Peramalan Kapasitas Baterai Pada Sepeda Motor Listrik Saat Berhenti Di *Traffic Light* Menggunakan Metode *Discharge*

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ABSTRACT

This study aims to discuss the prediction of the battery capacity of an electric motorcycle at a red light stop using the Matlab R2013a discharge software which is easy to use in this study. To ensure that the battery capacity is free from interference in this study, the authors will conduct a test. At this stage, the author will record variables such as battery capacity, data download time, and others. After successful research testing, it is necessary to carry out routine maintenance to ensure the capacity and condition of the battery in peak condition. In the motorcycle circuit diagram obtained when applied to the MATLAB application using the Simulink method, a circuit consisting of a battery and its main supporting parameter is obtained, namely the reference pole which functions as a battery terminal. This circuit is the most representative equilibrium circuit in lithium-ion batteries, so it can be used as the main reference circuit for an ideal battery circuit based on the duty cycle carried out in this study. Based on the real and ideal results, there is a suitable voltage drop during the battery discharge process. This is due to the difference in charge time between the actual and the Simulink, and the battery discharge and charge cycles decrease over time. Based on a survey conducted by the author, it was found that the circuit design in Matlab/Simulink is almost close to the original circuit. Based on the integral calculation that has been done, the voltage difference data is obtained as follows: SOC Minute 15 = 57.1: SOC Minute 30 = 56.3; SOC Minute 45 = 55.8; SOC Minutes 60 = 55.6; SOC Minutes 75 = 5. Steps can also be taken to predict battery parameters, especially SOC. This is done by measuring the voltage drop across the battery at each iteration and the measured data results are calculated using an integral formula.

Keyword: Battery, Battery Capacity, Estimation, SOC, Simulink