ABSTRACT

A Battery Management System, commonly known as BMS, is an electronic unit that plays a vital role in monitoring and controlling the performance of EV batteries. It controls voltage, temperature, and state of charge, which are critical parameters for the safe operation of batteries commonly used in EVs One of the most vital and expensive components of electric vehicles is the battery. Of course, the battery is the only source of electricity for an electric vehicle. However, the vehicle's power supply eventually declines, resulting in decreased performance. For battery manufacturers, this is a major concern. In this paper, it is proposed to use IoT approaches to monitor and display the battery performance. Here, the various battery metrics, including voltage, current, and temperature, are tracked, observed, and shown.

This alerts the user to prevent the battery from being overcharged or deeply discharged. With the use of various sensors, observation can be carried out. Data on voltage, current, and temperature are sent to a microcontroller unit, which subsequently transmits battery data via the cloud for display. Real-time data of voltage, current, and temperature may be displayed by the monitoring system, and the data can be seen on an Android smartphone and a computer at the same time. As a result, we might be able to improve the battery's efficiency and lifespan. Based on the test results, the IoT-based battery monitoring system can determine the performance of the battery, which leads to more movement. This early detection mechanism can help prevent potential damage and reduce treatment costs. Research shows the potential of IoT technology to improve the performance and safety of electric vehicles through real-time monitoring and early detection of battery-related problems

Keywords: IoT Module, Microcontroller, Voltage Sensor, Current Sensor, Temperature Sensor.

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