

ABSTRACT

Flood is an event where excessive flow of water submerges land. Flood flow with normal river flow can be distinguished by looking at the height of the water flow in the river. The flow of water that exceeds the river's capacity is a sign of flooding. The water level can be measured by utilizing the transmission and reflection process of ultrasonic waves. The purpose of this study is to design a device that can detect IoT-based water levels using an Arduino microcontroller board that is connected to input and output devices that are integrated by the microcontroller where the input device is a sensor. ultrasonic JSN-SR04T and output devices in the form of buzzer, led lcd which then the data obtained will be sent to the Antares platform. In this research, a monitoring system for measuring the height of river water levels will be made using the LoRaWAN-based JSN-SR04T ultrasonic sensor. Using this technology, multiple devices can communicate up to a maximum distance of 3.54 kilometers covered by the device. Based on the test results indicate that the accuracy of the JSN-SR04T sensor, the average value of accuracy in the bathroom tub is 1.0% with a metered ratio, the average value of accuracy for times is 2.5% with a meter ratio, the average value the accuracy of the Kranji River is 2.6% with a metered ratio, the average value of the Banajran River's accuracy is 2.6% with a metered ratio. At the RSSI and SNR parameters a distance of 2.91 kilometers, the average value is -111 dBm and -5.5 dB at a distance of 2.50 kilometers, the average value is -110 dBm and -8.87 dB and at a distance of 3.54 kilometers the average value is obtained. -average -110 dBm and -8.37 dB

Keywords: Arduino, IoT, Water level, LoRa, RSSI, SNR, JSN-SR04T Ultrasonic Sensor