



**LLOYD**  
INSTITUTE OF ENGINEERING  
& TECHNOLOGY



Departmental Technical Magazine

# **ELECTRONOVA**

**Volume -3, Issue: 01**

**Department of ECE & EEE**

**Session - 2024-25**

# About



LIET, Lloyd Institute of Engineering & Technology has become a place where dreams are indeed transformed into reality. The institute is affiliated to Dr. A.P.J. Abdul Kalam Technical University (Formerly UPTU) and recognized by the A. I. C. T. E. (Min of HRD), New Delhi, and

**Affiliated to**



**Lucknow**

**Approved by**



**New Delhi**



## VISION

“To emerge as an Institute of academic excellence by empowering young minds through problem-solving skills, knowledge & ethical values and transforming them into professionals of global competence”.



## MISSION

M1: To equip the students with state-of-the-art technological advancement and skills.

M2: To create a conducive environment for teaching and learning through continuous engagement with industry for corporate understanding and Professionalism.

M3: To focus on holistic development of students through enhanced learning along with moral and ethical value system.



## About Department

The Electronics and Communication Engineering department sparks innovation by blending the Internet of Things, embedded systems, cutting-edge communication technologies, and signal processing, shaping students to lead in the dynamic world of modern technology. The Electronics and Communication Engineering Department at Lloyd is committed to providing a learning environment that blends academic excellence with technological innovation. With a focus on research and practical application, the department prepares students to excel in communication systems, electronics, and signal processing. Located in Greater Noida, Lloyd benefits from proximity to India's growing semiconductor industry. The Indian government's India Semiconductor Mission (ISM) is investing ₹76,000 crore in the sector, offering opportunities for students to engage with the latest advancements in chip manufacturing. This strategic location positions Lloyd students to take advantage of emerging industry trends and career opportunities in the tech field.



"To evolve as an Engineering department imparting Quality Education having Domain Knowledge with Multidisciplinary Skills & Entrepreneur Mind, thriving towards Global Competence with commitment to Ethical values, actions for an inclusive and Sustainable world".



Establish a skilled and innovative teaching- learning environment to create globally competent engineers.

To develop strong partnership with domain specific and other allied industries for current developments and industry needs.

To establish an atmosphere that encourages entrepreneurship and innovation to solve the real problems.





## ***Program Educational Objectives (PEOs)***

1. To cater the need of domain specific industries through In-depth Knowledge.
2. To adapt Multidisciplinary technologies and leadership qualities for better Employability, higher Education and Entrepreneurship in Communication and VLSI domain.
3. To sustain with ever changing global technologies through the Life Long Learning.

## ***Program Specific Outcomes (PSOs)***

1. Apply fundamental knowledge of electronics, signal processing, communication systems, and embedded systems to solve real-world engineering problems and to design reliable and efficient electronic systems.
2. Demonstrate the ability to design, simulate, and analyze electronic circuits, communication systems, VLSI architectures, and embedded platforms using modern engineering tools and technologies.
3. Utilize electronics and communication principles to develop innovative solutions in automation, wireless communication, IoT, robotics, and industrial electronics, contributing to technology and society.

# Electronics and Electrical Engineering

To ensure education and technology self-sufficiency for quality teaching-learning process, research, outreach services to meet the needs and expectations of our stakeholders. The Electronics and Communication Engineering department at LIET, Greater Noida, provides a comprehensive B.Tech program focused on core subjects and practical skills, covering specializations like VLSI and embedded systems. With experienced faculty and well-equipped labs, the department fosters a collaborative research and teaching environment, emphasizing both technical and professional development through workshops and seminars. As per the institute Co-Op program, the department is also providing specialized training in the areas of microelectronics, telecommunication to VLSI Design and fabrication that develop expertise and knowledge of the students to compete in the respective fields of industries and academia.



