

ABSTRACT

In a backup electrical energy system with sunlight as the source, of course the battery is one of the important tools used to store the energy produced. The problem that often arises in the use of batteries is the occurrence of overcharging and overdischarging which can affect the performance of the battery. To overcome this problem, a state of charge monitoring system is designed which will be used as a monitoring system for battery capacity.

In this study, the author implemented a state of charge monitoring system on lithium ion batteries because of the good efficiency of battery capacity. For monitoring the state of charge itself, it is applied by measuring the voltage and current contained in the battery both during the charging and discharging process. After the measurement data is obtained, processing is carried out using the kalman filter (KF) method with the final result in the form of a battery capacity value with good accuracy. From this processing, the error results in the kalman filter method have values of 0.43% and 0.63% at the time of use and 0.49% and 0.89% when charging.

Keywords: *SoC, Kalman Filter, Lithium Batteries.*