

ABSTRACT

At this time the population is increasing. The amount of development causes less air absorption. Affected by floods. Flooding is a natural disaster that can damage significantly and harm many people. To minimize the impact of flooding, we need a system that can predict flood expenditure. It is necessary to design a tool to get data as a parameter for predicting flooding of river water, air discharge and rainfall.

The sensor needed an ultrasonic sensor to measure the river water level, as well as an independent variable to get the river air flow using Manning and a rain gauge sensor with a tipping bucket system to get high water level data. The system will be controlled using Arduino Uno and data sent to the Antares platform using the LoRa network. Sumber Power uses 2 lions of 3000Mah with each voltage with a total voltage of 8.4 V. The system will be at the river's edge with an ultrasonic sensor back to the riverbed and a rain gauge placed on the device.

Based on the measurement results, all sensors run properly in accordance with the capabilities of each sensor. Ultrasonic sensors can measure a minimum of 2 cm and a maximum of 380 cm. Discharge measurements using Manning can be applied. The test results by testing the 4.09 m of cistern water with river water discharge calculated using the Manning calculation of 51,539 m³ / sec and comparing with the BBWS measurement results of 51,087 m³ / sec. Error is valued at 1% and the biggest error is valued at 13%. For the results of the rainfall sensor one tip can be 1.27 mm. LoRa network performance for urban areas with a maximum mileage of 2 km is more than that of a 100% Loss package.

Key Words: *Flood, Flood prediction, water-level, rainfall, LoRa, Manning, Internet of Things.*