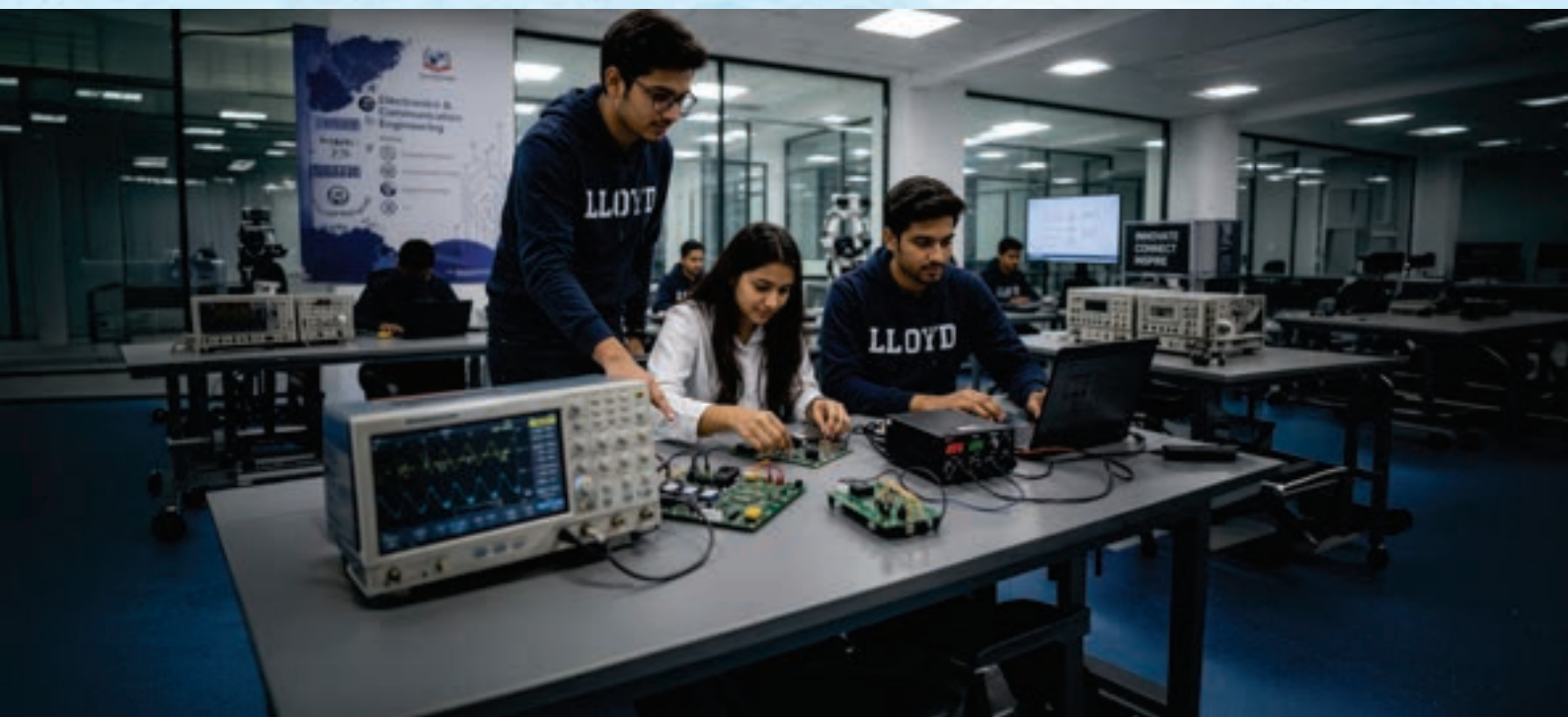
"To be a pioneer in the field of science and technology by providing quality education, and developing technical and professional skills of the students to accomplish societal needs."



To give exposure to the students about recent technologies developed in their respective areas and some inter-disciplinary fields across the globe through in-house training, company visits, and creating projects with advanced technologies.

To impart an exhaustive knowledge of the core subjects to the students in their respective fields of science and engineering.

To build up the ethical and professional skills of the students with the inspiration of innovative ideas, teamwork, and leadership potential.





### ***Program Educational Objectives (PEOs)***

1. A reputation as a professional with leadership qualities and excellent communication skills.
2. Apply, analyze and plan the accrued knowledge in mathematics and basic sciences in solving complex electronics and communication engineering problems.
3. Design and test various analog and digital electronics systems for given specifications.

### ***Program Specific Outcomes (PSOs)***

1. Apply the fundamental concepts of Electronics and communication engineering in various fields like signal processing, Communication engineering, Embedded Systems and VLSI.
2. Select and apply engineering hardware and software tools to solve complex Electronics and Communication Engineering problems.
3. Analyze and Design various elements of communication systems and signal processing.

