronics engineering. I am pleased to note that students from various Institutes/ Universities are presenting their papers on current aspects control Systems and applications, Power Electronics Drives and Electromechanical Energy Conversion, Power System Technology, Applied Technologies in Renewable Energy and Smart Grids, Technological Developments in Energy Management. I am sure that this technical symposium would greatly benefit students. I take this opportunity to wish you all a great success in the national level student technical symposium.

Seminars, Workshops and Technical Symposiam are conducted in the department regularly to keep the faculty and students updated with latest developments in various technologies. The students in the department are moulded into competent electrical engineering professionals, to face the challenges of the POWER sector. Thus, the EEE Dept is developing enviously by leaps and bounds. I take this opportunity to wish a great success in the national level student technical symposium.

Dr.B.V.S.Acharyulu
Professor, Dept.of EEE
Co-convenor

Paper Presentation

Smart Agriculture Drone

ABSTRACT:

The Smart Agriculture Drone project employs drones with sensors and machine learning to monitor crop health, soil quality, and environmental factors, aiding farmers in optimizing practices and increasing yields sustainably. These drones capture data using multispectral cameras and infrared sensors, enabling real-time analysis for insights on irrigation, fertilization, and pest control. By embracing precision agriculture, resources are applied with accuracy, conserving water and minimizing environmental impact. The project facilitates adaptive farming strategies, empowering growers to respond to changing conditions effectively. Ultimately, this integration of technology revolutionizes farming, enhancing productivity, sustainability, and resilience in agricultural practices.

KEYWORDS:

Smart Agriculture, Drones, Sensors, Machine Learning, Sustainability.

CHANDRESH,
NIT RAIPUR

Enhanced Frequency Regulation Using Multilevel Energy Storage In Remote Area Power Supply Systems

ABSTRACT:

Renewable power generators must provide frequency support to RAPS systems that generate a significant portion of their power from renewable sources in order to keep the frequency constant. A permanent magnet synchronous generator (PMSG) is not able to take part in frequency management due to the unpredictable nature of wind resources and conventional control strategies. It is suggested that lead-acid batteries (LABs) and ultracapacitors (UC) be utilized in a PMSG as hybrid energy storage to provide frequency support. The LABs (i.e., major frequency response) approximate automatic governor reaction, whereas the UCs mimic conventional inertial response.With a suboptimal maximum power point tracking technique, system frequency can be recovered utilizing mechanical power conserved in wind turbines (i.e., secondary frequency response). For both the UCs and LABs, control mechanisms that support main and secondary frequency response are also offered. The multilayer energy storage's frequency response has been verified via simulation and experimental testing. A multi-level energy storage solution is required to maintain the RAPS system frequency while avoiding frequent charging and discharging of the LABs and significant mechanical/electromagnetic stress on the WECS.

KALYANI BEHERA,
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Wireless Power Transfer

ABSTRACT:

Wireless Power Transfer (WPT) is a promising technology that enables the transmission of electrical energy from a power source to an electrical load without the need for physical connectors. This paper presents an overview of WPT systems, including their principles, technologies, applications, and challenges. WPT operates through electromagnetic fields, resonant coupling, or radio frequency (RF) signals, facilitating various applications such as charging electric vehicles, powering electronic devices, and biomedical implants. Key components of WPT systems include transmitter coils, receiver coils, and power conversion circuits. However, challenges such as efficiency, distance limitations, safety concerns, and regulatory issues remain significant hurdles in the widespread adoption of WPT technology. This paper discusses recent advancements and research efforts aimed at addressing these challenges and improving the efficiency and reliability of WPT systems. WPT holds great potential to revolutionize the way electrical power is delivered and utilized in various industries, paving the way for a more convenient and wireless future.WPT systems find applications in various fields, including consumer electronics, automotive, medical devices, and industrial automation. For instance, wireless charging pads enable the convenient charging of smartphones, tablets, and wearable devices without the hassle of cables. In the automotive industry, WPT technology is used to charge electric vehicles (EVs) wirelessly, offering an alternative to traditional plug-in charging stations. Moreover, WPT has potential applications in medical implants, where the wireless transmission of power eliminates the need for invasive procedures to replace batteries in implanted devices. Recent research and development efforts aimed at enhancing the efficiency, range, and scalability of WPT systems are extensively reviewed. Various optimization techniques, such as impedance matching, frequency tuning, and coil design, are explored to improve power transfer efficiency and mitigate energy loss. Overall, this review provides valuable insights into the state-of-the-art in wireless power transfer technology, highlighting its potential to revolutionize the way we wirelessly charge and power electronic devices in diverse settings.

