



# THE ELECOMM

## A Quarterly Newsletter

Department of Electronics & Communication Engg, Echelon Institute of Technology,  
Faridabad

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*This is the second issue of “THE ELECOMM” of the academic year 2022-2023. Here, I would like to encourage all the students to participate in co-curricular activities.*

*Nitu Chauhan  
(Head of Department, ECE)*

### **Highlights**

- ❖ **Article on E-vehicles**
- ❖ **Activities in the department**
- ❖ **Techno-Cultural Fest (Echiesta - 2022)**
- ❖ **Orientation and Deepawali celebrations**
- ❖ **Fresher’s party celebration**
- ❖ **Faculty achievements**
- ❖ **Get to know your colleagues**

**Emerging Electrically Propelled Road Vehicles -Time for E Mobility**

### **Why E-Mobility required?**

The major contributors to carbon footprints are, household and Industrial electrical energy consumption, Transportation, Food and Beverages, and Agriculture. And for sustainable development, if we can work in any of these areas, we can reduce the size of carbon footprints to a great extent. A carbon footprint is the total greenhouse gas (GHG) emissions resulting from the activity of an individual, event, organization, service, or place. Greenhouse gases constitute majorly Carbon dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), and Chlorofluorocarbons (CFCs). So, we are working in all of these areas to reduce Greenhouse gas emissions, by making power on-site with renewables and other climate-friendly energy resources and cutting off fossil fuel consumption as much as possible. If we discuss the Transportation sector of India, it is responsible for 16% of total emissions and globally it is responsible for 30%.

Here Electrical Vehicles are the key technology to decarbonize road transport, at COP26 more than 100 stakeholders, including the government, automakers, and investors agreed to electrification and 100% zero-emission vehicles globally by 2040. Whereas in India to assist the acceptance of electric vehicles (EVs) in the country, the central government has announced a number of promotional measures in the previous ten years, including tax incentives for electric vehicle owners, public EV charging infrastructure development, and so on like in 2011 National Council for E Mobility (NCEM) has been constituted to promote e-mobility and manufacturing of EVs, Faster Adoption and Manufacturing of Hybrid Electrical Vehicle in

India (FAME) 2015, Aim 30% e-mobility by 2030. National Mission on Transformative Mobility and Storage (2019), Aim of the mission is to drive strategies for transformative mobility and Phased Manufacturing Programs for electric vehicles, electric vehicle Components and Batteries.

### **What are EVs?**

An electric vehicle (EV) is one that operates on an electric motor, instead of an internal-combustion engine that generates power by burning fuel; the vehicle uses a large traction rechargeable battery pack to power the electric motor. Because it runs on electricity, the vehicle emits no exhaust from a tailpipe and

does not contain the typical liquid fuel components, such as a fuel pump, fuel line, or fuel tank rather it only requires a small space for a battery.

The battery used in EVs is a rechargeable battery to power the electric motors of EV. Typically, lithium-ion batteries are used, they are specifically designed for high energy capacity, and the battery connects to one or more electric motors, which drive the wheels. When the accelerator is pressed, the car instantly feeds power to the motor, which gradually consumes the energy stored in the batteries.

### **Types of EVs**

These are the four types of electric vehicles available:

- Battery Electrical Vehicle (BEV): Fully powered by electricity.
- Hybrid Electrical Vehicle (HEV): The vehicle uses both the internal combustion (petrol engine) and the battery-powered motor powertrain. The petrol engine is used both to drive and charge when the battery is empty.
- Plug-in Hybrid Electric Vehicle (PHEV): Uses both an internal combustion engine and a battery charged from an external socket (they have a plug). This means the vehicle's battery can be charged with electricity rather than the engine.

- Fuel Cell Electric Vehicle (FCEV): Electric energy is produced from chemical energy. For example, a hydrogen FCEV.

### **Advantages of EVs**

- Low Running cost than Petrol or diesel vehicles.
- Low Maintenance cost as EVs has fewer moving parts in comparison to Petrol or diesel vehicle.
- Zero emissions and reduced carbon footprint.
- Tax and Financial benefits are provided in terms of incentives by the government for promoting citizens.
- Less Noise pollution as there is no engine which makes noise.

### **Limitation of EVs/Big challenges**

- Number of Battery charging stations is less than fuel stations.
- Higher purchasing cost.
- Import of EV component and materials for e.g., for Li-ion battery we are dependent upon China, and Taiwan
- Lack of skilled workforce, Vocational courses regarding this matter is required.