## President

# Mr. Manohar Thairani



It gives me immense pride and satisfaction to witness the remarkable growth and achievements of the CSE & Allied Branches at LIET. In an age where technology drives progress and innovation shapes the future, Computer Science stands at the core of global transformation.

At LIET, we believe that education must evolve alongside technology. Our vision is to create a dynamic academic ecosystem that nurtures innovation, leadership, ethical values, and a spirit of entrepreneurship. The CSE & Allied Branches are playing a pivotal role in realizing this vision by producing future-ready professionals equipped with technical excellence and strong moral foundations.

This magazine is a reflection of the intellectual energy, creativity, research excellence, and innovative mindset of our students and faculty members. It highlights their accomplishments and reinforces our commitment to academic distinction and continuous improvement.

This magazine is a reflection of the intellectual energy, creativity, research excellence, and innovative mindset of our students and faculty members. It highlights their accomplishments and reinforces our commitment to academic distinction and continuous improvement.

I extend my heartfelt congratulations to the entire CSE & Allied Branches team for their dedication and commendable efforts in bringing out this publication. I encourage all students to think big, stay curious, and lead the technological revolution with confidence and integrity.

Together, let us build a future driven by knowledge, innovation, and excellence.

## Senior Director

# Prof. (Dr.) Rajeev Agrawal



In the era of exponential technological evolution, I extend a warm welcome to all students, faculty members, and readers of the CSE Magazine at LIET. Today, technology is not merely advancing — it is transforming the way we live, learn, and innovate. At LIET, we recognize the importance of staying ahead in this ever-evolving digital landscape.

Our commitment goes beyond conventional education. We strive to nurture future-ready engineers equipped with cutting-edge technical expertise, innovative thinking, and the adaptability required to excel in a fast-paced global environment. The Department of Computer Science & Engineering plays a pivotal role in driving this vision by fostering creativity, research, and industry-oriented learning.

This magazine reflects the intellectual vibrancy, technical achievements, research initiatives, and creative pursuits of our CSE students and faculty. It stands as a testament to their dedication and the institution's progressive academic environment.

I encourage all students to embrace innovation, think beyond boundaries, and continuously upgrade their skills. The future belongs to those who are prepared to evolve with technology and lead with vision.

Embrace the evolution. Shape your future.

## Dean (R & D) – LIET

# Dr. S.P. Dwivedi



At Lloyd Institute of Engineering and Technology, the Department of Computer Science & Engineering is emerging as a dynamic center of technological excellence and research-driven innovation. As Dean (R&D), I am proud of the enthusiasm and dedication shown by our CSE students and faculty in rapidly evolving fields such as Artificial Intelligence, Machine Learning, Data Science, Cyber Security, Cloud Computing, and the Internet of Things. Our focus is not only on academic achievement but also on nurturing analytical thinking, creativity, and a strong problem-solving mindset that prepares students to lead in the digital era.

The Research & Development ecosystem within the CSE branch is designed to encourage curiosity, experimentation, and collaboration. Through funded research projects, industry-driven problem statements, hackathons, coding competitions, and interdisciplinary innovation initiatives, students are provided with hands-on exposure that bridges the gap between academic learning and industry expectations. We actively promote research publications, patent filing, startup incubation, and participation in national and international technical competitions to strengthen our students' global outlook.

Collaboration remains the cornerstone of our growth. We continuously seek partnerships with technology companies, research organizations, and academic institutions to provide our students with advanced laboratories, expert mentorship, internships, and real-time project opportunities. Our aim is to build a dynamic research culture where innovation thrives and ideas transform into impactful technological solutions.

I firmly believe that the future belongs to those who innovate. Through strong academic foundations, ethical values, and a spirit of continuous learning, the CSE branch at LIET is committed to shaping future-ready professionals who will contribute significantly to society, industry, and the nation. Together, let us continue to explore, innovate, and excel in the ever-evolving world of computing and technology.



# Pitch Cyber 2.0

Lloyd Institute of Engineering and Technology successfully hosted Pitch-Cypher 2.0, its flagship pitch competition, with participation from over 40 teams and 165 students across NCR & northern India. The event showcased innovative, technology-driven solutions evaluated on impact, feasibility, and business potential.

Inaugurated by Prof. (Dr.) Rajeev Agrawal, the event also featured a keynote by Mr. Pranav Kaushal (HCL Software), highlighting the role of AI in startups. Team Hi-Idea (JSS Academy, Noida) secured first place, followed by Team CGL (LIET) and Team Alpha (Galgotias College).