KeyWords:
Power Transmission, Electric Vehicle Charging, IOT Devices

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Retrofitting Of Vehicles Into Electrical

ABSTRACT:

This presentation provides an overview of the designing principles of a conventional vehicle into the electric vehicle conversion process. The paper describes the development of electric vehicle powertrain and the comparison of the different parts of electric vehicles like a battery, motor, motor controller and transmission. Also, explains the design rules and calculations of the powertrain subsystem. Electric vehicles are powered by traction motor or electric motor (AC or DC) which are powered by the battery through the electric converter or an inverter. Conventional vehicle loses their efficiency after long-duration. Retrofitting of gasoline powered vehicle into an electric vehicle is cost effective and beneficial process. During the retrofitting, powertrain and electrical parts are required to modify and remaining subsystems like, suspension, steering, and braking will be the same. In the powertrain part, the vehicle consists of a BLDC motor, motor controller, battery and battery management system [1] and gearbox with differential.

KeyWords:

: Electric vehicle conversion, Designing principles, Conventional vehicle, Electric vehicle powertrain, Battery, Motor, Motor controller, Transmission

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Unraveling The Myths Of Innovation: A Critical Examination And Framework For Understanding The Creative Process

ABSTRACT:

Innovation is often portrayed as a mystical force, a lightning bolt of creativity that strikes a select few individuals or organizations, propelling them into realms of unprecedented success. However, beneath the surface of this narrative lie a multitude of myths and misconceptions that obscure the true nature of innovation. This project seeks to unravel these myths, offering a critical examination of the factors that truly drive creative breakthroughs and technological advancements.In conclusion, this presentation argues that by dispelling myths and embracing a more nuanced understanding of innovation, we can foster a culture of creativity and ingenuity that is inclusive, sustainable, and transformative. Through interdisciplinary inquiry and critical reflection, we can unlock the full potential of human imagination and shape a future that is truly innovative and equitable.

KEY WORDS:

Innovation, Myths, Creativity, Breakthroughs, Inventors, Collaboration, Networks

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Electrical Vehicle

ABSTRACT:

Due to the problems caused by the gasoline engine on the environment and people, the automotive industry has turned to the electrically powered vehicle. This report explains how an electric vehicle works and compares the electric vehicle to the internal combustion engine and hybrid vehicle. The report provides some of the advantages and disadvantages of the electric vehicle. In addition, a brief future view of the technology is given. At a time when the fuel prices are rocketing sky high, the daily running cost of a vehicle and its cost of ownership are hitting the roof and there is a dire need to protect our environment, alternative means of transport are few. Electric vehicle are slow expensive with limited range the solution comes in the form of electrical vehicle.

KEY WORDS:

Gasoline engine, Automotive industry, Electric-powered vehicle, Internal combustion engine, Hybrid vehicle

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Blockchain In Electricity Billing And Settlement System

ABSTRACT:

The current Electricity Billing and Settlement system is quite flawed. The process uses soiled IT system and inefficient settlement and billing which can result in high transaction costs and operational costs. There are time-consuming reconciliation issues, costly back-office processes and the time period to actually make all the back-end process to happen is enormous. Blockchain technology could reduce transaction costs for trading by making operational processes efficient & by connecting trading between all parties. Trading platforms can eliminate brokers & clearing-houses. Enabling instantaneous settlement of trades via smart contract ensures reduction in costs of payment process and use of smart meters at ground level will simplify the process. This can enrich customer by enabling greater transparency and more fluid system.

