

Smart EV Battery Management App and IoT

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Abstract: *In today's fast-paced world, electric vehicles (EVs) play a pivotal role in transforming transportation. As EVs are emission-free, they contribute significantly to creating a cleaner and greener environment. To promote environmental sustainability, the Government of India has actively supported the development and adoption of electric vehicles across the country [1]. Growing concerns over fossil fuel depletion, environmental degradation, and stricter emission regulations have accelerated the focus on eco-friendly EV solutions [2]. Despite the advantages, many potential users remain hesitant to switch to electric vehicles. This reluctance often arises from concerns shared by early adopters, including unexpected battery depletion, difficulty locating nearby charging stations, and doubts about the reliability of range estimations. Additionally, the accuracy of State of Charge (SoC) measurements, which are influenced by varying factors such as terrain, temperature, and driving habits, often leads to uncertainty and range anxiety. The proposed Smart EV Battery Management System addresses these issues by delivering more accurate predictions, enhancing battery reliability, and ensuring users have access to timely and actionable information, ultimately improving the overall electric vehicle experience.*

Keywords: Temperature Sensor, Voltage Sensor, Current Sensor, Battery, App, Firebase cloud

