

Proceedings of International Conference on Recent Trends in Mechanical Engineering
(ICRTME -2025)

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(ICRTME -2025)**



24th and 25th September 2025

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S.No	Paper ID	Title of the Paper	Page Number
12	ICRTME25-112	Development of Sustainable PLA–CNF Polymer Composites for Packaging Applications	12
13	ICRTME25-113	Experimental Investigation & Process Parameter Optimization in CNC Turning on EN8 Steel By Using Taguchi Technique	13
14	ICRTME25-114	Safe Nest Band: Wearable Emergency Detection and Alert System for Pregnant Women	14
15	ICRTME25-115	Investigation of Mechanical and Wear Properties of Al7055- Nano Silicon Nitride Reinforced Composites	15
16	ICRTME25-116	Impact of Variable Parameters and Dielectric Fluid upon the Machining of Nano-sized Si3N4 fortified with AA7055 alloy Metal Composites	16
17	ICRTME25-117	AI-Based Low-Cost Battery Thermal Management System (BTMS) for Electric Vehicles	17
18	ICRTME25-118	High-Performance Energy Storage Solutions for Battery-Powered Mining Equipment	18
19	ICRTME25-119	Economical Blade Battery Manufacturing for Scalable EV Production	19
20	ICRTME25-120	Artificial Intelligence Integration in Blade Battery Systems for EV Performance Optimization	20
21	ICRTME25-121	High-Performance and Sustainable Battery Solutions for Heavy-Duty Electric Vehicles	21
22	ICRTME25-122	The Mechanical Aluminium Graphite Stir Cast Composite's Ability to Improve Stirrer Speed	22
23	ICRTME25-123	Fabrication and Testing of Eco-Friendly Bio-composites Using Coconut Coir Fiber	23
24	ICRTME25-124	Development of Hybrid Composites Using Jute and Glass Fibers for Structural Applications	24

ICRTME25-120

**Artificial Intelligence Integration in Blade Battery
Systems for EV Performance Optimization**SURIYA S¹, SURESH H¹, BASKAR S², JACOB S²*Department of Mechanical Engineering, Vels Institute of Science, Technology & Advanced
Studies, Chennai, India.*

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ABSTRACT

The advancement of electric vehicles (EVs) demands battery technologies that combine high performance, safety, and cost efficiency. Blade battery technology, characterized by its long, thin cell design, enhances structural stability, thermal safety, and energy density, making it a promising solution for next-generation EVs. However, challenges remain in optimizing performance, extending lifespan, and ensuring efficient thermal management under diverse driving conditions. This study introduces an AI-based optimization framework for blade battery technology, leveraging machine learning algorithms and real-time data analytics to enhance performance and safety. The system predicts battery degradation patterns, monitors thermal distribution, and dynamically regulates charging/discharging processes to maximize efficiency. By integrating artificial intelligence with blade battery architecture, the proposed approach improves cycle life, reduces the risk of thermal runaway, and ensures stable high-power output. Experimental validation and simulation results indicate significant improvements in energy utilization, thermal stability, and overall battery longevity. This work demonstrates that AI-driven blade battery technology can accelerate the deployment of high-performance EVs, supporting sustainable and reliable electric mobility.

Keywords: Artificial Intelligence Integration, Blade Battery systems, EV performance optimization.



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PROGRAMME SCHEDULE

Day 1 – Inaugural & Planetary Sessions

09:00	-	10:30	Registration
10:30	-	10:40	Welcome Address Dr. M. Chandrasekaran , Professor & Director
10:40	-	10:50	Presidential Address Dr. M. Bhaskaran , Vice-Chancellor (FAC)
10:50	-	11:20	Inaugural Address Dr. Siow Chun Lim Associate Professor, Multimedia University, Malaysia
11:20	-	11:30	Keynote Address Dr. Muhammad Izzat Nor Bin Ma'arof Professor, Mechanical Engineering, INTI International University, Malaysia
11:30	-	11:45	High Tea
11:45	-	13:00	Technical Session I Keynote Speaker Dr. Mahmoud Nassar Director of the Center for Innovation and Industrial Partnerships (CIIP) Mechanical Engineering, Palestine Polytechnic University, Hebron, Palestine
13:00	-	14:00	Lunch Break
14:00	-	15:15	Technical Session II Keynote Speaker Dr. Ragavanantham Shanmugam Professor & Head, Department Of Applied Engineering, Alabama, USA
15:15	-	15:30	High Tea

Day 2- Technical & Valedictory Sessions

10:30	-	11:30	Technical Session III Keynote Speaker Hamid Ziaiefar Senior Mechatronics Engineer, National Oilwell Varco, Melbourne, Australia
11:30	-	11:45	High Tea
11:45	-	13:00	Technical Session IV Keynote Speaker Dr. K. Elangovan Associate Professor, Department of Rubber And Plastic Technology, MIT, Chennai
13:00	-	14:00	Lunch Break
14:00	-	15:15	Valedictory Session
15:15	-	15:30	Vote of Thanks
15:30	-	15:45	High Tea

