

ABSTRACT

Electricity is an important necessity in everyday life, used for lighting, entertainment and information. A new alternative energy source that is emerging is microhydro electric power or Microhydro Power Plant (PLTMH), which uses water as an inexhaustible natural resource. PLTMH is used in several locations in Indonesia that do not yet have electricity supply. Although the PLTMH hardware system allows observation of voltage, current, and speed, large-scale monitoring requires higher efficiency. Therefore, a remote monitoring system is needed that sends data over the internet to the IoT platform. In this system, ESP8266-based NodeMCU is used as the primary control, and data from sensors is displayed through a website on the IoT platform. In this system, ESP8266-based NodeMCU is used as the primary control, and data from sensors is displayed through a website on the IoT platform. In this study, two variations of the experiment will be carried out without load and using a load, the maximum power produced in the experiment using a load of 69,706 mWs, while in the experiment without load produces a maximum power of 200,748 mWs. The overall study proved good performance shown in the error value on the sensor at the middle measurement of only 2% and in the measurement of 0.65% current from the monitoring system it was shown that the average delay value of 5.01 ms in the good category. In most tests, the final results show that the output almost matches the output of the measuring instrument and then the test data is sent from the microcontroller to the Telkom IoT Platform web database via the MQTT protocol.

Keywords: *Electric Power, PLTMH, NodeMCU, Monitoring.*