

ABSTRACT

In the current era, the human eased in various aspects of life, ranging from the ease to move from one place to another by using a vehicle to help mobilize human. Vehicle is a tool that used to facilitate human activity. In this case, the means of transportation used to support activities on campus that able and can facilitate lecturer, students and employees to move from one building to another that has a far apart distance.

This research aims to implement an electric scooter mechanical systems on both the front wheels using a dc motor as the driving wheel, and implement an electric scooter mechanical systems using dc motor control based microcontroller ATmega128A. This research is using a rotary encoder for speed calculation. Object of this research is the design and implementation of electric mechanical systems scooter as campus transportation based ATmega128a microcontroller.

Stages of research include: 1) speed that generated by electric scooter in conditions with or without load. 2) power requirements and how long the battery capacity can be used.

Based on test results, the speed of electric scooter has an average value of maximum speed in no-load condition is 4.4 km / h, while the average value of the maximum speed on the load condition is around 4.21 km / h. While the results showed the maximum power that required when used at full speed is 28.205 watts and the time of battery life is 5.99 hours.

Keywords: ATmega 128A, DC motor, Electric scooter, Mechanical Systems, Speed, Power.