KEY WORDS:

Blockchain, smart contracts, Electricity billing, settlement, smart meters

G. YAMINI & CH. SRAVANTHI
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Blue Eye Technology

ABSTRACT:

In this era, we have studied a lot of science and fiction and development but for human progress, we should study further human emotions and feelings. The best example to define this line is Blue Eye Technology. The technology, which is used in this Blue Eye Technology, can sense one's emotional level through facial and voice recognition. It shows how far the human mind can work and think. Through Blue Eye Technology, we can understand human emotions (anger, Fear, Admiration, Joy, and Sorrow) and control them. So that the mental balance of humans can be kept stable. This technology feels the presence of humans and specifies the identity of a person through the sensory mouse. In this converse, the computers can be known as the Sensation world of Blue Eye Technology, which reveals that human's tendency to feel or react using depiction processing technique.

KEY WORDS:
Human ability, sensors, computer, communication, technology.

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Cyber Security In Power Systems

ABSTRACT:

In recent times, automation has taken over major sectors of industry and society in attempts to overcome past constraints. Although it solved a set of issues it also gave rise to a new set of threats and problems. The electricity and power industry has also faced its fair share of such benefits and limitations with respect to its integration with automation. In this paper a deep dive into this integration with a special focus on power substations is discussed. The focus is fixed towards cybersecurity in digital electrical substations: what it is, what has been done, benefits and challenges faced, present solutions, our solutions and future scope of the same. The research is further concised to two major areas being the Grid components and the WAN as higher priority attack targets in case of a breach of security.

KEY WORDS:

Substation, Cybersecurity, Protection measures

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Ai Technology In Power System

ABSTRACT:

Electrical infrastructure is expanding day by day due to which smart grid gives better vision for electrical reliability. Various parameters like quality and quantity of power transmitted should be available with the electricity board which can be achieved using smart sensing, metering and communication technologies. If all the above requirements are met in power system, then it is called smart grid (SG). SG also helps consumers to manage the load patters and also to manage their expenses. The main component of SG is the communication technology to share data between consumers and grid since grid operators requires real time data to schedule their supply. The Wireless Sensor Network (WSN) uses Aggregation Protocol with Error Detection (APED) to improve the security of data. The SG with SCADA is facilitated by data acquisitions which includes the meter reading, system conditions, etc. that are monitored and transmitted at regular intervals in real time.

KEY WORDS:
Electrical infrastructure, Smart grid, Electrical reliability, Power transmission, Smart sensing

P. SRI MAHA LAKSHMI
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Role Of Power Electronics In Grid Integration Of Renewable Energy Systems

ABSTRACT:

Advanced power electronic systems are deemed to be an integral part of renewable, green and efficient energy systems. Wind energy is one of the renewable means of electricity generation that is now the world's fastest growing energy source can bring new challenges when it is connected to the power grid due to the fluctuation nature of the wind and the comparatively new types of its generators. The wind energy is part of the worldwide discussion on the future of energy generation and use and consequent effects on the environment. However, this paper will introduce some of the requirements and aspects of the power electronic involved with modern wind generation systems, including modern power electronics and converters, and the issues of integrating wind turbines into power systems

KEYWORDS:

Advanced power electronic systems, Renewable energy, green energy, Efficient energy systems, Wind energy, Electricity generation, Power grid.

