Webinar Report: Understanding Power Conversion in Hybrid Electric Vehicles

Organized by:

Department of Electrical and Electronics Engineering, SRM Institute of Science and Technology, Kattankulathur Campus and The Institution of Engineers (India) Kattankulathur Local Center

Date and Time: 26th June, 2024 (Wednesday), 11:40 am – 12:40 pm (IST)

Platform: Google Meet Video Call : https://meet.google.com/ovf-kmca-hen

Resource Person:

Dr. Arya Venugopal, Scientist, Power Electronics Research Division, Architectures and Topologies Research Unit, Silicon Austria Labs, Sandgasse, Graz, Austria.

Convenor:

Dr. K. Vijayakumar, Professor and Head, Dean i/c SEEE

Co-Convener and Co-ordinator:

Dr. R. Femi, Assistant Professor

The Department of Electrical and Electronics Engineering at SRM Institute of Science and Technology in association with The Institution of Engineers (India) Kattankulathur Local Center organized a guest lecture titled "Understanding Power Conversion in Hybrid Electric Vehicles" on the 26th of June, 2024. The lecture was delivered by Dr. Arya Venugopal, a distinguished scientist from Silicon Austria Labs. The event aimed to enhance the knowledge of students and faculty members regarding the intricacies of power conversion in hybrid electric vehicles (HEVs).

Key Points Discussed:

1. **Introduction to Hybrid Electric Vehicles (HEVs):**

    - Overview of HEVs and their importance in reducing greenhouse gas emissions and fuel consumption.
    - Different types of HEVs, including series, parallel, and series-parallel configurations.
2. **Power Conversion Systems in HEVs:**
    - Role of power electronics in HEVs.
    - Key components: Inverters, converters, and battery management systems.
    - Efficiency considerations and challenges in power conversion.
3. **Architectures and Topologies:**
    - Various power conversion architectures used in HEVs.
    - Comparison of different topologies and their impact on system performance.
    - Recent advancements in power conversion topologies.
4. **Power Electronics Research:**
    - Insights into the research activities at Silicon Austria Labs.
    - Focus on architectures and topologies for improved power conversion efficiency.
    - Case studies and experimental results from ongoing research projects.
5. **Challenges and Future Directions:**
    - Challenges faced in the development and deployment of efficient power conversion systems.
    - Future trends and potential research areas in HEVs.

Interactive Session:

The lecture was followed by an interactive Q&A session where participants had the opportunity to ask Dr. Arya Venugopal questions related to the topic. Some of the questions addressed included:

