



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

**Guest Lecture on
Electric Vehicles and its Future Prospect**

REPORT

The department of Electrical and Electronics Engineering has organized a Guest Lecture on “**Electric Vehicles and its Future Prospect**” on 12th October, 2023.

Beneficiaries : III Year Students (9) & IV Year Students (15)
Date : 12-10-2023
Session Time : 07.30 P.M to 08.30 P.M
Venue : Online (Meet Link: [http:// meet.google.com/kyx-uhfj-rje](http://meet.google.com/kyx-uhfj-rje))
Resource Person : Mr. R. Venkedesh, M.E., (Ph.D)
HOD/Assistant Professor
Department of EEE
Shri Venkateshwaraa College of Engineering & Technology,
Puducherry.

The main objective of this Guest Lecture is to impart knowledge on various applications of Electric vehicles in the field of Power System Engineering.

The Guest Lecture session started with the welcome address delivered by Mr.S.Naveen Prakash AP/EEE. After the welcome address, Mr.S.Naveen Prakash AP/EEE has introduced the resource person, Mr.R.Venkedesh to the participants and in addition he also mentioned the various academic and research contributions of the resource person in the field of Power System and Power Electronics.

The resource person started the session through interaction with the students about their basic knowledge in the field of Electric Vehicles in Power System. He also asked few questions regarding the applications of Electric Vehicle in the various fields of engineering to the students. Then, the resource person started the presentation by explaining the basic concept of electric vehicle and its operation. Later, he explained the basic Electric Vehicle operation using a simple block diagram. During the block diagram presentation, he explained the functions of various blocks involved in the operation of Electric Vehicle. Further, he demonstrated the different types of Electric Vehicle available in Power System. He gave a detailed explanation about each and every function by addressing its basic function, types of Electric Vehicle, type of batteries used and the various functionalities involved in Electric Vehicle operation.

After the detailing of different types of EV, batteries used in EV and various strategy used for charging and discharging in EV he explained the application of EV. Finally, he explained about the application of Electric Vehicles in power system and how the involvement of Power Electronic devices in Electric Vehicle to improves the efficiency of the system. Along with discussing the numerous uses and benefits of electric vehicles in power systems.

Finally, he gave a deeper insight on thrust areas of research in the field of Power System and also the scope for future research. He also motivated the students to do their projects in Power System domain and also gave useful inputs regarding higher studies in Power System in India and foreign countries. At the end, he invited the queries and doubts from the students for discussion and clarification. Students asked some interesting questions and the resource person clarified their queries with the help of real time examples.

The guest lecture was completely motivating and it kindled student's interest towards the growing technologies in power system and its positive impact in power system operation. The session was absolutely very useful to our student community and it serves as a greater input to their final year projects. Finally, the Guest Lecture ended with the vote of thanks delivered by Mr.S.Naveen Prakash, AP/EEE.

Photographs of Lecture Sessions

Mr. R. Vengadesh AP-EEE (Presenting)

ELECTRIC VEHICLES AND IT'S FUTURE PROSPECT

DATE: 12.10.2023
TIME: 7.30 PM TO 8.30 PM

R. VENKEDESH
HOD & AP - EEE
SVYCT, PUDUCHERRY

Contributors: 32

Meeting participants: Naveen Prakash (You), 20EE07-Elanangai G, 21EE02 AKASH, 21EE06 Gokul.M, 21EE08 R.Harishma, 21EE16 SHANMUGAESW..., 21EE19 Sujitha

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Mr. R. Vengadesh AP-EEE (Presenting)

TYPES OF ELECTRIC VEHICLE

Battery Electric Vehicles (BEV)

- Compared to an internal combustion engine, battery powered electric vehicles have approximately 99% fewer moving parts that need maintenance.
- Creates very little noise
- No exhaust, spark plugs, clutch or gears
- Doesn't burn fossil fuels, instead uses rechargeable batteries

The typical charging time for an electric car can range from 30 minutes and up to more than 12 hours. This all depends on the speed of the charging station and the size of the battery.

In the real world, range is one of the biggest concerns for electric vehicles, but is something that is being addressed by industry.

