ABSTRACT

Battery Management System (BMS) is a vital system in battery management and maintenance. This research aims to design and create a Battery Management System with a focus on protection against battery overcharge and overheat. Overcharging can cause damage to battery cells, reducing service life. Even when the temperature is excessive, it can cause a fire or explosion in the battery. Therefore, it is necessary to have an effective protection system. This research includes the design and implementation of voltage and temperature sensors, battery charging control, and protection systems against overcharge and overheat. Voltage and temperature sensors are used to monitor battery conditions in real-time. Battery charging control functions to regulate the charging process so that it takes place safely and efficiently. The overcharge protection system involves the use of control algorithms that can detect and prevent overcharge conditions. The research method used involves literature study, concept design, hardware and software implementation, and system functionality testing. It is hoped that the results of this research can contribute to the development of better and safer BMS technology.

Key words: Battery Management System (BMS), overcharge, protection, overheating