

NEWSLETTER

DEPARTMENT OF
ELECTRICAL & ELECTRONICS ENGINEERING

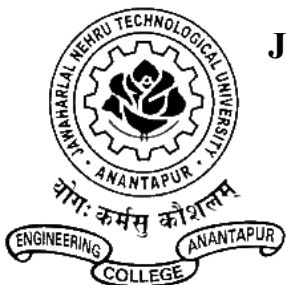
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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
COLLEGE OF ENGINEERING (AUTONOMOUS),
ANANTHAPURAMU – 515002,
ANDHRA PRADESH, INDIA



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About the Department



The Department of Electrical Engineering was established in 1946 offering B.Tech course (Electrical and Electronics Engineering) with an intake of 30 students, which was enhanced to 50 in the year 1995 and subsequently to 60 in the year 2009. In 1946 the college was established at Guindy, Chennai and was shifted to Anantapur in 1948. The Electrical Engineering Department offers various M.Tech programs. M.Tech, with specialization in “Electrical Power Systems” was started in the year 1971 with an intake of 25. “Power and Industrial Drives” was started in the year 2001 with an intake of 25. “Control Systems” started in the year 2001 with an intake of 25 and “Reliability Engineering” started in the year 2009 which is an interdisciplinary area with an intake of 18. The Department is having research facilities for Ph.D Programme in Electrical Engineering Discipline.

Institutional Vision

- Committed to expanding the horizon and inspiring young minds towards academic excellence.
- Aims at scaling new heights through advanced research and innovative techniques to keep pace with the ever-changing needs of industry and society at large.

Institutional Mission

- To identify and implement, proven, prevention-oriented, forward-looking solutions to critical, scientific and technological problems.
- To make technology a principal instrument of economic development of the country and to improve the quality of life of the people through technological education, innovation, research, training and consultancy.

Department Vision

- Committed to expanding the horizon and inspiring young minds towards academic excellence.
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Department Mission

- To identify and implement, proven, prevention oriented, forward looking solutions to critical, scientific and technological problems in Electrical and Electronics Engineering.
- To make technology a principal instrument of economic development of the country and to improve the quality of life of the people through technological education, innovation, research, training and consultancy.

PROGRAM OUTCOMES

- PO 1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- PO 2: 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.
- PO 3: Design/development of solutions:** Design solutions for complex engineering problems 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.
- PO 4: 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.
- PO 5: 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.
- PO 6: 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.
- PO 7: 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.
- PO 8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- PO 9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO 10: 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.
- PO 11: 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.
- PO 12: 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.

PROGRAM EDUCATIONAL OBJECTIVES

- PEO 1: To excel in professional career and/or higher education by acquiring knowledge in mathematics and Basic sciences, Basic Electrical Sciences, Power Systems, Power Electronics and Electrical Drives.
- PEO 2: To identify the problems in society and design electrical systems appropriate to its solutions using latest technologies that are technically sound, economically feasible and socially acceptable.
- PEO 3: To exhibit professionalism, ethical attitude, communication skills, team work in their profession and adapt to current trends in technology by engaging in continuous professional development.

PROGRAM SPECIFIC OUTCOMES

- PSO 1: The student can apply fundamental knowledge gained during the various courses of the program to analyse and solve the complex problems of Electrical Machines, Control Systems, Instrumentation System, Power Systems and Power Electronic systems.
- PSO 2: The student can design electrical, electronics and allied interdisciplinary projects to meet the demands of industry and to provide solutions to the current real time problems.
- PSO 3: The student can utilize the knowledge regarding recent techniques and sustainable technologies for developing the projects related to Control Engineering, Smart Grid, Power Quality and Advanced Power System protection to engage in lifelong learning

Message from HoDs Desk



It is with great pride and enthusiasm that I extend my greetings through this quarterly newsletter of the Department of Electrical and Electronics Engineering. The newsletter serves as a mirror reflecting the dynamic and progressive activities of our department, and I am delighted to see the collective efforts of students and faculty members in achieving academic and professional excellence. Each issue captures the essence of our department's commitment to nurturing innovation, skill development, and a strong foundation in core engineering principles.

During the past quarter, our department has actively engaged in organizing various academic and co-curricular activities such as expert lectures, technical workshops, and industrial visits. These initiatives have not only broadened the knowledge base of our students but have also strengthened their readiness for real-world challenges. Faculty members have continued to excel in research and development, with notable publications and ongoing projects that contribute to the advancement of the electrical engineering domain.

As we move forward, I encourage all stakeholders—students, faculty, alumni, and industry partners—to stay connected and contribute towards the growth and excellence of our department. Let us continue to uphold the values of integrity, innovation, and inclusivity, and work together in shaping competent engineers who are well-prepared to meet the evolving demands of the industry and society.

Dr. M. Ramasekhara Reddy
Assistant Professor & HoD
Department of EEE
JNTUA CE Ananthapuramu

Events in the Department

A National Level Student Technical Symposium

“EYE 2k25”

on 4th and 5th April, 2025

The Department of Electrical and Electronics Engineering at JNTUA College of Engineering, Ananthapuramu, successfully organized a National Level Student Technical Symposium, “EYE (Electrify Your Education) 2k25”, on the 4th and 5th of April, 2025. The symposium was inaugurated in a grand manner, with the presence of esteemed dignitaries on the dais including Prof. S. Krishnaiah, Registrar, JNTU Anantapur; Dr. P. Chenna Reddy, Principal, JNTUA College of Engineering; Dr. M. Ramasekhara Reddy, Head of the Department of EEE; Dr. S. Sreedhar, Coordinator of the Fest; along with student coordinators Mr. L. Rajesh Reddy and Ms. P. Kavya Sree. The inaugural session was hosted with enthusiasm by Mr. S. Krupa Rao and Ms. Abhinaya Sree, who set a motivating tone for the entire event.