BEVs can be charged at home overnight, providing enough range for average journeys. However, longer journeys or those that require a lot of hill climbs may mean that the fuel cells require charging before you reach your destination, although regenerative braking or driving downhill can help mitigate against this by charging the battery packs.

Battery Electric Vehicle (BEV)

Diagram showing Battery, Motor/Generator, and Transmission.

Contributors: 33

Meeting participants: Naveen Prakash (You), 20EE07-Elanangai G, 20EE26 Sivaranjani. D, 21EE02 AKASH, 21EE06 Gokul.M

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30°C Haze

HOW DOES ELECTRIC VEHICLE WORKS?

- Electric vehicles can work by replacing a combustion engine with an electric motor.
- Electric cars function by plugging into a charge point and taking electricity from grid.
- They store the electricity in rechargeable batteries that power an electric motor, which turns the wheels.
- Electric cars accelerate faster than vehicles with traditional fuel engines – so they feel lighter to drive.

Participant avatars: Naveen Prakash, Mr. R. Vengades..., Yuvaraj_A, B Sarathi, 29 others, Naveen Prakash

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Contributors 35

- Naveen Prakash (You) Meeting host
- 20EE07-Elanagai G
- 20EE42 K.velmurugan
- 21EE02 AKASH
- 21EE06 Gokul.M
- 21EE08 R.Harishma
- 21EE16 SHANMUGAESW...

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TYPES OF BATTERIES USED IN ELECTRIC VEHICLE

Understanding Electric Car Batteries

	Lithium Ion	Nickel-Metal	Lead-Acid	Ultracapacitors
Easy Access / Inexpensive	✗	✗	✓	✗
Energy Efficient	✓	✓	✓	✓
Temp. Performance	✓	✗	✗	✓
Weight	✓	✓	✓	✓
Life Cycle	✓	✗	✓	✗

Participant avatars: Naveen Prakash, Mr. R. Vengades..., Yuvaraj_A, B Sarathi, 29 others, Naveen Prakash

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- Hari Haran
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- KARTHI P
- Kishore kumar
- meera paramasivam
- Mr. R. Vengadesh AP-EEE
- Mr. R. Vengadesh AP-EEE Presentation

Mr. R. Vengadesh AP-EEE (Presenting)

ADVANTAGES OF ELECTRIC VEHICLE

01. NO GAS REQUIRED
Electric vehicles are steadily changing the electricity use profile, meaning you don't need to buy any gas ever again. Driving fuel-based vehicles can have a hole in your pocket as prices of fuel have gone all-time high.

02. MORE CONVENIENT
The electric vehicle is easy to recharge and life time cost is low as you no longer need to run to the fuel station to recharge your vehicle before leaving the road. Even a normal household outlet could be used for charging an electric vehicle.

03. SAVINGS
These vehicles are filled to top for you, and that can electric vehicles will offer great returns for you in the long run. In fact, the government is providing tax rebates also to give you a better return on your investment.

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People

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- Meeting host
- Pragadeshwaran Siva
- Priyaniranjani Prabhakar...
- R. Dhanasree B. E
- SK SIVA
- Suba Shini
- Suriya G
- THAVATHEESH.S
- thirumagal thiru
- Yuvaraj .A

Mr. R. Vengadesh AP-EEE (Presenting)

CONCLUSION WITH FUTURE PROSPECTS

Electric vs. Gasoline

No Tailpipe Emissions vs. Greenhouse Gases/ Pollution
Utility Company vs. OPEC
100+/- Mile Range vs. 200-300 Mile Range
Home to Recharge vs. 2 cents per mile vs. 2 cents per gallon

- Electrical vehicles are definitely more environmentally friendly than internal combustion vehicles. Batteries are being engineered to have a long life. When the electric vehicles become more widespread, battery recycling will become economically possible.
- Research into other energy sources such as fuel cells and renewable fuels make the future look brighter for the electric vehicles.

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- Suba Shini
- Suriya G
- THAVATHEESH.S
- Yuvaraj .A

Mr. R. Vengadesh AP-EEE (Presenting)

THANK YOU

8:10PM | kyx-uhfj-rje

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IN MEETING

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(First to last) Lowest all

Yuvaraj .A

Contributors 32

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- 21EE06 GokulM
- 21EE06 R.Harithma

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