

BATTERY MANAGEMENT SYSTEM CALCULATIONS IN SMART SCOOTER ELECTRIC

Rolland Alawy Samosir

*Electrical Engineering Study Program, Faculty of Science and Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail: rolandalawygo2019@gmail.com*

ABSTRACT

In this electric smart scooter, the voltage source will be one of the factors that must be considered, because the main source to drive the scooter uses a battery. Due to the nature of the battery that can run out and need to be recharged, to manage battery usage so that the performance of the electric smart scooter is optimal, a mileage estimation feature based on battery voltage is added which functions as an indication of the use of electric smart scooters so that usage does not go below 20%. This research contains calculations for managing the battery on a smart scooter so that the use of the battery lasts a long time by using the estimated mileage, as well as taking direct data from the results of the scooter trial and analyzing the estimated remaining distance. The discussion includes electrical installation, battery calculations used such as the voltage used, capacity, charging time and distance estimation calculations based on test results where the value is taken based on the average value. the result of calculating the estimated distance that can be traveled before BMS disconnects the battery is 14.8 km from 29 volts to 25 volts, for a distance of 1 km is 0.22 volts with a total power consumed of 1865.6 watts.

Keywords: *Electric Scooter, Distance estimation, lithium-ion, Battery Management*