

ABSTRACT

Ready-to-drink tap water is one of the facilities provided by PDAM. One way to produce water that can be consumed is through the filtering process. However, after being used for 6 – 12 months, the filter will become clogged due to dirt stuck in the filter. Therefore, we need a system that can detect filter quality based on the quality of water produced using Internet of Things technology. This study, measured three parameters, namely pH, temperature, and the level of turbidity of water using the analog sensor PH meter v2, Dallas DS18B20 Temperature Sensor, and Turbidity Sensor. In addition, ESP32 is used as a microcontroller, and Google firebase, MIT App Inventor, and WireShark function as IoT technology supporters and QoS monitors. This research uses literature study and experimental methods, specifically for the data generated by the turbidity sensor, the linear regression test method is used. Testing of pH, temperature, and turbidity sensors uses three liquid samples that are used to get the percentage error value of each sensor. The pH buffer liquid with values of 4.9; 7.5; and 8.8 was used to test the pH sensor. The water sample has a temperature of 29.1°C; 65.0°C; and 8.7°C is used to test the Temperature sensor. Water samples 439NTU, 1404NTU, and 2589NTU were used to test the turbidity sensor and then ready-to-drink water samples were used to observe the quality of the water filter. QoS testing uses three parameters, namely delay, packet loss, and throughput. The test results of pH, temperature, and turbidity sensors get error percentages of 0.85%; 1.31%; and 0.49% for pH; 1.90%; 3.09%; and 1.39% for temperature; 2.58%; 2.63%; and 2.91% for turbidity. The test results of ready-to-drink water samples show that the water quality is good and can be consumed. The QoS test results get an average packet loss value of 0.01% in the very good category; 20.36 ms delay is in the bad category with a delay value of >450ms, and the throughput is 581.14 bits/sec, the category is sufficient based on the typhoon standard. Based on the results of the percentage error of each sensor, the sensors used are quite accurate in monitoring water quality.

Keywords: *Water quality monitoring prototype, Analog PH meter v2 Sensor, Google firebase, Quality of Service*