M.BHUVANESWARI & A. LOHITHA SURYA,
UG SCHOLAR,LIET(A)

Smart Grid Cyber Security Enhancement: Challenges And Solution

ABSTRACT:

The incorporation of communication technology with Smart Grid (SG) is proposed as an optimal solution to fulfil the requirements of the modern power system. A smart grid integrates multiple energy sources or microgrids and is supported by an extensive control and communication network using the Internet of Things (IoT) for a carbon-free, more reliable, and intelligent energy system. Along with many benefits, the system faces novel security challenges, data management, integration, and interoperability challenges. The advanced control and communication network in the smart grid is susceptible to cyber and cyber-physical threats. A lot of research has been done to improve the cyber security of the smart grid. This review aims to provide an overview of the types of cyber security threats present for smart grids with an insight into strategies to overcome the challenges. As the selection of techniques and technologies may vary according to the threats faced, therefore the adoption of researched methods is compared and discussed. As cyber-security is the greatest challenge in smart grid implementation, this review is beneficial during the planning and operation of smart grids for enhanced security.

KEYWORDS:

Artificial intelligence; blockchain technology; smart grids; internet of things; power system security; machine learning; 5G technology

Bhogapurapu Vennela & Kurumeti Sai Sailaja,
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Monitoring System Using IoT

ABSTRACT:

The Photovoltaic (PV) monitoring system collects and analyses number of parameters being measured in a PV plant to monitor and/or evaluate its performance. In order to ensure the reliable and stable operation of any PV system, an effective monitoring system is essential. Moreover, the monitoring system keeps track on various electricity generation indices and fault occurrences. The cost and complexity of existing PV monitoring systems restricts their use to large scale PV plants. Over the past decade, different aspects of PV monitoring systems were reported in wide range of literature. In this paper, a comprehensive review of various PV monitoring systems is presented for the first time. This includes the detailed overview of all the major PV monitoring evaluation techniques in terms of their relative performances. Major aspects of PV monitoring systems which examines in this paper are: sensors and their working principles, controller used in data acquisition systems, data transmission methods, and data storage and analysis. The acquaintance of all these aspects is crucial for the development of effective, low cost, and viable PV monitoring systems for small and medium scale PV plants without compromising on the desired performance.

KEYWORDS:

PV plant, Performance evaluation, Reliable operation, Stable operation, Monitoring parameters, Electricity generation indices, Fault occurrences

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Project Expo

Underwater Surveillance Vehicle

ABSTRACT:

To design a vehicle capable of navigating underwater environments and capturing high-quality images and videos for research and monitoring purposes. To establish a reliable communication system using two ESP32 boards, enabling real-time transmission of sensor data, video feeds, and control commands. To develop sensors and data logging capabilities to monitor water quality, temperature, pressure, and other environmental parameters. To create a user-friendly interface for controlling and monitoring the vehicle, allowing users to easily navigate, view data, and analyze collected information.

KEYWORDS:

Navigating underwater environments, capturing high-quality images and videos, monitoring purposes, research and monitoring, ESP32 boards, real-time transmission, and sensor data navigation, and data analysis.

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COLLEGE NAME

Aditya Institute of Technology and Management (A)

AI-Powered Battery Management System for Enhanced Efficiency and safety in Electric Vehicles

ABSTRACT:

This advanced system diligently monitors critical parameters such as battery voltage, current, and temperature in real-time. This project introduces an innovative solution cantered around a cutting edge sensor and battery pack system, driven by a Raspberry pi or Arduino Uno module, this module acts like Brain for the Battery management system (BMS) In the event of any fault or aberrant behaviour, the system promptly initiates an automatic cutoff of the input or output from the battery, mitigating the risk of potential hazards. We have induced the latest AI into this system for better battery management which help in improving the life of the battery more effectively using the modern techniques. Illustrate our concept, we would like to develop a miniature model that serves as a representation of our innovative system. Using various software techniques, including machine learning and AI model training, we would create a demonstration to facilitate a deeper understanding of our proposed solution. In regular model the fire safety and the efficiency of the model are not taken into consideration using the implementation of AI much more reliable operation can be done using our module. This System provides the following advantages: Battery Status Monitoring and Display, Charging of Battery as per required predetermined input parameters. Temperature monitoring with auto cutoff, Better Automatic self-control using AI. More reliability and increase of battery life and management. This model is main aim is to increase the life expectancy of the battery using the AI system currently many top companies are working regarding this topic where we are trying to build under the low cost The module is connected with Arduino is interfaced with the system such for proper application of Machine Learning techniques into the module of BMS, the average life of a normal EV battery ranges from 10 to 13 years by using your system we could bring this to 13 to 15 years or much more.