The competition fostered innovation, entrepreneurship, and strong industry-academia collaboration.

## लॉयड इंस्टीट्यूट ऑफ इंजीनियरिंग एंड टेक्नोलॉजी (LIET) ने अपने प्रमुख आइडिया-पिचिंग प्रतियोगिता, पिच-साइफर 2.0 के बहुप्रतीक्षित दूसरे संस्करण की सफलतापूर्वक मेजबानी की

### जयराजी चौधरी

लॉयड इंस्टीट्यूट ऑफ इंजीनियरिंग एंड टेक्नोलॉजी (LIET) ने अपने प्रमुख आइडिया-पिचिंग प्रतियोगिता, पिच-साइफर 2.0 के बहुप्रतीक्षित दूसरे संस्करण की सफलतापूर्वक मेजबानी की। एलआईटी में आयोजित पिच-साइफर 2.0 में 40 से अधिक टीमों ने भाग लिया, जिसमें 165 छात्र शामिल थे। प्रो. डॉ. राजीव अग्रवाल ने कहा, पिच-साइफर 2.0 नवाचार और उद्यमिता को बढ़ावा देने की प्रतिबद्धता का प्रतीक है। जेएसएस एकेडमी ऑफ टेक्निकल एजुकेशन नोएडा से नितिन कुमार, समृद्धि श्रीवास्तव, समीरा अनम, भुव राज ने जीत दर्ज की। वहीं प्रथम उपविजेता टीम सीजीएल रही और द्वितीय उपविजेता अल्फा रही।

इतिहास में प्रथम, कार्यकारी प्रबंधक, नवाचार और व्यवसायिक क्षमता पर ध्यान देकर लॉयड इंस्टीट्यूट ऑफ इंजीनियरिंग एंड टेक्नोलॉजी ने अपने प्रमुख आइडिया-पिचिंग प्रतियोगिता, पिच-साइफर 2.0 के बहुप्रतीक्षित दूसरे संस्करण की सफलतापूर्वक मेजबानी की।

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## पिच-साइफर में 40 टीमों हुई शामिल

ग्रेटर नोएडा। लॉयड इंस्टीट्यूट ऑफ इंजीनियरिंग एंड टेक्नोलॉजी ने आइडिया-पिचिंग प्रतियोगिता पिच-साइफर 2.0 के दूसरे संस्करण की मेजबानी की। एलआईटी सेमिनार हॉल में आयोजित पिच-साइफर 2.0 में 40 से अधिक टीमों ने भाग लिया, जिसमें 165 छात्र शामिल थे। प्रो. डॉ. राजीव अग्रवाल ने कहा, पिच-साइफर 2.0 नवाचार और उद्यमिता को बढ़ावा देने की प्रतिबद्धता का प्रतीक है। जेएसएस एकेडमी ऑफ टेक्निकल एजुकेशन नोएडा से नितिन कुमार, समृद्धि श्रीवास्तव, समीरा अनम, भुव राज ने जीत दर्ज की। वहीं प्रथम उपविजेता टीम सीजीएल रही और द्वितीय उपविजेता अल्फा रही।



# Exploring the Future of Connectivity: IMC 2024–25 Visit

The Department of Electronics and Communication Engineering organized an educational visit to the Indian Mobile Congress 2024–25, offering students an immersive experience into the rapidly evolving world of digital communication. The visit enabled students to witness cutting-edge innovations in 5G, Artificial Intelligence, Internet of Things (IoT), and advanced telecom infrastructure.

During the event, students explored various exhibition zones, interacted with industry leaders, and observed live demonstrations of next-generation technologies. They gained practical insights into smart connectivity solutions, network advancements, and emerging digital ecosystems that are transforming industries and everyday life.

The visit not only enhanced their technical knowledge but also broadened their perspective on career opportunities in the telecom and technology sectors. It served as a valuable platform for bridging theoretical learning with real-world applications, motivating students to innovate and stay aligned with global technological trends.

Overall, the experience was highly enriching and inspiring, encouraging students to actively contribute to the future of communication and digital transformation.



# Industry Visit to STMicroelectronics

The Department of Electronics and Communication Engineering organized an industrial visit to STMicroelectronics, providing students with valuable exposure to real-world semiconductor manufacturing and advanced electronic technologies. The visit aimed to bridge the gap between academic learning and industry practices.

