

ABSTRACT

The use of the concept of electric vehicles is a development that is becoming a trend in the development of the automotive world. Dependence on fuel oil (BBM) encourages the development of the automotive world to present an alternative transportation vehicle as a solution for future transportation vehicles. The demand for the provision of vehicles for transportation that have high efficiency properties and low pollutant emissions are the future transportation and become a vehicle revolution as a reliable transportation.

This final project aims to create an electric scooter using Radio Frequency Identification (RFID) as a smart key to power electrical systems on autoparts and Liquid Crystal Display (LCD) Nextion as a fully automatic whole system user interface. In general, electric transportation vehicles are electric cars or electric motorbikes. The presence of electric scooters has become a phenomenon in the development of the world of transportation of electric vehicles that can be driven or used ranging from children to old age.

In this final project, the implementation of smart key design to drive the electrical system. When testing piezoelectric output, the maximum value generated by the accelerometer is 14457 m/s^2 resulting in a power output of $126 \mu\text{Watt}$. The average BLDC test is 78%. The absolute battery charging test is an average time of 100 minutes with a maximum voltage of 38.15.

Keywords: *smart key, smart otoped*