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Smart Meter and Billing Technology

ABSTRACT:

Smart Meter and Billing Technology heralds a revolutionary shift in the realm of utility management, particularly in the monitoring of energy consumption and billing processes. At the forefront of this transformation stands the development of a mobile application poised to revolutionize the way electricity bills are generated and managed. By leveraging cutting-edge technology, our proposed application seeks to streamline the billing process by eliminating the need for traditional methods. Through seamless integration with existing energy meters, the application empowers consumers with real-time insights into their energy usage and associated costs. Gone are the days of estimated bills and manual meter readings; instead, customers can now enjoy the convenience of automated billing that accurately reflects their consumption patterns. The integration of digital innovation into utility services not only enhances efficiency but also augments accuracy and customer control. With the ability to monitor their energy usage at their fingertips, consumers are empowered to make informed decisions about their consumption habits, ultimately leading to more sustainable practices. Furthermore, the mobile application offers a user-friendly interface, allowing customers to track their energy usage trends, set personalized consumption goals, and receive notifications about potential energy-saving opportunities. Additionally, features such as bill forecasting and payment reminders further enhance the user experience, ensuring seamless interaction with the billing process. In essence, the development of a mobile application for smart metering and billing represents a paradigm shift in the energy sector, ushering in an era of greater efficiency, transparency, and consumer empowerment. By harnessing the power of digital innovation, utilities can forge stronger connections with their customers while driving towards a more sustainable energy future.

TEAM:

1) RITHWIK.BUDUMURI
2) N HARSHA VARDHAN CHOWDARY

COLLEGE NAME

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Accident Detection and Alert System Using Arduino

ABSTRACT:

This project aims to address the critical issue of individuals being left without assistance in the event of an accident while riding their vehicle. With the implementation of an accident detection and alert system, this project seeks to provide a solution to this problem. The system utilizes an Arduino, GPS Receiver, and GSM module to control the entire process. The GPS Receiver identifies the vehicle's direction, while the GSM module sends an SMS containing the directions and a link to Google Maps to the assigned contact. The system can detect severe accidents using a Vibration sensor and can also identify rollovers. The microcontroller sends this information to the GSM module, which transmits the data, including the victim's precise location, to the assigned contact. The contact can then use the GPS MODEM to locate the victim and provide immediate assistance. This project offers a professional and innovative solution to a significant problem, ensuring the safety of individuals riding their vehicles. The implementation of the Accident Detection and Alert System using Arduino is a highly effective solution, particularly in developing nations such as Nepal, India, and Bangladesh where the number of vehicles on the road is rapidly increasing. With the rise in vehicular accidents, fatalities have also been on the rise. However, the Accident Detection and Alert System using Arduino can prevent uncertain deaths by sending a message alert to a registered mobile number, providing the precise location of the accident through a Google map link. This system is a valuable investment in ensuring the safety of drivers and passengers alike.

KEYWORDS: GSM Module, GPS Modem, Arduino Uno, Google Map Link.