During the visit, students gained insights into the design, development, and testing processes of semiconductor devices and embedded systems. Experts from the organization shared knowledge about cutting-edge innovations, quality standards, and the role of microelectronics in modern applications such as automotive systems, consumer electronics, and smart devices.

Students also had the opportunity to interact with professionals, understand workplace practices, and explore career opportunities in the electronics industry. The experience enhanced their technical understanding and gave them a clearer perspective on industry expectations.

Overall, the visit was highly informative & inspiring, encouraging students to apply their knowledge practically and pursue excellence in the field of electronics and communication engineering.



# Innovating for Safety:

## SOS Bracelet Shines as Delhi Zone Finalist

The team achieved a remarkable milestone by securing a position among the top finalists in the Delhi Zone of a prestigious project competition held at Pragati Maidan, New Delhi. The project, SOS Bracelet, is an innovative wearable safety device designed to send emergency alerts and ensure quick assistance during critical situations.

The solution focuses on enhancing personal safety by integrating features such as real-time alert transmission and user-friendly operation, making it highly effective for individuals in need of immediate help. The project was well-received by judges and visitors for its practical application, technical design, and social impact.

Throughout the event, the team confidently presented their working model, explained its functionality, and demonstrated its real-world relevance. Their achievement reflects strong technical skills, creativity, & a commitment to developing solutions that address societal challenges.





# LLOYD SKILLS CENTRE

Empowering Through Skills



## TRAINING MODULE-1

### I - DRONE TECHNOLOGY

This lab focuses on the design, building and customization of Unmanned Aerial Vehicles (UAVs) or drones for various applications. Catering to diverse needs such as agricultural survey, mapping, reconnaissance and surveillance this incubation centre will create new dimension for students



## II-ELECTRIC VEHICLES



## III - BATTERY LAB



# Embedded Systems & IoT

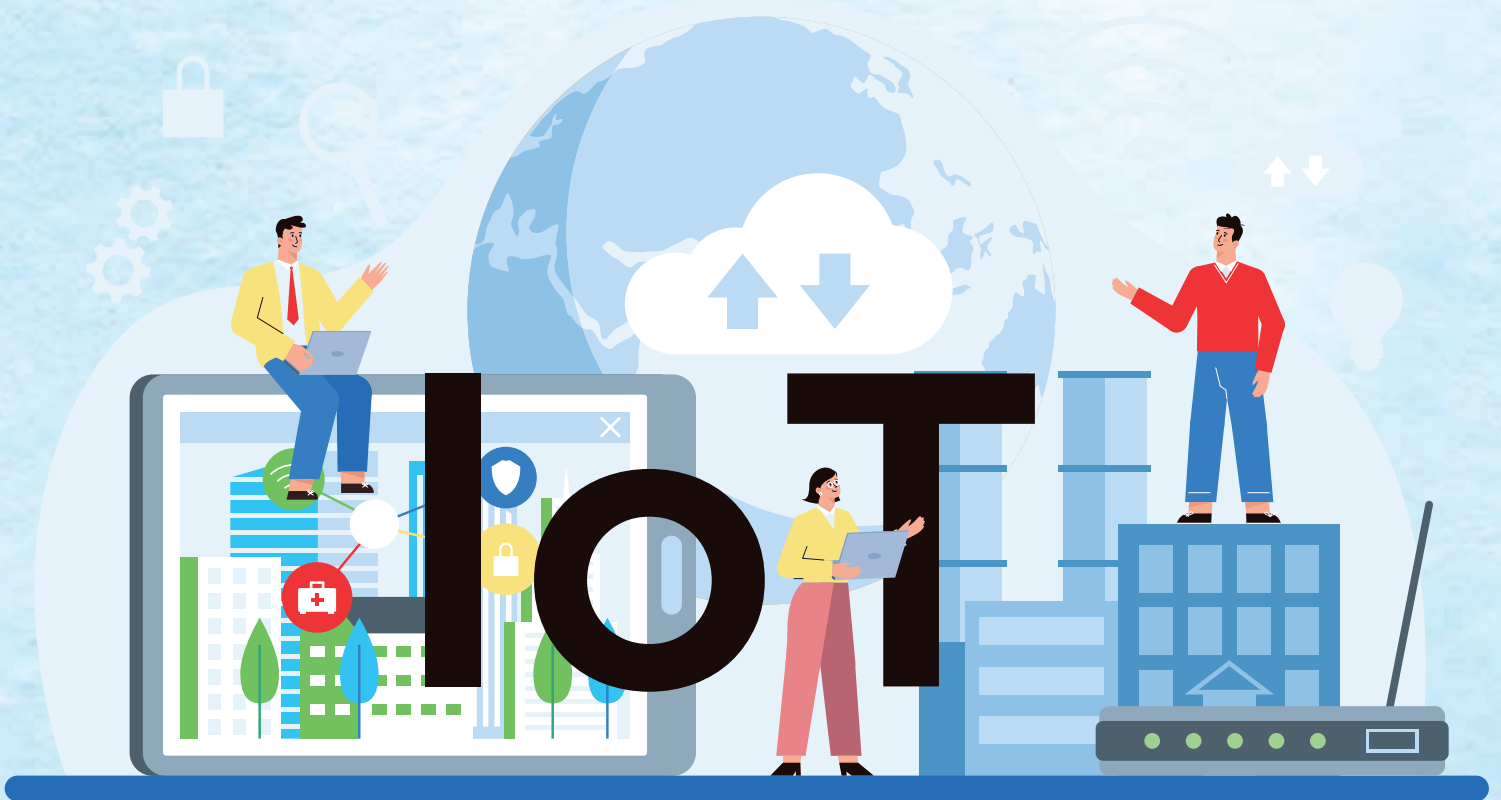
Embedded Systems and the Internet of Things (IoT) are transforming the way devices interact with the world around us. Embedded systems are specialized computing units designed to perform dedicated functions within larger systems, such as smart appliances, automobiles, and industrial machines. These systems are built for efficiency, reliability, and real-time performance.

