

## ABSTRACT

LoRa is a long-range wireless communication module with good noise and interference resistance. The security system where LoRa is only connected to the gateway in the network is an advantage in itself so that it is protected from cyber attacks. With this advantage, LoRa is the communication module used in the LoRa-based Single Load Amperemeter Final Project. This tool can monitor the source of AC electricity flow connected to the load. Later, users can monitor their daily power usage using the Antares platform. SLA LoRa uses ACS712 as the current sensor and Atmega328P as the microcontroller used. Current readings and power calculations can be done by the device and the data received is sent well to Antares. This tool has been tested in Building P, Faculty of Electrical Engineering, Telkom University to determine the quality of data transmission such as SNR and RSSI with good test results and data can be sent smoothly. The SNR value in the building ranges between 9 dB with an RSSI value of -100 dBm. This tool itself is also in accordance with LPWAN Regulatory Standards with a working frequency of 921.8 MHz, an average transmitted power of 16.89 dBm, and a duty cycle not exceeding 1%.

**Keywords:** Internet of Things (IoT), LoRa RFM95W, Current Sensor ACS712, Atmega328P, SNR, RSSI, LPWA, *Intelligent Energy Monitoring System (IEMS)*.