

## DEPARTMENT OF CSE-DATA SCIENCE

### Two Day All India Seminar on Design and Development of Electrical Vehicles and its Challenges

A Report on Two Day All India Seminar on Design and Development of Electrical Vehicles and its Challenges", Dated 8<sup>th</sup> & 9<sup>th</sup> November, 2024.

8<sup>th</sup> November, 2024: Day-1:

10:00am-11.30am- Inaugural session.

10.00 am -10.05am- Invocation:

Inauguration of the program by lighting the lamp followed by prayer song.



10.15- 10.25 am: Address by Dr. M. Laxmaiah, Technical Chairman, and HoD, CSE- Data Science.



10.25- 10.40 am: Address by Guest of Honour Dr. G. Venkata Subbaiah, Convener and FEI chairman, IET, Telangana State Centre.



The speech covered the history of IET and association with CMR Engineering College, **significantly** the importance of electrical Vehicles and its challenges.

10.40-10.50 am: Release of Technical Volume by Chief Guest Shri P. Subhash Chandra Bose, International Quality lite IQ and Solar Energy Explorer, Hyderabad and others.





10.50-11.10 am: Address by Chief Guest Shri P. Subhash Chandra Bose, International Quality Life IQ and Solar Energy Explorer.

11.10-11.15 am: Felicitation to the Chief Guest Shri P. Subhash Chandra Bose garu by Dr. A. Srinivasula Reddy, Convener & Principal, CMREC, Dr. G. Venkata Subbaiah, Convener, FIE Chairman, IEI, Telangana State Centre.



11.15 -11.30 am: Vote of thanks by Dr. Seetha Rambabu, FIE, Honorable secretary, IEI, Telangana State Centre.

11.40-12.00 pm Invited Talk:

A presentation on the “performance of Distribution Systems in the presence of Electrical Vehicles” by E. Vidya Sagar, Professor & HoD , EEE department, University College of Engineering, Osmania University.

Chair: Dr. D. Suman Mishra

Co-Chair: Mr. J. Rajendar



#### Topics Covered:

- Present & Future of Distributed Systems
- Effects of Vehicle Pollutants
- The presentation included what are the different revolutions which are involved in the industry.
- Classification of Electric Motors.
- Power flow
- Smart Cities
- Present Distribution Systems
- Future Distribution Systems
- IEEE 33 Bus Test Networks
- Energy Independence

55. 1.00 pm:

Felicitation to Dr. E. Vidyasagar by Guests P. Subhash Chandra Bose , Dr. K. Seetha Rambabu , and Dr. M. Laxmaiah.

1.00– 2.00 pm: LUNCH

2.00- 2.30 pm: Technical Session-II

Session Chair: Dr. M. Laxmaiah

Co-Chair: Mrs. M S S Lakshmi Lavanya

Invited Talk: Dr. U. Vidya Sagar, FIE Chief Engineer (Retd), TSSPDCL, Hyderabad.

Title: Electric Vehicles and Charging Infrastructure and Challenges .



#### Topics Covered:

- Why to go for Electrical Vehicles.
- Coal vs Fuel vs Electrical Vehicles.
- Introduction to Electrical Vehicles landscape in India.
- Electrical Vehicles in India.
- Electrical Vehicles outside India.
- Challenges of Electrical Vehicles.
  - Urban Challenges
  - Rural Barriers
  - Compatibility Issues
  - Cos Barrier
  - Limited Affordability.

- Peak Load Management
- Charging Time
- Tax Benefits
- Skill Gap
- Need to focus on boosting EV Industry
- Future Prospects of EVs in India.

2.30 pm -2.35 pm:

Felicitation to Dr. U. Vidya Sagar Garu by Dr. M. Laxmaiah garu, Dr. C. Shyam Sundar Garu and Dr. Rajendra Prasad Garu.

2.35-2.50 pm:

A Paper presentation on “Enhancing Hybrid Electric Vehicle Efficiency through Aerodynamic Drag Reduction: ACFD Approach” by Dr. C. Shyam Sundar, HoD, Mechanical Engineering, Dr. K. Rajendra Prasad , Dean R&D, Dr. G. Venkata Subbaiah MVSREC, Hyerabad.

Presentation Included:

- How EVs are gaining attention due to their potential to reduce Greenhouse Gas Emissions.
- Modeling of MEV Body.
- Velocity Contour plots
- Frequency Contour plots
- Optimizing Velocity from 40% to 80%.

2.50 pm -3.00 pm: Technical Session-III

Session Chair: Dr. Kumara Swamy, HoD, CSE-AI&ML, CMREC.

Co-Chair: Mr. B. Kumara Swamy, Assistant Professor, CSE- DS, CMREC.

2.50 pm -3.20 pm:

Invited Talk:

“Special Electrical Vehicles/ Rovers for Moon , Mars and for Space Exploration “ by Dr. V. Seshagiri Rao , FIE, Former Distinguished scientist & Associate Director, ISRO, Former Satish Dhawan Professor, ISRO, Former Project Director, MOTR, Former Controller, SDSC, ISRO.