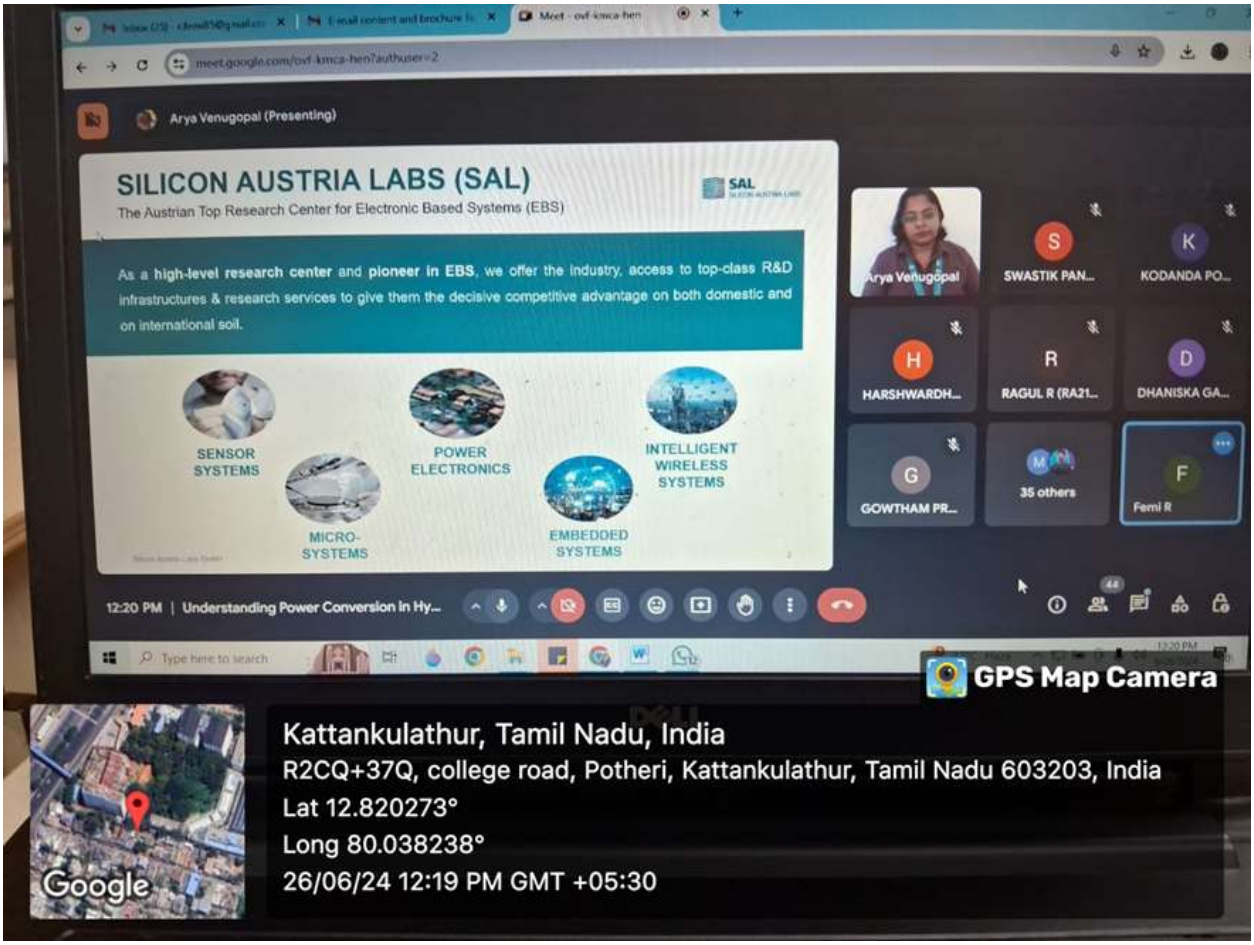
- The impact of new semiconductor materials on power conversion efficiency.
- Strategies for improving the reliability and lifespan of power electronic components in HEVs.
- Integration of renewable energy sources with HEVs.

Conclusion:

The guest lecture by Dr. Arya Venugopal was highly informative and provided valuable insights into the complex world of power conversion in hybrid electric vehicles. The session was well-received by the participants, who appreciated the depth of knowledge and practical insights.

Number of Participants: 39


Arya Venugopal (Presenting)
Understanding Power Conversion In Hybrid Electric Vehicles
Dr. ARYA VENUGOPAL
Scientist
Architectures & Topologies Unit
Power Electronics Division
Silicon Austria Labs, Graz, Austria
GPS Map Camera
Kattankulathur, Tamil Nadu, India
R2CQ+37Q, college road, Potheri, Kattankulathur, Tamil Nadu 603203, India
Lat 12.820273°
Long 80.038238°
26/06/24 12:19 PM GMT +05:30
Google


Arya Venugopal (Presenting)
SILICON AUSTRIA LABS (SAL)
The Austrian Top Research Center for Electronic Based Systems (EBS)
As a high-level research center and pioneer in EBS, we offer the industry, access to top-class R&D infrastructures & research services to give them the decisive competitive advantage on both domestic and on international soil.
SENSOR SYSTEMS
POWER ELECTRONICS
INTELLIGENT WIRELESS SYSTEMS
MICRO-SYSTEMS
EMBEDDED SYSTEMS
12:20 PM | Understanding Power Conversion in Hy...
GPS Map Camera
Kattankulathur, Tamil Nadu, India
R2CQ+37Q, college road, Potheri, Kattankulathur, Tamil Nadu 603203, India
Lat 12.820273°
Long 80.038238°
26/06/24 12:19 PM GMT +05:30
Google