

Hybrid Charging Station for Authentic Electric Vehicle

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Abstract: *The rising popularity of battery-powered electric vehicles (EVs) globally is driven by various factors, including the imperative to mitigate air and noise pollution and reduce reliance on fossil fuels. Understanding battery behavior across different scenarios is crucial for optimizing performance. A battery management system (BMS) plays a pivotal role in this regard, encompassing functions such as battery fuel gauging, implementing optimal charging algorithms, and maintaining cell and thermal equilibrium. Through non-invasive measures like voltage, current, and temperature, the BMS evaluates critical parameters such as battery impedance, capacity, state of charge, health, power decline, and remaining useful life. This review paper synthesizes existing literature on EV charging methodologies, BMS technologies, and state-of-charge estimation techniques.*

Keywords: Electric vehicles, renewable energy, smart charging, battery management, sustainability

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