

Development of IoT Based Battery Management System

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Abstract— In this study, the modular battery management system used in electric vehicles was developed and monitored with the IoT-based MQTT protocol. In recent years, electric vehicles have been widely studied by researchers and long lasting battery systems have been developed. In this study, a modular battery management system that performs the charging process with the passive balancing method has been developed. The battery has been developed for electric vehicles with more than 1 kWh of energy. There is temperature, current and voltage sensors at each node for battery management. A temperature sensor has been added to the system in case of overheating of the battery. The data collected over the battery is transferred to the web environment with MQTT, one of the IoT protocols. Passive balancing is preferred for balancing the batteries during charging. During charging, the MQTT server notifies the network to set the required voltage for each node.

Keywords— *electric vehicles, battery management system, internet of things, li-ion batteries*