### **Focus areas**

- Charging Infrastructure
- R & D in Battery Technology
- Make in India (EV)
- EV Education

Major global automakers announced to on electrification (EVs), 2021-2022 are Toyota, Volks Wagen, BMW, Mercedes, General Motors, and Volvo. Indian automakers for EVs are Ampere greaves, Ather, Bajaj Auto Limited, Olectra Greentech, etc.

Electrical Vehicles are the way forward for Indian Transport and we must switch to them now.

*- Diksha Kushwahae  
Assistant Professor  
ECE Department*

## **Activities in the department**

### **Project presentations -Techelon**

Projects are integral to engineering education. The students of the ECE department presented their projects in the Techelon. For ECE-7<sup>th</sup> Sem students Techelon was held on 20<sup>th</sup> December 2022. Following projects presented by ECE 7<sup>th</sup> Sem. Students:

- Advance Wheel Chair with ECG monitoring
- Metal detector and webcam mounted over a GPS Robot
- Drone using KK-2.15 Flight controller for surveillance.



*ECE 7<sup>th</sup> Sem students with their projects*



*Projects demonstration by students*

## **Techno-Cultural Fest**

Two days Techno-Cultural Fest “Echiesta 2022” has been organised by Echelon Institute of Technology on 30th September 2022 and 1st October 2022. Various activities and Competition were held in Institution for which a large number of participants are there from our institutions as well as from some other institutions also. A ramp walk show has also been organized for the faculties of our

institution which is also remarkable. Last but not least the glory of the fest has been enhanced by the presence of the Famous singer Maninder Buttar on the fest night.



*Glimpses of Techno cultural Fest*



*Maninder Buttar performing on stage*

## Orientation and Deepawali Celebration

Student orientation program play an important role in a student's transition to college life. Orientation programs are aimed at familiarizing the students with an unknown campus environment, its infrastructure, and its faculties and also enable them to establish vital connections with their studies. Echelon Institute of Technology organized a Student Orientation Programme and Deepawali celebration together on the same day i.e., 20th October 2022 “Diksha-Arambh -2022”. During Orientation Day a Club exhibition was also organized for motivating the Freshers to enroll in Clubs as per their interests. The day concluded with a *Hasya Kavi Sammelan*.



*Glimpses of Diksha-arambh*



*Glimpses of Hasya kavi samelan*



*Lamp Lighting by Chairman sir*

## Club Exhibition

The vision of our clubs is to engage and encourage students to participate in clubs to develop their creativity and boost their urge to explore. Clubs are to widen the outlook of students in different areas as per their interests. On 20<sup>th</sup> Oct 2022, there was Club Exhibition

where all the clubs showcased their work. The *Electronika and Robotics* club of ECE department also participated in that exhibition and displayed the best working projects of the students.



*ECE deptt. Electronika and Robotics club*



*Electronika and Robotics Exhibition Stall*

## **Fresher's Party**

The purpose of the Fresher's Party is to welcome new students in a friendly atmosphere and to encourage them for boosting their confidence. It is the day when seniors and

juniors unite to celebrate being part of the college. Echelon Institute of Technology has organised Fresher's party celebration- "*Samarabh-2022*" on 30th December 2022. Mr. Harsh & Miss. Jiya were chosen as the Mr. and Miss Fresher, respectively. Mr. Kushaggr & Miss. Sana were chosen as Mr. and Miss Eve, respectively. Refreshments were served after the program and students cheerfully enjoyed the whole program.



*Mr. and Ms. Fresher and Eve*



*Glimpses of Fresher day*

## **Faculty Achievements:**

Following faculty members of the department participated in several workshops:

### **Ms Vishakha Yadav**

- Attended workshop on “MIMO” in Indian Institute of Technology, Delhi on 22<sup>nd</sup> Oct, 2022.
- Attended workshop on “IoT”: in Indian Institute of Technology, Delhi on 12<sup>th</sup> Dec, 2022.
- Attended workshop on “LIFI”: in Indian Institute of Technology, Delhi on 19<sup>th</sup> Dec, 2022.

## **Welcoming new colleagues**

### **Ms. Vishakha Yadav**



Ms. Vishakha has joined our institution as an Assistant Professor in ECE department in this semester. She has completed her MTech in Electronics and communication Engineering from JC Bose University of Science and Technology, YMCA and pursuing Ph.D. in antenna designing from Mizoram University.

### **Ms. Nidhi Singla**



Ms. Nidhi has joined our Institution as an Assistant Professor in ECE department in this semester. She has completed her MTech in Electronics and communication Engineering from NGF college of Engineering and Technology. She is having experience of teaching in Engineering colleges of 12 years.

## ***Acknowledgement***

For the publication of “THE ELECOMM” I would like to thank the members of the faculty of the ECE department for their valuable contribution.

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