ABSTRACT

Electricity is an energy source that has great potential to be used in everyday life. The hydroelectric power plant (PLTA) in Tambolusu Village, Konawe Regency, Southeast Sulawesi Province has limitations in producing electrical energy. The hydropower plant is located in a remote area that is difficult to reach by cellular and WiFi connections.

From the results of this study, a power monitoring system was developed that uses the IoT concept based on LoRa hydropower so that it can be controlled and monitored remotely. The control and monitoring system uses LoRa to send and receive data from the system panel to the raspberry server or vice versa. The system can also limit the use of electricity that is currently being used.

From the results of the tests carried out, the control and monitoring system of electrical power obtained an average voltage sensor reading error of 0.53% and an average current sensor reading error of 5.64%. The system can be controlled and monitored remotely using LoRa with a maximum distance of 300 meters during testing on Jl. Batununggal Indah VII. The system has a battery that functions to turn on the microcontroller and can last up to 821 minutes. In this system, if it detects excessive electricity consumption, the system will cut off the electricity that is being connected.

Keywords**:** *Control System, Electrical Panel, LoRa, Microcontroller, Monitoring System*