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Artificial Intelligence in an Autonomous Fire-Fighting Robot

ABSTRACT:

The Main Objective of this Project is to develop a automated system which detects and extinguishes fire based on Artificial Intelligence. Fire-fighting robots are developed to protect the fire-fighters life and also which can be able to extinguish the fire more efficiently and can be able to identify the Fire quickly, previously designed fire-fighting robots are fabricated using aluminium or stainless steel so they can't be able to withstand the high temperature that's why this robot is capable of working in outdoor condition not suitable for indoor fire accident. in this paper using a ceramic material which can with stand and work in a high temperature area compared to another robot. it is suitable for indoor fire accident. Also, which can help for surveillance purpose in a fire accident zone, this robot is teleoperated user can control the robot in a safer distance by using live video streaming techniques user can get a better understanding of the robot working environment. the additional feature of this robot is image processing to detect humans, which help the user to get the clear understanding of the situation which also helps to find out the source of the fire and saves many humans live. In this work we are going to designer multipurpose firefighting robot which use a remote controller we control the robot from a safe distance the user can monitor the robot using camera with receiver and transmitter and also this robot having a vacuum fan using that fan it can remove the smoke As Quick As Possible with help of image processing this robot can detect human face which help the Firefighter to identify and rescue the human using face detection. In this project we are going to design and construct firefighting mobile robot which controlled by two isolated DC geared motor and also the 5 Infrared sensor is connected to the robot two sensor is to control the DC geared motor and other sensors are used to detect the Fire after finding the candle fire with the help of DC water pump the robot extinguish the Fire the result shows robot module is successfully implemented.

KEY WORDS: Artificial intelligence, Arduino UNO, ESP32Cam, L298Nmotor, DC motor, fire sensor, thermocouple, pump.

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COLLEGE NAME
LENDI INSTITUTE OF ENGINEERING AND TECHNOLOGY(A)

Class Room Attendance System Using Facial Recognition System

ABSTRACT:

The face is the identity of a person. The methods to exploit this physical feature have seen a great change since the advent of image processing techniques. The accurate recognition of a person is the sole aim of a face recognition system and this identification maybe used for further processing. Traditional face recognition systems employ methods to identify a face from the given input but the results are not usually accurate and precise as desired. The system described in this paper aims to deviate from such traditional systems and introduce a new approach to identify a student using a face recognition system i.e. the generation of a 3D Facial Model. This paper describes the working of the face recognition system that will be deployed as an Automated Attendance System in a classroom environment.

Keywords- Image Processing; Face Recognition; Pattern Recognition; Identification.

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COLLEGE NAME
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Design and Implementation of Wireless Power Transfer Systems for Roadway-Powered Electric Vehicles

ABSTRACT:

This project explains about the design and implementation of a wireless power transfer system (WPTS) for roadways powered electric vehicles (RPEVs). The electric vehicle charging is made from the roadways by using WPTS concept. Hence, thin wireless transmission protocol, renewable, ecofriendly system can be achieved. The power transfer capacity, efficiency, lateral tolerance, electromagnetic field, air-gap, size, weight, and cost of the WPTSs have been improved by virtues of innovative semiconductor switches, better coil designs, roadway construction techniques, and higher operating frequency. The RPEVs are free from serious battery problems such as large, heavy, and expensive battery packs and long charging time. By introducing WPT in Electric vehicles (EV), the obstacles of charging time, range, and cost of battery are easily mitigated. The above said concept is encouraged by the state-of-the-art achievements, and pushes forward the further development of WPT as well as the expansion of EV. In the proposed model, the experiment is conducted for 24V DC, 6 kW power with 80% power transfer efficiency under 3-cm air gap. The hardware results are showed the effectiveness of the proposed model to justify the effectiveness.

KEY WORDS: WPTS, RPEVS, EV, Power transfer efficiency.

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COLLEGE NAME

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LED Making Unit

ABSTRACT:

Lighting accounts for roughly one-fifth of all global electricity consumption, yet the major share of this energy is emitted not as light but as radiated heat from inefficient bulbs. Compact fluorescent Lights (CFLs) were the initial substitute for incandescent bulbs, but certain characteristics of CFLs, light emitting diodes (LEDs) will be used dramatically in the next few years because of its low energy consumption and long life. This paper presents a survey of literature on the light (LEDs) as energy efficient light bulbs due to their high efficiency. The literature shows an increasing interest in this subject for the last decade, where the enhancement of LED lighting systems using various controllers has been widely investigated. Several technical issues related to thermal properties and LED array configurations have been highlighted. Moreover, some of the developments in LED driver technology have been summarized.

