

## ABSTRACT

Bojongsoang and Baleendah are places in Bandung which are often flooded. There are 3 places that cause Baleendah and Bojongsoang which often flood, namely Bandung City, Majalaya, and Pangalengan. Because, Bojongsoang and Baleendah are places where rivers flow from the three regions and many incidents are flooded which harm material and immaterial.

Therefore this undergraduate thesis intend to provide a solution to the flood problem by means of a flood detector or early warning system by using two parameters, namely: river height and river speed of water flow from the river in the three places. Before the early warning system is announced if there is a flash flood coming, there must be data communication that sends data from the sensor to the cloud to process data. This data communication has parameters that the devices must be have a long range from point to point, and consume low power because from the headwaters to Baleendah is far. The communication modules used are LoRa SX-1278, NRF24L01, and RF 433MHz to find out the best performance in this undergraduate thesis. This undergraduate thesis uses simulation method, this method aims to describe the results according to the facts obtained.

The data used uses several conditions, such as without obstacles, has few obstacles, and has large obstacles. By comparing each tool in each condition, LoRa SX-1278 has an error in the accuracy of data transmission of 67.37% with a maximum distance of 901 meters, NRF24L01 has an error of 6.98% with a maximum distance of 129 meters, and RF 433 MHz has 100% in error shipping because it cannot send when it has obstacles with a maximum distance of 6 meters.

Keywords: LoRa, NRF24L01, RF 433MHz, Flood, EWS