The two-day symposium featured a diverse array of technical sessions, paper presentations, project expos, and innovative competitions, attracting active participation from students across the country. The event provided a dynamic platform for budding engineers to showcase their skills, share ideas, and engage with advancements in the field of electrical and electronics engineering. With the collaborative efforts of faculty and students, “EYE 2k25” turned out to be a resounding success, fostering a spirit of innovation, learning, and professional growth.



Inauguration of National Level technical Symposium “EYE 2k25”

Day 1 (4th April 2025):

As part of the “EYE (Electrify Your Education) 2k25”, a series of engaging and intellectually stimulating events were conducted by the Department of Electrical and Electronics Engineering at JNTUA College of Engineering, Ananthapuramu. The ***Paper Presentation*** event took place on Day 1 from 11:30 AM to 2:30 PM in the Department. The session saw active participation from students of various colleges who showcased their innovative ideas in the field of emerging technologies. Each participant was given 15 minutes for their presentation, followed by a brief question-and-answer session with the audience. Prizes were awarded for the top three presentations, with the first prize winner also receiving a cash award. The event was efficiently organized by Ms. Harika, Ms. Pavani Reddy, Ms. J. Meghana, and Mr. Krupa Rao, all final-year students from the Department.

The ***Technical Quiz***, conducted on the Day 1 from 12:30 PM to 2:30 PM, attracted group entries from different engineering institutions. The quiz was a rigorous test of technical knowledge. The top three teams were awarded rank certificates, and the winning team received a cash prize. The event was successfully coordinated by Mr. Vajid and Mr. O. Gnaneshwar Reddy from the final year of the Department.

A highlight of the symposium was the ***Workshop on “Neuro – Fuzzy Applications in Electrical Engineering by using MATLAB and Python”***, held in the Prof. S. Tiruvengalam Seminar Hall. The workshop was led by Mr. Prem Kumar, and meticulously organized by Dr. M. Ramasekhara Reddy, Convenor, Dr. S. Sridhar, Coordinator and Mr. Y. V. Aditya Ram of the final-year student. The workshop spanned two days and was divided into four sessions—two per day. The first day included theoretical sessions, while the second day focused on hands-on programming conducted in the computer lab. The final session was a comprehensive marathon covering all concepts discussed throughout the workshop. The event proved to be highly beneficial in bridging academic knowledge with practical implementation.

Day 2 (5th April 2025):

On the second day, a series of technical events and the valedictory function marked the successful conclusion of the fest. The ***Hackathon*** event was conducted from 11:00 AM to 1:00 PM in the Department of Electrical and Electronics Engineering. Students from various institutions participated in teams, showcasing their problem-solving and coding skills. The top three teams were awarded rank certificates, with the winning team receiving a cash prize. The event was well-coordinated by Ms. P. Meghana, Mr. Vajid, and Mr. Ameer Basha, all final-year students of the EEE department.

Simultaneously, the **Project Expo** was held from 11:00 AM to 2:00 PM. It provided a platform for students to exhibit their innovative hardware and software projects. As with other competitive events, the top three groups received rank certificates and the first prize included a cash award. The expo was successfully organized by Ms. S. Krupa Rao from the final year of the EEE department.

Valedictory Program:

The Valedictory Program, held from 3:30 PM to 4:30 PM in the EEE seminar hall, marked the formal closing of the two-day technical symposium. The event was graced by several dignitaries including Dr. P. Chenna Reddy, Principal of JNTUA College of Engineering, Ananthapuramu; Dr. K. Madhavi, Vice-Principal I/c; Dr. M. Ramasekhara Reddy, Head of the EEE Department; and Dr. S. Sreedhar, Coordinator of the Fest. Dr. K. Madhavi addressed the gathering and appreciated the efforts of the students and faculty in making the event a grand success. Prizes were distributed to the winners of various events by the dignitaries. The program concluded with a felicitation ceremony, where the Principal, Vice-Principal I/c, and Head of the Department were honoured with mementos in recognition of their guidance and support.



Validatory Program of “EYE 2k25”



Prize distribution to the winners of various events

Guest Lecture

Online Guest Lecture on

“Procedure for CO-PO & PSO Mapping and Attainment”

