

ABSTRACT

Water is necessary for daily needs. One of the main indicators that serves to measure water quality is pH. If the water we consume has a very low pH level, it can cause an unpleasant taste in drinking water and cause diseases such as stomach acid, ulcers, and other digestive disorders. Conversely, water that has a high pH level can neutralize acids in the body, reduce weight, etc. Currently there are still many people who use water reservoirs still using manual monitoring, so a water level detector is needed to handle this. The use of ultrasonic sensors to detect water levels is used because it has a high level of accuracy, so it can reduce errors in analysis. Testing is carried out from the end device side to the telkom IoT platform using LoRaWAN communication including RSSI and SNR. So a system is needed to measure water pH and water level using the LoRaWAN network. This study uses a pH 450 2C sensor to measure the water content in the reservoir, and the JSN-SR04T ultrasonic sensor as a detector for the water level in the reservoir, and the LoRa Shield Dragino function to process data from the sensor and send it via the LoRaWAN network. Data sent by LoRa can be monitored via the telkom IoT platform. Through the results obtained, the ultrasonic sensor has an error value in the range of 3% in obtaining data. The PH450 2C sensor has an error value of 2.39% in acidic water, 2.77% in neutral water and 0.79% in alkaline water. The average RSSI and SNR obtained during the test were -102.91 dBm and 5.67 dB. Then the average height and pH values in the water reservoir during the test were 104.6 cm and 7.83.

Keywords: *LoRaWAN, JSN-SR04T Ultrasonic Sensor, pH 450 2C Sensor*