

ABSTRACT

HARVESTING ELECTRIC ENERGY FROM ROTATING WATERING SPRINKLER FOR NIGHT LIGHTING

Indonesia is one of the countries that has a variety of resources for the use of electricity generation, but it has not been realized well. There are still many housing, especially rural areas that have not enjoyed electricity. Too much wasted energy in some urban areas, for example in the gardening system and also in the housing area that should have been minimized. Moreover, that Indonesia is one of the countries with the main source or material for generating energy from fossil fuels, where the availability is decreasing. Therefore, it requires various innovations in the field of energy harvesting or renewable energy.

In this research, a Rotating Water Sprinkler (RWS) is used which is a gardening device that sprays water in a rotating manner. The rotation of the head of the water sprayer is basically caused by the movement or flow of water entering through a hose or water pipe and out through a nozzle. In this study, RWS's head rotation is used to generate a small-scale electrical energy. The method that has been used in this study is to analyze the water flow to be adjusted with the RWS's rotation. The rotation result integrated with the generator as an electric energy generator. To reduce ripple or noise the capacitor component is used and the results can be seen that obtained in Figure 4.4-B to 4.4-F.

The results of electrical energy generation in this study is that with a minimum rotation of 160 RPM produces a voltage of 1.54VDC and with a maximum rotation of 1260 RPM produces a voltage of 5.44VDC, in addition to the results of the tests as shown in Table 2, this system can turn on 30 standard red LEDs.

keyword : *Energy scavenging, Rotating water Sprinkler, DC Generator, Energy harvesting, Renewable Energy.*