organized on 08-04-2025

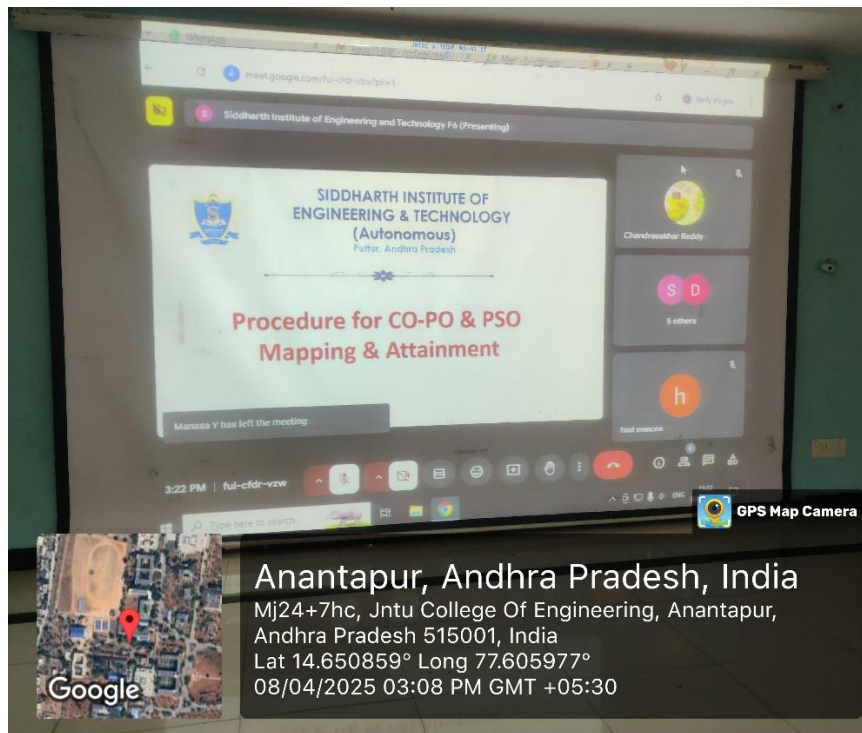
Resource Person:

1. Dr. K. Chandrasekhar Reddy
Principal,
Siddharth Institute of Engineering and Technology
Puttur, Chittoor District
2. Dr. P.G. Gopinath
Vice-Principal
Siddharth Institute of Engineering and Technology
Puttur, Chittoor District

The Department of Electrical and Electronics Engineering, JNTUACEA, organized an insightful online guest lecture on the topic **“Procedure for CO-PO & PSO Mapping and Attainment”** on 8th April 2025. The session aimed at enhancing the understanding of Outcome-Based Education (OBE) and its practical implementation in curriculum planning and assessment. All faculty members and students of the Electrical and Electronics Engineering Department actively participated in the session, making it a highly engaging and informative event.

Dr. K. Chandrasekhar Reddy, Principal of Siddharth Institute of Engineering and Technology, Puttur, Chittoor District, was invited as a distinguished resource person. He elaborated on the systematic procedure for mapping Course Outcomes (COs) to Program Outcomes (POs) and Program Specific Outcomes (PSOs), highlighting key strategies and methodologies to ensure effective curriculum design aligned with accreditation requirements. His presentation offered valuable insights into aligning academic objectives with program goals to foster comprehensive student learning outcomes.

Following this, Dr. P.G. Gopinath, Vice-Principal of Siddharth Institute of Engineering and Technology, further enriched the session by focusing on the attainment aspect of COs, POs, and PSOs. He explained various assessment tools, evaluation techniques, and statistical methods used to measure and analyze the level of attainment. The lecture provided clarity on setting appropriate targets, calculating attainment levels, and using the results for continuous improvement. The session concluded with an interactive Q&A, where participants discussed practical challenges and shared experiences, making the event a fruitful learning experience for both faculty and students.



Faculty and Students attending a Guest Lecture in Seminar Hall, Electrical and Electronics Dept.

FACULTY ACTIVITIES

Conferences/Workshops / FDP's Attended:

- **Mr. K. Nagabhushanam** has participated in a One Week National Level Online Faculty Development Program on “**Advancements in Battery Technology and Management for Sustainable E-Mobility**” organized by the Department of Electrical and Electronics Engineering, Mahatma Gandhi Institute of Technology (Autonomous), Gandipet, Hyderabad, from 16th – 20th June, 2025.
- **Mr. M. Rathaiah** has participated in a One Week National Level Online Faculty Development Program on “**Advancements in Battery Technology and Management for Sustainable E-Mobility**” organized by the Department of Electrical and Electronics Engineering, Mahatma Gandhi Institute of Technology (Autonomous), Gandipet, Hyderabad, from 16th – 20th June, 2025.
- **Mr. P. Rizwan** has participated in a One Week National Level Online Faculty Development Program on “**Advancements in Battery Technology and Management for Sustainable E-Mobility**” organized by the Department of Electrical and Electronics Engineering, Mahatma Gandhi Institute of Technology (Autonomous), Gandipet, Hyderabad, from 16th – 20th June, 2025.
- **Smt. Y. Manasa** has participated in a One Week National Level Online Faculty Development Program on “**Advancements in Battery Technology and Management for Sustainable E-Mobility**” organized by the Department of Electrical and Electronics Engineering, Mahatma Gandhi Institute of Technology (Autonomous), Gandipet, Hyderabad, from 16th – 20th June, 2025.
- **Mr. K. Nagabhushanam** has participated in a 10 day Faculty Developed Program on “**Empowering the Future Advancements in Power Electronics for Electric Vehicles and Renewable Energy**”, organized by E & ICT Academy & Department of Electrical Engineering, NIT Warangal in association with Department of Electrical and Electronics Engineering, NIT Karnataka, Surathkal, during 17th – 27th March, 2025.
- **Mr. P. Rizwan** has participated in a 10 day Faculty Developed Program on “**Empowering the Future Advancements in Power Electronics for Electric Vehicles and Renewable Energy**”, organized by E & ICT Academy & Department of Electrical Engineering, NIT Warangal in association with Department of Electrical and Electronics Engineering, NIT Karnataka, Surathkal, during 17th – 27th March, 2025.
- **Smt. Y. Manasa** has participated in a 10 day Faculty Developed Program on “**Empowering the Future Advancements in Power Electronics for Electric Vehicles and Renewable Energy**”, organized by E & ICT Academy & Department of Electrical Engineering, NIT Warangal in association with Department of Electrical and Electronics Engineering, NIT Karnataka, Surathkal, during 17th – 27th March, 2025.

