National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Towards the Design and Development of a Framework for Electric Vehicles in Blockchain Marketplace
Speaker	: Dr. Hanumantha Rao Bokkisam
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Venue	: Seminar Room (EE-205)
Date and Time	: 19 Sep 2025 (5:00PM)
Abstract	: This paper presents a blockchain-based architecture for Vehicle-to-Everything (V2X) energy trading, designed to facilitate secure, transparent, and automated billing for roaming electric vehicles (EVs). The system employs a decentralized ledger to ensure tamper-proof transaction records and utilizes smart contracts to automate payments to charging stations, eliminating intermediaries and reducing costs. It supports diverse power trading scenarios, including Grid-to-Vehicle (G2V), Vehicle-to-Grid (V2G), and Vehicle-to-Vehicle (V2V) interactions, which collectively optimize energy efficiency, alleviate grid congestion, and enhance grid stability. By enabling dynamic charging adjustments and surplus energy transfer, the framework not only improves energy utilization but also provides actionable insights into consumption patterns, enabling better demand forecasting and adaptive energy management. This architecture promotes operational efficiency and economic benefits for EV users and grid operators and supports the transition to sustainable energy ecosystems.