DST Purse supported workshop on

Hardware-in-the-loop Simulation solution for EV applications

In Association with the Department of Electrical and Electronics Engineering,

SRM Institute of Science and Technology, kattankulathur

Held on 2nd and 3rd February 2024

The DST Purse supported workshop on "Hardware-in-the-loop Simulation solution for EV applications," in association with the Department of Electrical and Electronics Engineering at SRM Institute of Science and Technology, Kattankulathur, held on February 2nd and 3rd, 2024. Attracting over 80 participants, it brought together a diverse group of experts, academicians, and industry professionals. This workshop focused on the critical role of HIL simulation in the development of electric vehicle technologies, fostering a rich exchange of insights and advancements in this rapidly evolving field.

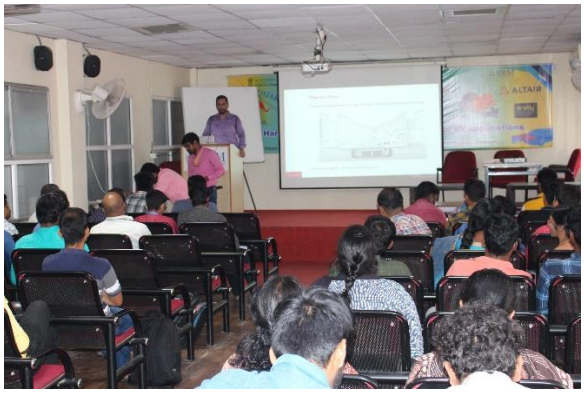
Session I by Dr. S. Devakirubakaran: The session on "HIL and Real-Time Simulations Using OPAL-RT" in the workshop emphasized the crucial role of Hardware-In-Loop (HIL) systems in the development and testing of Electric Vehicle (EV) applications. This session, led by Dr. S. Devakirubakaran, focused on how HIL, combined with the capabilities of OPAL-RT, provides a robust platform for simulating and validating complex EV systems. By enabling real-time simulations, HIL systems significantly enhance the reliability and efficiency of EV technologies, making them indispensable tools in the EV development process.

Session II by Dr. C. Bharatiraja & Dr. J. Vinoth: The session on "HIL Validation Procedures and Altair Embed with TMS320F28069M" delved into the intricacies of validating Hardware-In-Loop systems. This session was pivotal for understanding how Altair Embed, when integrated with the TMS320F28069M microcontroller, enhances the validation process. It emphasized the precision and efficiency required in HIL validation, highlighting the role of advanced tools and technologies in ensuring accurate simulation results, which are critical for the effective development and deployment of Electric Vehicle applications.

Session III by Mr. Shajahan Yocob: Concentrated on the interfacing of Snetly Real Time RTGUI Controller with hardware. Mr. Yocob’s insights were invaluable for understanding the integration of software and hardware in HIL systems.

Session IV - Lab Visit: This session provided a practical, hands-on experience, allowing participants to directly observe and engage with HIL technologies in a lab setting.

Session V by Dr. Mohd Saalim Qureshi: Dr. Qureshi introduced Typhoon HIL Technology, discussing its capabilities and applications in MIL/SIL/HIL validation, which are crucial for the development and testing of advanced EV systems. Session VI - Hands-on Practice: Led by the Typhoon Team, this session provided an opportunity for participants to engage in simulating an electric drive system, applying the concepts learned in a practical environment. Session VII by Dr. Shansher Ansari: This session included demonstrations of electric vehicle simulations and hybrid microgrids, highlighting the practical applications of HIL in real-world scenarios.



Session VIII by Dr. Shansher Ansari: Focused on a hardware-in-loop demonstration with TI microcontroller and Typhoon HIL 404, providing an insight into the integration of HIL technology with microcontrollers. The workshop concluded with a valedictory function, where Shekar Malani, CEO of Devise, emphasized the significance of HIL in the EV industry, noting the workshop's effectiveness in imparting valuable knowledge to the participants. This event marked a significant milestone in advancing understanding and applications of HIL technology in the field of electric vehicles.