IoT extends the capabilities of embedded systems by connecting them to the internet, enabling seamless communication between devices. Through sensors, actuators, and network connectivity, IoT systems collect and exchange data to automate processes, enhance decision-making, and improve user experiences. From smart homes and wearable devices to smart cities and industrial automation, IoT applications are rapidly expanding across various sectors.

The integration of embedded systems with IoT enables innovative solutions such as remote monitoring, predictive maintenance, and intelligent control systems. As technology advances, this combination continues to drive efficiency, sustainability, and digital transformation, making everyday systems smarter and more responsive.

**ADARSH SINGH**

B.Tech ECE (VLSI) 2nd Year



# VLSI Technology and Its Applications

Very Large Scale Integration (VLSI) technology enables the integration of millions of transistors onto a single chip, forming the backbone of modern electronic devices. It allows the design of compact, high-speed, and energy-efficient systems used in everyday technology.

VLSI is widely applied in microprocessors, memory chips, and communication devices such as smart phones and computers. It also plays an important role in areas like healthcare equipment, automotive electronics, and artificial intelligence hardware.

With ongoing advancements, VLSI continues to enhance performance while reducing size and power consumption, driving innovation in the electronics industry.

**AMRENDRA YADAV**

B.Tech ECE (VLSI) 2nd Year



# Electric Vehicles & Charging Infrastructure

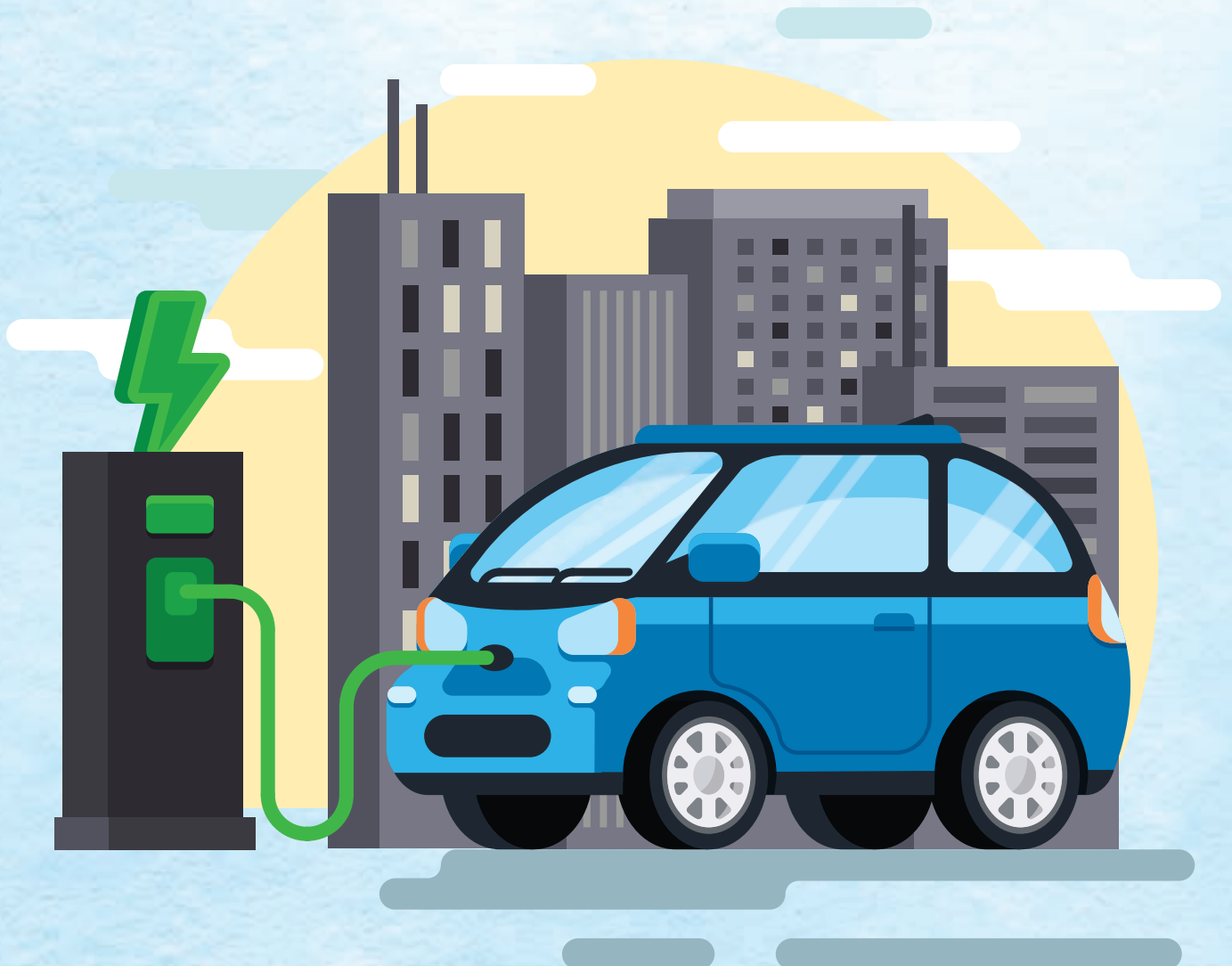
