

DESIGN OF POWER GENERATOR WITH MINI MICROHYDRO GENERATOR FOR AUTOMATIC WATER BOOSTER PUMP BASED ON ARDUINO UNO

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ABSTRACT

The increasing demand for electrical energy along with the development of the era requires a shift to environmentally friendly energy sources. In Indonesia, the dominance of fossil energy causes environmental pollution and has limitations. The micro-hydro system can be used as an alternative source of backup electrical energy. When the house electricity goes out and the remaining water tower is low, the water cannot be used effectively. Therefore, the electricity that has been previously generated by the mini micro-hydro generator from the use of water towers will be used to automatically turn on the water booster pump so that people can still use the water flowing from the booster pump. This tool is able to monitor the water discharge and the condition of the relay displayed on the 16x2 LCD and can then control the booster pump to turn on or off automatically. Based on the results of testing the system, the Water flow sensor in the generating system is able to measure the water discharge flowing from the water tower with an accuracy level of 97.003%. The mini micro-hydro generator can produce the highest voltage of 8.45V without load, 7.52V at 12V lamp load, and 6.8V at battery charging load which indicates that the generating system is working well. The relay can work properly in OFF (Normally Open) condition when the water discharge is 0 or more than the set point and in ON (Close) condition when the water discharge is less than the set point value.

Keywords: *Microhydro, Turbine Generator, Water Flow Sensor*