



Faculty Development Program



VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Title : Circular Economy and AI-Driven Battery Aging Assessment for Second-Life Applications

Event Outcome

- Enhanced Second Life Battery Applications
- Reduced Battery Waste and Environmental Impact

Date : 2025-03-25 - 2025-03-25

Time : 10:00 - 11:30

Venue : TT707



Resource Person 1 - Details

Name : Santanu Kumar Dash

Designation : Assistant Professor Sr. Grade 2, Technology Information Forecasting and Assessment Council

University/ Company : VIT, Vellore

Address : India, 632014.

Resource Person's Profile :

1. Profile of Santanu Kumar Dash

Highly experienced Professional with a Ph.D. in Electronic Engineering and extensive expertise in control systems, battery aging, energy storage, automotive electronics, and machine learning. Senior IEEE member with a strong academic and research background, including international teaching experience and industry collaboration.

This research explores how Artificial Intelligence (AI) can enhance the Circular Economy (CE) by improving the assessment of aging lithium-ion batteries (LIBs) for second-life applications. Accurate prediction of a battery's remaining useful life (RUL) and state of health (SOH) is essential for determining its suitability for reuse. Traditional assessment methods struggle with the complexities of real-world battery usage. This work proposes using machine learning algorithms to analyze diverse battery data (voltage, current, temperature, etc.) to achieve more precise RUL and SOH predictions. This AI-driven approach enables the efficient repurposing of retired LIBs, for example, in energy storage systems, thereby extending their lifespan and reducing waste. By facilitating the transition to a more circular battery lifecycle, this research demonstrates how AI can unlock the economic and environmental benefits of LIB reuse, promoting sustainability and resource efficiency.

PPT

Coordinator's: **Prof. SUPRAVA CHAKRABORTY 17035 - Associate Professor Grade 2**
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