

ABSTRACT

The need for electrical energy in Indonesia is currently 55,000 MW, while the electricity that can be supplied by the government is only 32,000 MW and the rest is supplied by private companies. The fulfillment of electricity needs by the government still has some constraints, thus it needs a new electric energy source that is environmentally friendly. Therefore, the purpose of this tool is to use static bicycles as a means of sports as well as a power generator. The generator used is a type of permanent magnet.

It works using a human power source by pedaling a static bicycle so that it can rotate the rotor from the generator to generate voltage which then stored in the electrical energy storage element (battery). The utilization of electrical energy with a static bicycle is used for power control, with its control using boost mode and a microcontroller system.

Control power output from this static bicycle electric energy can be generated to 25 watts, 20 watts, 15 watts and 10 watts, which then the output of this control can be used for charging the battery at speeds ranging from 50, 55, 60, 65 and 70. It is capable of increasing the input voltage of a static bicycle's electrical energy to 21,3 volts, 16,7 volts, 12,6 volts and 8,3 volts.

Keywords: electrical energy, static bike, permanent magnet generator.