Development of a 12V Lithium-Ion Battery Cell Monitoring System Based on the Internet of Things (IOT) as an Innovation in Electric Vehicles

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ABSTRACT

This study aims to determine the level of accuracy in the development of a 12V lithium-ion battery cell monitoring system based on the Internet Of Things (IOT) as an innovation in electric vehicles with a test in the form of discharging. The discharging test uses a 6V to 12V DC dynamo load for 10 minutes with measurements using a multimeter and thermocouple every 1 minute alternately. The results of the sensor reading test are very good with data that is interconnected with voltage, current, power, and temperature increasing when receiving a 12V dynamo load. The average error value of all sensor readings is <2.18% with a fairly high accuracy of 97.82%. However, overall, this system is ready and reliable enough to be used as a real-time monitoring system for voltage, current, power, and temperature in a maximum voltage range of 26V. Meanwhile, to display data to ThingSpeak is to create a new channel by preparing a field for reading data and copying the API Key then uploading it to the Arduino IDE and the data can be seen in ThingSpeak in the form of graphs that have been created on each channel.

Keywords: *18650 Lithium-Ion Battery, monitoring system, discharging, ThingSpeak*