- **Smt. N. Swathi** has participated in a 10 day Faculty Developed Program on “**Empowering the Future Advancements in Power Electronics for Electric Vehicles and Renewable Energy**”, organized by E & ICT Academy & Department of Electrical Engineering, NIT Warangal in association with Department of Electrical and Electronics Engineering, NIT Karnataka, Surathkal, during 17th – 27th March, 2025.

Others:

- **Smt. Y. Manasa and Smt. S. Anusha** showcased their remarkable skill and teamwork by securing the **1st Prize in Carroms** during the Sports Day celebrations on 19th April 2025, at JNTUA College of Engineering, Anantapur.
- **Smt. Y. Manasa and Smt. Madhuri** (CSE Dept.) demonstrated her sporting versatility by winning the **2nd Prize in Shuttle Doubles** during the Sports Day celebrations 19th April 2025, at JNTUA College of Engineering, Anantapur.
- **Ms. D. Kalyani and Smt. K. Firdose Kowser Ahamadia** displayed excellent coordination and strategic skills to secure the **2nd Prize in Carroms** during the Sports Day events 19th April 2025, at JNTUA College of Engineering, Anantapur.
- **Ms. D. Kalyani and Smt. K. Firdose Kowser Ahamadia** showcased outstanding athleticism and teamwork to clinch the **1st Prize in Shuttle Doubles** during the Sports Day celebrations 19th April 2025, at JNTUA College of Engineering, Anantapur.
- **Smt. S. Anusha** delivered an impressive performance to win the **1st Prize in Shuttle Singles** during the Sports Day celebrations 19th April 2025, at JNTUA College of Engineering, Anantapur.

Student Activities

Annual College Day Celebrations

on 19th April, 2025

The annual College Day Celebrations at JNTUA College of Engineering, Anantapur, were held with great enthusiasm and grandeur on 19th April 2025. The event was a vibrant showcase of academic achievements, cultural excellence, and student talent.

The celebrations began with a warm welcome to the esteemed guests, faculty members, and students, followed by the lighting of the ceremonial lamp. The Principal addressed the gathering, highlighting the college's accomplishments over the academic year and encouraging students to strive for excellence in all spheres.

One of the most significant moments of the day was the distribution of Class Topper Certificates to meritorious students from B.Tech and M.Tech programs. These certificates were awarded to students who secured the highest marks in their respective branches, acknowledging their hard work, consistency, and dedication to academic excellence. The recipients were applauded by the audience for their outstanding performance.

The event also featured a variety of cultural programs, including music, dance, and drama performances, which added colour and joy to the celebration. Students actively participated and showcased their talents, making the event lively and memorable.

List of Students received meritorious Class Topper Certificates

S. No.	Name of the Students & Admn. No.	B.Tech/M.Tech & Year	Marks Secured	Maximum Marks
1.	G Vaishnavi 2300120209	B. Tech - I Year	1758	2000
2.	L Amrutha Vennela Sri Yadav 23005A0203	B. Tech - II Year	1666	1900
3.	V Indra 21001A0206	B. Tech - III Year	1627	1800
4.	A Pranathi 20001A0266	B. Tech - IV Year	850	950
5.	K Wajida Sultana 23001D2104	M. Tech – Electrical Power Systems	1185	1400



K Wajida Sultana (23001D2104) receiving class topper certificate

Product's Developed by Students

Title: Foot Step Power Generation Using Piezo Electric Sensors

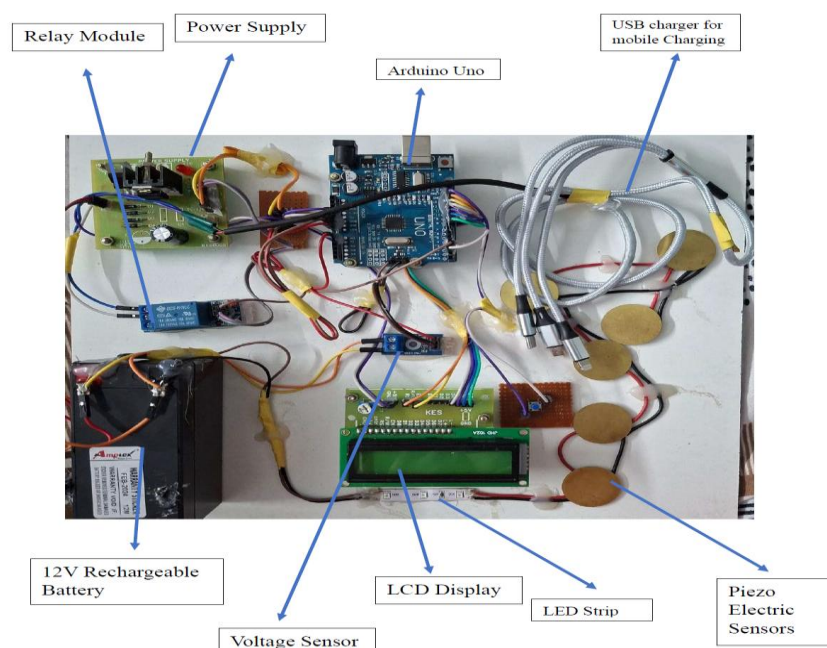
Guide: Dr. P. Sujatha, Professor

Submitted by:

1. P. Meghana (21001A0216)
2. V. Kaveri (21001A0240)
3. N. Manasa (21001A0254)
4. A. Vaishnavi (21001A0261)

This project demonstrates an innovative approach to sustainable energy by converting kinetic energy from footsteps into electrical energy using piezoelectric sensors and an Arduino microcontroller. The system captures pressure from walking and transforms it into usable power, offering a compact, low-maintenance, and cost-effective alternative to traditional footstep power generation methods that often involve bulky mechanical components and high maintenance. The harvested energy is stored in a rechargeable battery and monitored through a voltage sensor to maintain efficient power management. An LCD display shows real-time voltage levels, while a relay-based control system directs the generated power to small loads like a USB charging port and an LED strip.

The final setup includes key components such as the Arduino Uno, piezoelectric sensors, voltage regulation modules, and storage circuitry, all integrated onto a compact PCB. The system was thoroughly tested and successfully demonstrated its ability to power small electronic devices and provide lighting through footstep energy alone. By combining real-time monitoring, efficient energy storage, and minimal hardware complexity, the project proves to be a practical solution for renewable energy generation in public infrastructure, particularly in high-footfall areas like walkways, train stations, or malls.



Foot Step Power Generation Using Piezo Electric Sensors

Title: Arduino-based Load Forecasting and Management in Smart Grid

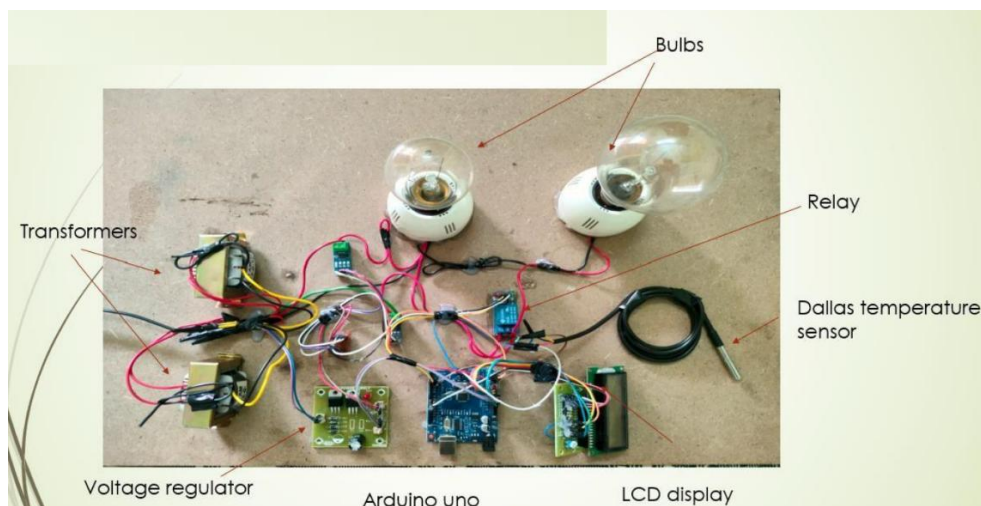
Guide: Dr. N. Visali, Professor

Submitted by:

1. C. R. Sai Vardhan (21001A0204)
2. S. Puneeth Guru Sain (21001A0232)
3. C. B. Adithya (21001A0209)
4. C. Pavan Krishna (21001A0225)

With the rising global demand for energy and the pressing need for sustainable practices, efficient energy management has become a cornerstone of modern electrical systems. Smart grids, equipped with intelligent forecasting and control mechanisms, are designed to optimize electricity distribution, balance supply and demand, and minimize power disruptions. Load forecasting plays a critical role by predicting electricity consumption based on historical trends, weather conditions, and real-time variations. This predictive capability helps grid operators enhance power generation efficiency, lower operational costs, and implement load management strategies like demand response and peak load reduction for improved distribution efficiency.

Despite their potential, traditional load management strategies such as demand-side management and load shedding often face limitations due to high computational requirements and reduced adaptability to dynamic grid conditions. To address these challenges, this project presents an Arduino-based smart grid system for real-time load forecasting and energy management. It utilizes ACS712 current sensors and a Dallas temperature sensor to monitor energy usage and detect overloads. The system features an LCD for real-time data display and uses programmed thresholds to shift loads accordingly. This setup offers a low-cost, scalable solution for intelligent energy control, making it well-suited for modern smart grid applications.



