ABSTRACT

Clean water is needed for hygiene and sanitation such as bathing, washing, and for drinking water raw material which quality must fulfill certain requirements, but the real problem is, the things related to the clean water quality are often ignored, even though this is very important for the body health and surrounding environment, furthermore, another important issue is the impracticability of testing water quality which should be done in the laboratory, therefore a monitoring and the appropriateness of clean water quality for hygiene and sanitation needs determination tool in real time is needed on the water reservoirs.

The design of clean water quality appropriateness monitoring system with a multisensor for hygiene sanitation water using fuzzy logic method is a solution to answer water quality problems. By using the fuzzy logic method, the system not only display the values of parameters like pH, TDS, temperature, and turbidity, but also the value and status of water quality appropriateness based on clean water quality standards. This system has also been equipped with WiFi module, which will make it easier to monitor the water quality through the Blynk application on an Android smartphone anytime and anywher as long as the internet connectivity is available.

The system that has been designed can monitor the appropriateness of clean water quality for hygiene sanitation needs through the Blynk application on an Android smartphone. The appropriateness of that water quality is classified into "acceptable", "less feasible", and "very unworthy". From the test results, the accuracy of each sensor are above 95%, which indicates that the sensor accuracy is very high. The average delay calculated for the data to be sent to the Blynk application from the microcontroller is 1,969 seconds.

Keywords : *Water Quality, Hygiene Sanitation, Fuzzy Logic, Internet of Things*