KEY WORDS: Lighting, Global electricity consumption, Radiated heat, Inefficient bulbs, Compact fluorescent lights (CFLs), Incandescent bulbs, Light emitting diodes (LEDs).

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RC Plane

ABSTRACT:

A radio-controlled (model) aircraft (often called RC aircraft or RC plane) is controlled remotely by a hand-held transmitter and a receiver within the craft. The receiver controls the corresponding servos that move the control surfaces based on the position of joysticks on the transmitter, which in turn affect the orientation of the plane. Flying RC aircraft as a hobby has been growing worldwide with the advent of more efficient motors (both electric and miniature internal combustion and jet engines), lighter and more powerful batteries and less expensive radio systems. Scientific, government and military organizations are also utilizing RC aircraft for experiments, gathering. weather readings, aerodynamic modelling and testing, and even using them as drones or spy planes. The RC fixed winged Aircraft project is based on designing a light weight glider electronically controlled using a remote control with operating frequency of 2.4 GHz. The project concentrated on designing the mechanical part of the model. It was the stepwise execution of procedure to synthesize the glider. This project did not concentrate on electronics components as the components used are readily available in markets and need not be programmed by the users.

KEY WORDS: Radio-controlled, Aircraft, batteries, Motors, Light weight glider

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Smart Wireless Electrical Vehicle Charging Enabled Based On E Vehicle Presence Using Ai

ABSTRACT:

The high penetration of electric vehicles (EVs) will burden the existing power delivery infrastructure if their charging and discharging are not adequately coordinated. Dynamic pricing is a special form of demand response that can encourage EV owners to participate in scheduling programs. Therefore, EV charging and discharging scheduling and its dynamic pricing model are important fields of study. Many researchers have focused on artificial intelligence-based EV charging demand forecasting and scheduling models and suggested that artificial intelligence techniques perform better than conventional optimization methods such as linear, exponential, and multinomial logit models. However, only a few research studies focused on EV discharging scheduling (i.e., vehicle-to-grid, V2G) because the concept of EV discharging electricity back to the power grid is relatively new and evolving.

KEY WORDS:

Microcontroller, Arduino Uno Crystal, LCD display, Copper coil, AI Camera: ESP32 CAM,

Battery: 12V DC Power Source, transformer.

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COLLEGE NAME

LENDI INSTITUTE OF ENGINEERING AND TECHNOLOGY(A)

Smart Density Based Traffic Light System

ABSTRACT:

In today's life we have to face many problems, one of which being traffic congestion and it's becoming more serious day after day. Conventional traffic system does not have proper monitoring system and often requires manual handing at traffic junction. This not only causes mental stress in passengers but also lot of fuel goes wasted due to delay at traffic junction. This requires development of a system to handle traffic in a smart way by automatically adjusting its timing based on traffic density using Arduino Uno ATMega 328. In this, traffic is sense using digital IR Sensors and IR Sensors detect vehicles further based on the signal reflected from them. Sensors placed adjacent to the road to control the traffic density by changing traffic signal appropriately. All IR Sensors are interfaced with Arduino Uno and it reads data from IR Sensors. Traffic Signal for the system is designed using LEDs and each signal consist two LEDs for each lane. Using this system development at traffic junction we need not to worry about handing the traffic manually and also consumes less time as compared to the conventional traffic system. We harness solar power from solar panel and this is used to build prototype working model of smart traffic signal which automatically adjusts its timing based on traffic direction.