Arduino-based Load Forecasting and Management in Smart Grid

Title: Wireless Power Transfer Electric Vehicle Charger using Solar Energy

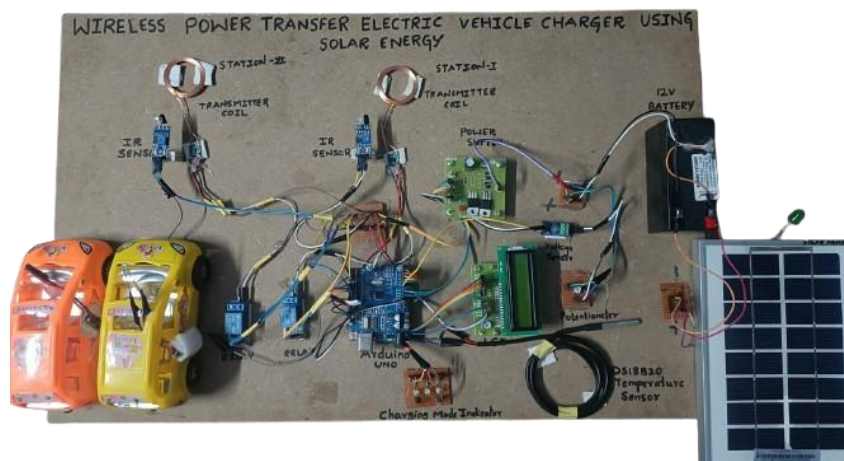
Guide: Smt. Y. Manasa, Assistant Professor (Adhoc)

Submitted by:

1. B. Keerthana (21001A0234)
2. C. Naga Nandini (21001A0201)
3. S. Asiya (21001A0205)
4. K. Varshitha (21001A0252)

With the rapid growth of electric vehicles (EVs) and a global push toward sustainable energy, there is an increasing demand for cleaner, more convenient charging methods. Traditional plug-in systems depend heavily on grid electricity, which often originates from non-renewable sources, contributing to environmental harm and limiting convenience. To address these issues, this innovation presents a solar-based wireless EV charging system that combines renewable energy with Wireless Power Transfer (WPT) technology. Solar energy is captured through photovoltaic panels and stored in a battery. When an electric vehicle is detected via an infrared (IR) sensor, the system activates and wirelessly transmits power through inductive coupling. An Arduino microcontroller manages the operation, including sensor input, relay activation, and monitoring of voltage and temperature, with LED indicators providing real-time charging status.

This hands-free system offers a smart, eco-friendly charging solution ideal for small EVs such as electric scooters and bikes. It reduces reliance on the electrical grid, cuts carbon emissions, and eliminates the wear and inconvenience of physical connectors. The project demonstrates how renewable energy and embedded control technologies can be integrated into scalable, sustainable infrastructure. It also opens doors for future upgrades like IoT-based remote monitoring, mobile app control, and dynamic wireless charging embedded in roadways. Overall, the system marks a step forward in creating cleaner and more intelligent transportation solutions.



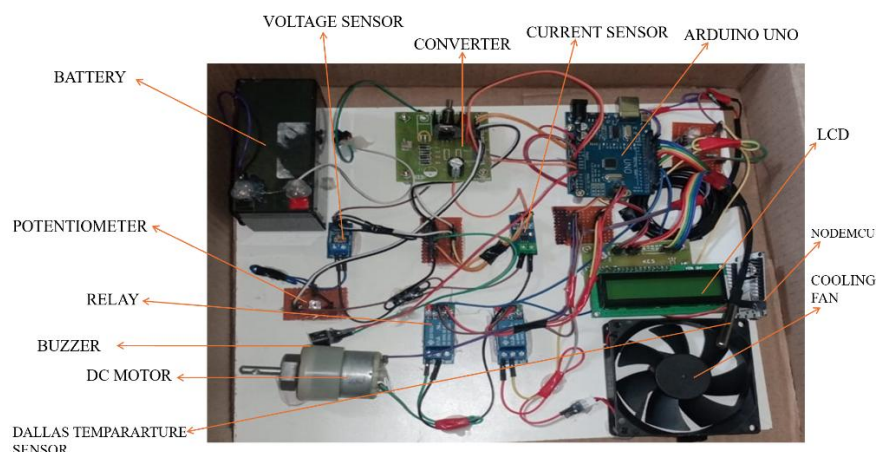
Wireless Power Transfer Electric Vehicle Charger using Solar Energy

Title: IoT Based Battery Monitoring System for Electric Vehicle**Guide:** Sri. P. Rizwan, Assistant Professor (Adhoc)**Submitted by:**

1. K. N. Vamshi (21001A0237)
2. O. Gnaneswar (21001A0264)
3. K. Prem Kumar (21001A0208)
4. A. Sai Satyadev (21001A0239)

The rapid rise of Electric Vehicles (EVs) has emphasized the need for efficient and intelligent Battery Management Systems (BMS) to ensure battery safety, performance, and longevity. To address the limitations of traditional BMS—such as wiring complexity, limited scalability, and delayed data processing—an IoT-based battery monitoring system has been developed. This system uses smart wireless sensor nodes to continuously monitor key battery parameters like voltage, current, temperature, and State of Charge (SOC). These sensors transmit data to a centralized controller and cloud platforms for real-time analytics and remote access. With the integration of edge computing, data is processed at the sensor level, enabling quick responses and reducing latency. The system also supports over-the-air updates and is compatible with multiple battery chemistries, making it a scalable and cost-effective solution for modern EV applications.

This IoT-integrated solution significantly enhances operational efficiency, fault tolerance, and adaptability. By eliminating complex wiring through wireless communication, the system reduces weight, cost, and susceptibility to signal degradation or interference. Its decentralized architecture allows for better scalability and increased fault tolerance, making it suitable for managing large EV battery packs. Cloud-based analytics enable predictive maintenance and early issue detection, improving battery health and extending lifespan. The edge computing feature ensures responsive, real-time monitoring, while the system's compatibility with evolving battery technologies ensures its long-term relevance. Overall, this smart, IoT-enabled BMS offers a forward-looking approach to EV battery management.



