

## ABSTRACT

Technology has developed rapidly, renewable power plants that utilize energy from nature emerge and require small land to make power plants such as the Solar Power Plant (PLTSurya) which can be installed above households and the Bayu Power Plant (PLTBayu) which can be installed on the coast. beach. However, energy management from the supply of each generator requires a large number of personnel, making energy management performance less effective.

PLTSurya and PLTBayu which are currently developing still need to be developed in the part of measuring electrical energy which is done manually. In a process of measuring electrical energy at PLTSurya and PLTBayu, it needs to be done regularly so that energy can be monitored properly. In this final project, the system is made for automatic monitoring by sending information / data with LoRa (Long Range) in turn more than one transmitter containing a data logger to record data and one gateway which is stored in a database with an IoT (Internet of Things) and displayed on the monitoring website so that it can be controlled remotely.

In this final project has the results, the system can send information / data on each characteristic using four transmitters in turn and stored in the database and displayed on the monitoring website. LoRa which has a frequency of 433 Mhz with a 3 dBi antenna can transmit up to 100 meters. The data logger used with a maximum capacity of 2GB can record the characteristic data of each plant for 1,016 years. The gateway is designed with a microcontroller coupled with a Wi-Fi module that can receive four transmitters alternately. Based on the test results with black-box and white-box, this system gets 100% success.

Keywords: PLTBayu and PLTSurya, Data Center, Monitoring System, Data Logger