

A Gujcost sponsored workshop session on EV Battery Management system at PIETDS Vadodara on 29.12.2022

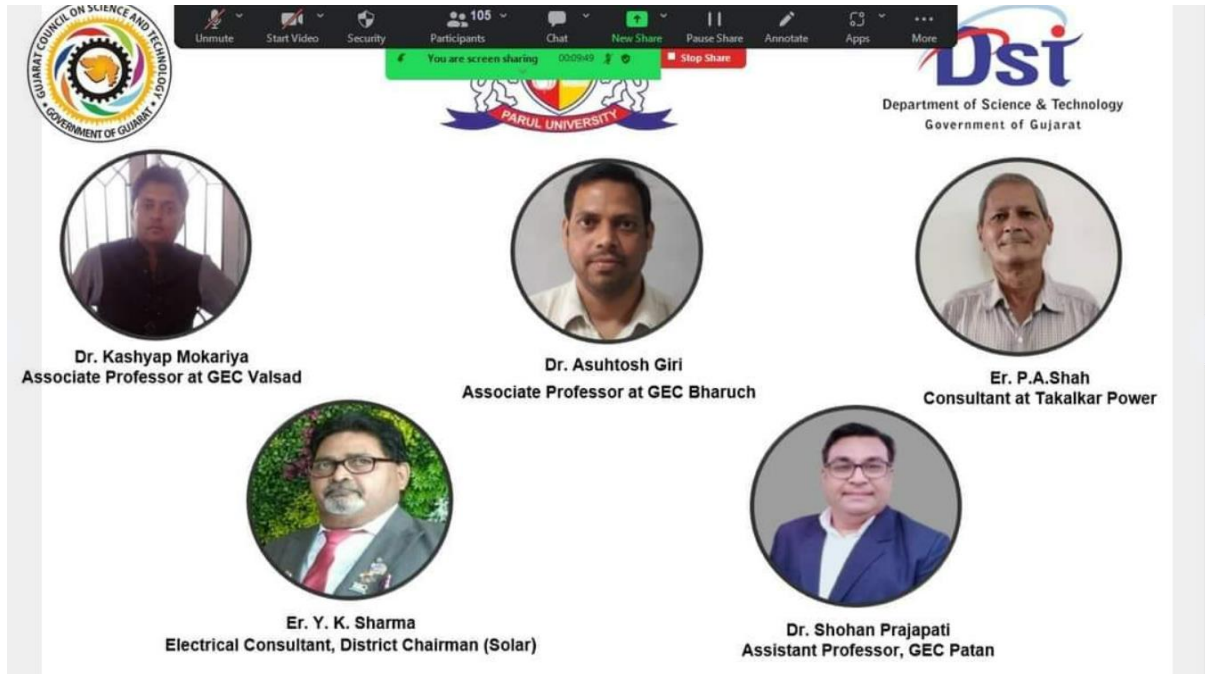
PIETDS Vadodara have organized a Two day National level Workshop on topic "Electric vehicles challenges and opportunities" Online Mode from 29th and 30th December 2022 which was Sponsored by GUJCOST (GUJARAT COUNCIL OF SCIENCE AND TECHNOLOGY), DST, Government of Gujarat" and Parul University. Total 565 participants will approximately participate from various institutes of Gujarat and other states which includes Faculty members, PhD Scholars and Students from M.Tech and B.Tech from the various institutes.

As per the schedule 1st session on 1st day on 29th December 2022 was delivered by Dr Kashyap Mokariya and approx total 120 Participants from various institutes of Gujarat and other states which includes Faculty members, PhD Scholars and Students from M.Tech and B.Tech from the various institutes had joined the session.

Dr K L Mokariya delivered a session on EV battery management system where he compared the different types of batteries and their comparative merits and demerits. He explained why Li-Ion chemistry batteries got popular for EV charging and what are the future battery technology to be looked after.

Lithium is the lightest metal with the greatest electrochemical potential and the largest energy density per weight of all metals found in nature. Using lithium as the anode, rechargeable batteries could provide high voltage, excellent capacity and a remarkably high-energy density. However, lithium is inherently unstable, especially during charging. Nevertheless, certain precautions should be made during charging and discharging. The lithium-ion battery requires almost no maintenance during its lifecycle, which is an advantage that other batteries do not have. There is no memory effect in the battery. Furthermore, the lithium-ion battery is well suited for electric vehicles because its self-discharge rate is less than half of the discharge rate of lead-acid and NiMH batteries. But why we need battery management system that was pointed out by several examples. History of BMS, Basic functions of BMS with its definition and types of AC and DC connectors used in India along with Bharat Standards for EV in India was Explained. The constant voltage charging, Constant current charging, CC-CV Charging, CC-CC-CV charging, Multistage CC-CV Charging and many other charging methods were explained with relevant examples. Battery state Estimation methods along with Depth of discharge and state of health measurement was explained. Block diagram of BMS system along with functions of its various parts was explained. Battery cell balancing need, and methods were

explained by examples. The simulation case study and results were discussed with participants for verification of research path direction and how correct BMS is working was discussed and shown. The question asked by the participants were justified at the end with answers and examples.



A Photo at the time of Inaugural