IoT Based Battery Monitoring System for Electric Vehicle

Title: Power Saving System for Electric Vehicles using Arduino

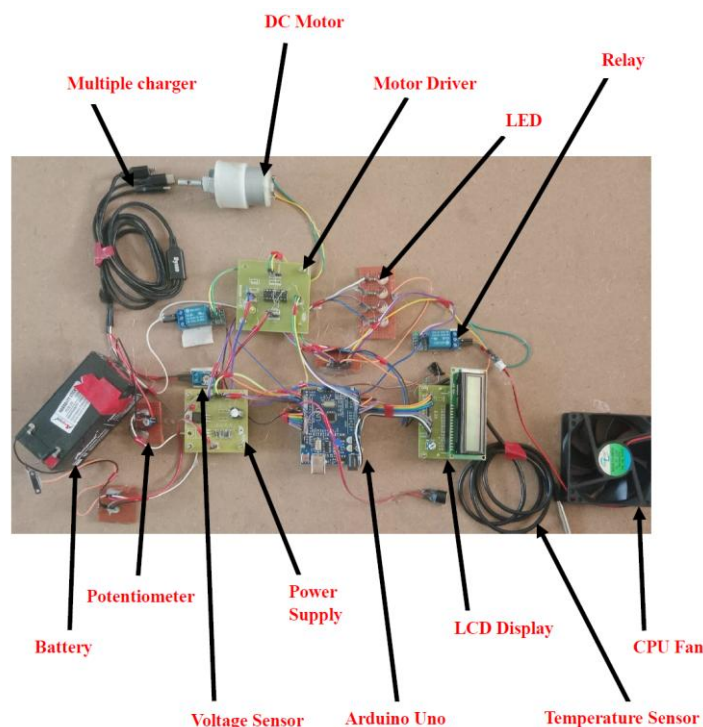
Guide: Ms. D. Kalyani, Assistant Professor (Adhoc)

Submitted by:

1. M. Hima Sai Harshitha (21001A0222)
2. M. Prasanthi (21001A0257)
3. P. Yamini (21001A0229)
4. S. Chandana (21001A0219)

This project focuses on enhancing the efficiency and lifespan of electric vehicle batteries through intelligent power management and real-time monitoring. By using an Arduino UNO along with voltage and temperature sensors, the system continuously tracks the battery's condition. When the voltage drops below a defined threshold, non-essential components such as the CPU fan, LEDs, and mobile chargers are automatically disconnected using a relay mechanism. This reduces unnecessary power consumption and helps preserve battery life. An LCD display shows real-time updates, while a buzzer provides alerts during critical conditions.

In addition to managing auxiliary loads, the system includes a motor driver to control a DC motor, simulating the vehicle's propulsion system. This allows for a more comprehensive demonstration of energy flow and usage. By integrating monitoring, load control, and user alerts, the project presents a practical and cost-effective solution for improving battery performance, increasing energy efficiency, and enhancing the overall safety and reliability of electric vehicles.



Power Saving System for Electric Vehicles using Arduino

Technology

Electrical Engineering and The Trends and Innovations Transforming It

From televisions and lightbulbs to cell phones and radios, modern innovations in electrical engineering have informed, enlightened, and connected the world. We look at key trends shaping the future of electrical engineering and the modern world.

Electrical engineering has been a key aspect of human advancement for centuries.

However, in recent times, the electrical engineering sector has undergone a major transformation, and ambitious research and development teams worldwide are working on improving several aspects of our lives, including communications, safety, and energy efficiency.

Market research firm The Yankee Group anticipates widespread industry transformations spurred by heightened competition, largely stemming from globalization. The landscape is poised for more discerning customers, burgeoning technologies, disruptive innovations, regulatory flux, and a flourishing emphasis on ingenuity.

This paradigm shift will inevitably reshape the job outlook for engineers in Australia. Projections from the Australian Government's Department of Jobs and Small Business suggest a 3% rise in overall employment for electrical and electronic engineers from 2022 to 2030, aligning closely with the average growth rate across all occupations.

However, the anticipated sluggish growth or decline in certain sectors, notably manufacturing and services, may temper employment expansion. As the industry's focus evolves, so too will employers' demand for skills, pivoting towards proficiency in cutting-edge electronic engineering technologies.

Electronically Engineering the Future

Electrical engineers have a lot to be excited about soon, and I think the latest technologies in electronics are exciting, not to mention what electronics will be like.

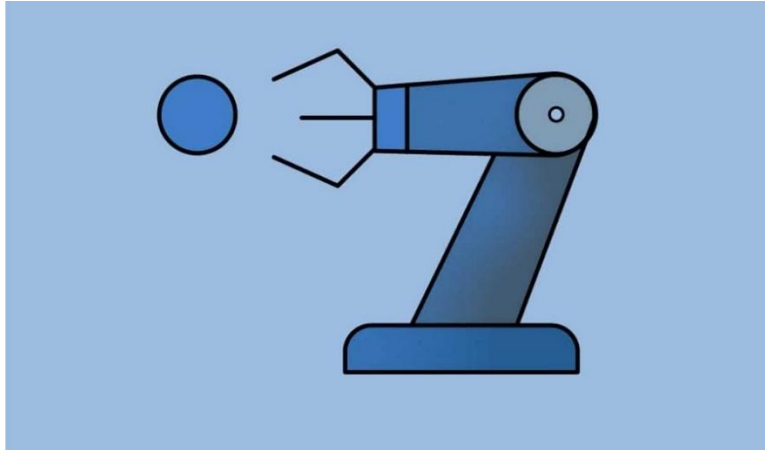
The following are merely a few of the top innovative trends that will guide us into the future, where things are expected to become more convenient, effective, and economical:

The Rewards of Robotics

In electrical engineering, robotics aren't displacing human labor but enhancing safety. Take, for example, remotely operated cable cutters, which reduce operators' risks.

