

ABSTRACT

The result of regenerative braking requires a storage area in the form of a battery so that it can be reused at a certain time. Batteries are one of the commonly used electrical energy storage media and have various provisions as needed. To avoid overcharge and overdischarge of the battery, a battery monitoring system is needed so that it can charge and discharge safely. In this study, a battery monitoring measuring instrument was designed that can measure the estimated value of the battery's State of Charge (SOC). This test will use the Open Circuit Voltage (OCV) method to obtain the initial SOC estimation of the battery, then use the Coulomb Counting (CC) method to estimate the SOC at the time of battery charging. From the results of this study, when the input voltage value is greater, the charging time, charge entering the battery, and changes in the estimated SOC(t) are greater. When the engine speed value is 382 RPM, there is no charging of the battery because there is no current flowing into the battery. While the largest results are obtained when the engine speed value was 1538 RPM with a charging time of 2.73045996 seconds with an incoming charge of 0.3807 Coulomb and results in an increase in the estimated value of SOC(t) of 0.2115% on the battery.

Keywords: *Regenerative Breaking, Lithium Polymer Battery, State of Charge, Open Circuit Voltage. Coulomb Counting.*