KEY WORDS: Arduino Uno ATMega 328, IR Sensors, LEDs

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COLLEGE NAME: -
LENDI INSTITUTE OF ENGINEERING AND TECHNOLOGY(A)

Smart Technics In Train Accidents

ABSTRACT:

The purpose of this paper is to prevent railway accident happening due to various factors, such as signal errors. The use of trains for affordable, safe, and comfortable transportation is common. Nevertheless, because of bad signals, incorrect track switching, unattended level crossings, etc., the train frequently runs into unforeseen situations while traveling, which has resulted in accident. With human observation and decision-making aid, I have created two independent systems to prevent train accident. The developed systems aim to empower train operators with the tools needed to make informed decisions and take appropriate actions to prevent accident. The project emphasizes the significance of combining human observation and decision-making with technological advancements to proactively mitigate the risks associated with railway accident.

KEYWORDS:

Buzzer, Arduino, Lights, Infrared sensor, Ultrasonic sensor

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LENDI INSTITUTE OF ENGINEERING AND TECHNOLOGY(A)

Transmission Line Faults Detection System

ABSTRACT:

Transmission Line Fault Detection is a crucial aspect of the electrical power system that helps to ensure the stability and reliability of the power supply by detecting and isolating faults in the transmission line. In this project, advanced electrical components such as a relay module, a thermistor temperature sensor, and a transformer are used to detect and isolate faults in the transmission line. The relay module acts as a switch, controlling the power supply to the thermistor sensor. When a fault occurs, the relay module switches the power supply to the thermistor sensor, which then senses the rise in temperature due to the fault. The transformer is used to step down the voltage from the transmission line to a level that can be safely handled by the thermistor sensor. The system is compact, reliable, and can be easily integrated into existing power systems to improve their stability and reliability. The use of a relay module, a thermistor temperature sensor, and a transformer in the fault detection system offers several advantages, including accurate and timely fault detection, compact and reliable design, and ease of integration into existing power systems. The implementation of this project is expected to significantly improve the stability and reliability of the electrical power system.

KEYWORDS:

Thermal sensor, Dual channel relay, Three AC bulbs, Transmission line

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COLLEGE NAME
LENDI INSTITUTE OF ENGINEERING AND TECHNOLOGY(A)

Transmission Line Faults Detection system With Temparature Protection

ABSTRACT:

Transmission Line Fault Detection is a crucial aspect of the electrical power system that helps to ensure the stability and reliability of the power supply by detecting and isolating faults in the transmission line. In this project, advanced electrical components such as a relay module, a thermistor temperature sensor, and a transformer are used to detect and isolate faults in the transmission line. The relay module acts as a switch, controlling the power supply to the thermistor sensor. When a fault occurs, the relay module switches the power supply to the thermistor sensor, which then senses the rise in temperature due to the fault. The transformer is used to step down the voltage from the transmission line to a level that can be safely handled by the thermistor sensor. The system is compact, reliable, and can be easily integrated into existing power systems to improve their stability and reliability. The use of a relay module, a thermistor temperature sensor, and a transformer in the fault detection system offers several advantages, including accurate and timely fault detection, compact and reliable design, and ease of integration into existing power systems. The implementation of this project is expected to significantly improve the stability and reliability of the electrical power system.

KEY WORDS: Transmission Line Fault Detection, Electrical power system, Stability, Reliability, Fault detection, Isolation of faults, Relay module, Thermistor temperature sensor, Transformer

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LENDI INSTITUTE OF ENGINEERING AND TECHNOLOGY(A)

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Autonomous

Voice Control Robot With Obstacle Detection

ABSTRACT:

The major principle of the robotic vehicle is to accept the user voice command and perform the given user task and without the human presence specifically area can control the robot via user voice input. The robot can be operated through user voice input it requires android app to communicate via Bluetooth HC-05 module. Subsequently, the robotic vehicle can sense the things with the assistance of Ultrasonic sensor module. For the hardware, customized Arduino will give the control over the motors that use to run the robotic vehicle. Ultrasonic sensors interact with the Arduino help in automatic braking of a vehicle on sudden obstacle detection. The obstacle avoidance robots are currently employed in dangerous areas where the human cannot enter. It can easily recognize the voice.

KEY WORDS:

Android, NodeMCU

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