Drones have also transformed construction. They conduct pre-surveillance, alerting electricians to hazards beforehand. This ensures safety and informed decision-making on-site. Consider the scenario of fallen power lines. Drones swiftly survey the area, relaying hazards to engineers and minimizing risks.

Adopting such technology doesn't replace electrical engineers; it complements their expertise. Robotics boost productivity and improve working conditions, enhancing electrical engineering.



Electrical engineering and the rewards of robotics are countless

Electrical Engineering and AI's Electrifying Impact

In today's rapidly changing technological landscape, artificial intelligence (AI) stands out as a significant catalyst, marking the onset of a groundbreaking phase in electrical engineering.

The amalgamation of AI and electrical engineering will evolve beyond mere augmentation; it will represent a revolutionary change that reshapes conventional frameworks. Whether it's predictive analytics enhancing power distribution or AI-powered design refinement, the convergence of these domains is already establishing unprecedented standards for effectiveness, dependability, and inventive thinking.

IIoT: The New Industrial Era Beacon

The Industrial Internet of Things (IIoT) stands as a beacon in the new industrial era, offering unparalleled benefits to electrical engineers. It streamlines manufacturing processes, ensuring speed and efficiency while keeping costs minimal. IIoT includes smart inverters, AMI, remote energy management, and SCADA in electrical energy, revolutionizing utilities with enhanced tracking, storage, and automation capabilities.

While IIoT integration presents some challenges, it fosters innovation through research and development (R&D), providing engineers with cost-effective solutions tailored to evolving demands. Mastery of IIoT is now essential, empowering electrical engineers to navigate smart grids, lighting, and other facets with ease.

Electric Vehicle Innovation

The advent of electric vehicles (EVs) marks a significant stride in the fourth industrial revolution, driven by innovative advancements. These innovations not only create new market segments and career opportunities but also pose a risk of rendering certain positions obsolete.

Opportunities abound for aspiring engineers to specialize in EV innovation. Universities worldwide offer undergraduate and postgraduate programs in automotive electric engineering and automotive engineering with electric propulsion. This educational focus will cultivate a new generation of electrical engineers proficient in greener transportation propulsion, contributing significantly to the future of electronics and electronic engineering.



The advent of Electric Vehicles (EVs) marks a significant stride in the fourth industrial revolution

Wearable Technologies in Electrical Engineering

Wearable devices have gained popularity, especially in health-related activities like exercise and heart rate monitoring. In the electrical engineering sector, wearables are revolutionizing safety standards on the job.

Engineers now have access to various wearable devices designed to mitigate the risk of electrical shock while working with charged circuits. These devices alert users of impending danger when near electrically charged equipment, with real-time notifications sent to a mobile app for review.

Moreover, wearable technologies are evolving to enhance communication and accessibility to restricted areas, promising significant integration into the electrical engineering industry's future.

Smart Grids: Advancing Electrical Infrastructure

In recent years, traditional national power grids have seen significant advancements, giving rise to smart grids, which are expected to dominate energy distribution by 2021. Smart grids herald an era of enhanced reliability, availability, and efficiency in energy delivery, fostering economic and environmental well-being.

Key benefits of smart grids include more efficient electricity transmission, faster restoration after power disturbances, reduced peak demand leading to lower electricity rates, seamless integration of customer-owned power generation systems, and improved security.

Beyond utility and technological enhancements, smart grids empower consumers to manage electricity usage, capitalize on low-price periods, and even sell excess energy, offering unprecedented control and flexibility. Smart grids are not just about utilities and technologies; they also give consumers more control, allowing them to manage their electricity usage, buy electricity when it's at its lowest price rate, and even sell unused energy.

The Future of Electrical Engineering is Bright

As we look ahead, the landscape of electrical engineering brims with excitement and promise. The latest advancements in electronics herald a future marked by convenience, effectiveness, and economic viability.

However, alongside technological innovation, fostering diversity and equality within the industry is paramount. Despite progress, underrepresentation persists among women and ethnic minorities in science, technology, engineering, and mathematics fields. Yet, initiatives aimed at diversifying the workforce, particularly in higher education, are expected to gain momentum in the coming years.

This is why the Engineering Institute of Technology champions equality, diversity, and inclusion. Recognizing the value of varied perspectives and skill sets, EIT strives to cultivate an inclusive environment that empowers individuals from all backgrounds.

As innovation continues to drive the electronic industry forward, the importance of staying ahead of disruptive technologies cannot be overstated. Embracing diversity and innovation positions EIT, its students, and staff to navigate the ever-evolving microelectronics landscape with agility and foresight.

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Group Photo of Passed Out Batch 2021 - 2025

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