Presentation included:

- Space Tourism.
- Next Century in Space.
- Key per Belt.
- Large Satellite Constellations.
- Small Satellite Nomenclature
- Satellite propulsion System.



- Key Design considerations of Electrical Propulsion System.
- Architecture of Lunar/Mars Vehicles.
- Comparison of Lunar and Mars Vehicles.
- Ingenuity- Mars Helicopter.
- Hotel in Space.

3.20pm-3.25pm:

Felicitation to Dr. Sheshagiri Rao garu by Dr. M. Kumara Swamy garu and Dr. D. Shyam Sundar garu.

3.25 pm -3.35 pm:

Papers Presentation.

1. Enhancement of Popular Quality and Speed Control of a closed-loop SRM DRIVE by Mr. Neerati Rahul , Barmanth Nikhil, MLRIT.

Topics Covered:

- Advanced Reactor.
- Simulink Model
- Reducing Power Circuit.

3.35 pm- 3.45 pm:

Intelligent Battery Safety the Thermal Runway Presentation System for Electric Vehicles”. By Mr. Rapeely Srikanth, Asst. Professor, CMREC, Mr. Uday Kiran, Student of CSE-AI&DS dept, CMREC.

Presentation Included:

- EV Batteries
- Battery Management System.
- Edge based Predictive Maintenance System.

3.45pm- 3.50 pm:

Memento Presentation to Dr. M. kumara Swamy by Dr. m. Laxmaiah garu.



DAY-2: 9<sup>th</sup> November, 2024.

Technical Session-IV.

Session Chair: Dr. Shoe Kumar , HoD, CSE , CMREC.

Co-Chair: M. Naveen Kumar.

10.00 am -10.50 am:

Digital Twin Models for Enhanced Electric Vehicles and their Challenges” by Mr. Kranthideep, Assistant Professor, CSE, CMREC.



Topics COVERED:

- Digital Twin in Ev.
- Designing digital Twin for EV
- Outcomes of Digital Twin Systems.
- Implementation of Charging and Battery Management Systems(BMS).
- Smart EV Charging Framework.
- Benefits of Smart EV Charging.
- State Of Charge(SOC) Estimation.

Conclusion: Predictive Maintenance, BMS.

10.50 am- 10.55 am:

Memento presentation to Mr. D. Kranthideep by Principal Dr. A. Srinivasula Reddy garu, Dr. M. Laxmaiah garu, Dr. Shoe Kumar garu.





11.10 am -11.20 am , Paper-2:

An Engineering Approach on EV Systems with HMV&LMV “ by Abhishek kalas opnr, CSE, CMREC, and Dr. Shoe Kumar, HoD, CSE, CMREC.

Topics Covered:

- Types of EVs.
- HMVs & LMVS.
- Battery Systems.

11.20 am-11,25am:

Q&A with Session Chair & Co-Chair with Presenter.

11.25am-11.35 am:

Paper-3:

“Case tudy on EV Systemsand its Architectures”. By Dr. Sumalatha, Associate Professor, CSE, CMREC and K. Anshu Verma, CSE, CMREC.

Key Points:

- Battery Electric vehicles.
- Hybrid Electric vehicles.
- Fuel Cell electric Vehicles.
- Different types of batteries
- BMS.

11.35 am- m11.45 am:

Paper-4:

“Internet of Things(IOT) Applications in Electric Vehiucles: Enhacing Efficiency, Safety and User experience”.  
by P V V Raghava Sharma, D. Sai Prasanna, EEE, MVSREC.

Key Points:

- IOT Integrity with EV Technology.

11.45 am – 12.00pm:

Tea Break.

12.00 pm- 12. 50 pm: Session-V

Chair: Dr. M. Ashwitha , HoD, CSE\_CS, CMREC.

Co- Chair: A. Sai Kiran, Asst Professor, CSE-DS, CMREC.

12:50pm to 1:45pm:

Lunch Break

1:45pm to 3:50pm:

Facilitation to guests:

A closing address by Dr.A. Srinivasula Reddy, Convener and Principal, CMREC.



Distribution of certificates to participants:



A Closing speech by Shri Rajeev Ranjan Kumar-Generative AI Solution & Delivery Head, Wipro Limited.

Facilitation to Guest Shri Rajeev Ranjan Kumar by Dr. G. Venkata Subbaiah, Convener and FEI chairman, IEI, Telangana State Centre.

Distribution of Memento to Dr. G. Venkata Subbaiah, Convener and FEI chairman, IEI, Telangana State Centre by Dr.A. Srinivasula Reddy, Convener and Principal, CMREC.







A closing speech by Dr. K. Seetha Ram Babu, Convener and Hon. Secretary, IEI, Telangana State Centre, followed by National Anthem.