ABSTRACT

Now it can't be denied the use of Internet of Things (IoT) becomes wider. LoRa module is the one of electronic module that used for IoT supporting device which has advantages over other wireless data communications, which can communicate remotely with low power usage. Nowadays IoT devices with LoRa communication have begun to be traded and implemented as one of the IoT devices in smart cities. However, some LoRa arduino shield still use the I/O ports as arduino board, which use pins. There are no ports for I/O that are easy to use such as plug and play according to market requirements.

In this final project, a compact module will be designed which has integrated between microcontroller and LoRa communication module accompanied by I/O that can be tailored to the needs as a development board with the rules for LPWAN devices.

From the test results obtained a range of values for LPWAN devices that have been made, start from bandwidth ranges from 34.997 kHz to 40 kHz, spurious emission ranges from -64.99 dBm to -63.18 dBm, frequency ranges from 920.03 MHz to 921.75 MHz, duty cycle is 0.11%, average power consumption is 34.452 mW and also the time needed to process the program is 16 µS. The biggest delay in data transmission is the data transmission with interval 60 seconds and the biggest percentage of packet loss is 27% with interval send data every 30 seconds.

Keywords : Internet of Things, LoRa, Plug and Play.