ABSTRACT

An electric motor is a type of conversion machine that converts electrical energy into mechanical energy. Batteries are a storage medium for electrical energy in the form of chemical energy that can be converted into power. In this study, the battery used is a lithium ion battery. Lithium ion batteries are very sensitive to temperature. Constraints experienced by the battery pack is thermal management because it affects the life and safety factors. The constraint behind this research is the battery construction which tends to be incompatible with the motor construction so that it is reconstructed. Reconstruction of lithium ion batteries is to engineer the battery arrangement in parallel and in series. Each arrangement is calculated for the gain of voltage and current in order to get the maximum value, but each battery construction has advantages and disadvantages. The drawback is the power dissipation in the form of heat. The batteries are arranged so that the temperature is then measured using the DS18B20 temperature sensor, then the Arduino UNO microcontroller so that the measurement results are displayed on the LCD. Based on several experiments the maximum temperature is 32.5°C.

Keywords: Lithium ion battery, LCD, electric motor, reconstruction, DS18B20 sensor