Electric Vehicles (EVs) are transforming the transportation sector by offering a cleaner and more energy-efficient alternative to conventional fuel-based vehicles. Powered by rechargeable batteries, EVs produce zero tailpipe emissions, helping reduce air pollution and dependence on fossil fuels.

Charging infrastructure plays a crucial role in the adoption of EVs. It includes various types of charging stations such as slow (Level 1), fast (Level 2), and rapid (DC fast charging), each designed to suit different user needs and charging times. Public charging networks, home charging setups, and workplace stations together support convenient and widespread EV usage.

With the growth of EV technology, advancements in battery efficiency, charging speed, and smart grid integration are making electric mobility more practical and accessible. A strong charging infrastructure is essential for accelerating the shift toward sustainable transportation.

**SHUBHAM GOND**

B.Tech CSE 2nd Year



# Renewable Energy Systems (Solar, Wind, Hydro)

Renewable energy systems harness natural resources like sunlight, wind, and water to generate clean and sustainable power. These sources are abundant, environmentally friendly, and play a key role in reducing dependence on fossil fuels.

Solar energy uses photovoltaic panels to convert sunlight into electricity, making it ideal for residential and commercial use. Wind energy utilizes turbines to generate power from moving air, commonly deployed in open and coastal areas. Hydropower generates electricity from flowing or falling water, often through dams or river-based systems.

These energy systems contribute to lower carbon emissions, energy security, and long-term sustainability. With continuous technological advancements, renewable energy is becoming more efficient, cost-effective, and widely adopted across the globe.

**BHASKER SHARMA**

B.Tech CSE 2nd Year

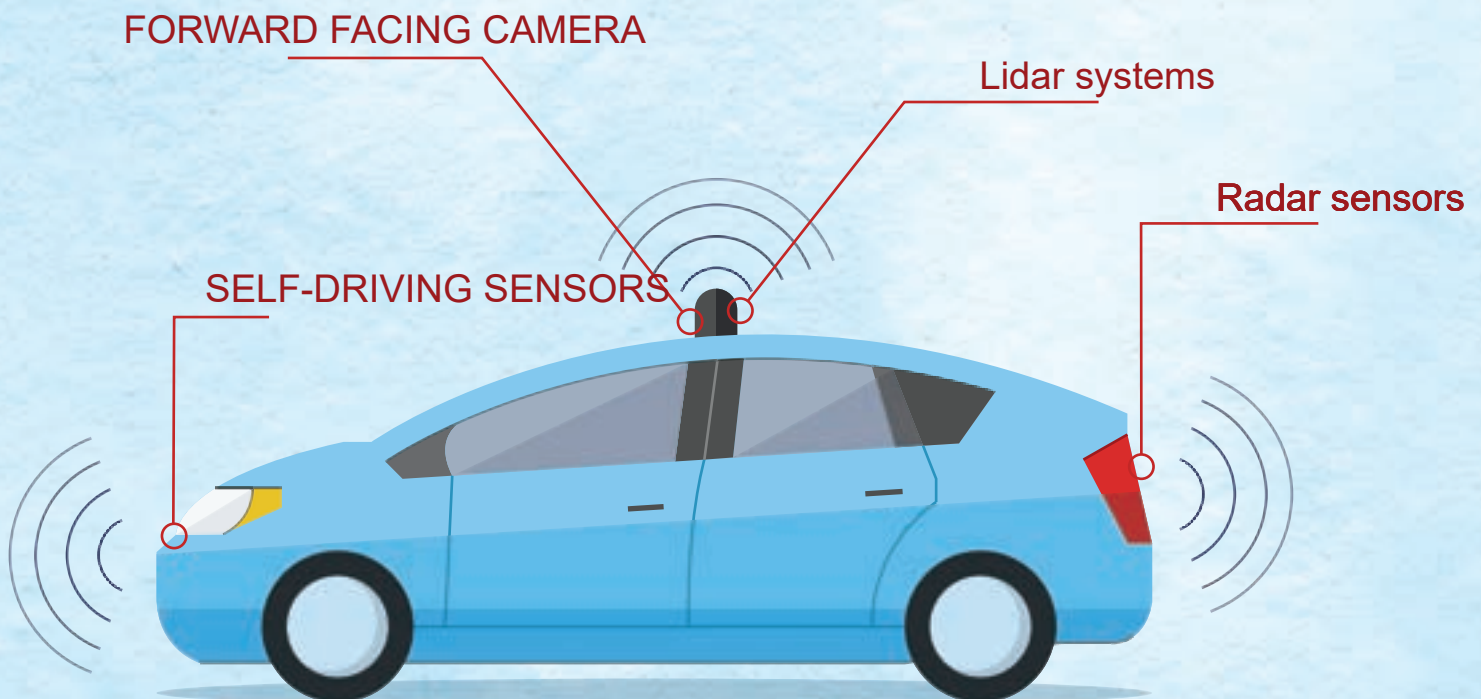


# Autonomous Vehicles & Sensor Systems

Autonomous vehicles are advanced self-driving systems that operate without human intervention by using modern electronics and communication technologies. They depend on various sensor systems such as LiDAR, cameras, radar, and ultrasonic sensors to detect and understand their surroundings. These sensors continuously gather real-time data about roads, obstacles, traffic signals, and nearby vehicles. The collected information is combined through sensor fusion to improve accuracy and decision-making. Embedded systems and artificial intelligence process this data to control steering, speed, and braking. Communication technologies like Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) enable smooth information exchange for safer navigation. This integration helps in reducing accidents caused by human errors and improves traffic management. Autonomous vehicles also provide better mobility solutions for elderly and differently-abled people. However, challenges such as high cost, cybersecurity threats, and legal regulations still need to be addressed. With continuous advancements in ECE, autonomous vehicles are expected to revolutionize the future of transportation.

**HARSH VARDHAN**

B.Tech EEE



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## Content Editor

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