

ABSTRACT

Water is the most important compound on earth. Water is found on the surface and also in the earth's atmosphere. Most of the human body consists of water. In daily life, we use a lot of water for household needs such as drinking water, cooking, bathing, washing, and so on. Besides that water is also used in industrial fields. To fulfill all of these needs, water that is of good quality is needed. The maximum limit of *turbidity* level of drinking water recommended by WHO is 5 nephelometric *turbidity* units (NTU).

This final project aims to help the household scope to find out the feasibility of water to use, based on water samples that have been taken. Using laser as a light source. Measurement of light spread through lasers requires a detector that is sensitive to interpreting light signals. *Turbidity* meter consists of three main components: laser, water container, and photodiode. The results of this measurement will produce output in the form of a voltage, and calibrated to become an NTU unit.

From the results of experiments conducted on these sensors prove that this measuring instrument is functioning properly. This tool can distinguish clear water and turbid water, where the voltage for clear water is 5v or about 0.44NTU. Data from the photodiode is sent to the Firebase *database* in *realtime*.

The results received by the website are displayed in the form of graphics and data. Delay when the tool sends data to the *database* depending on the internet connection used, in this experiment used 2G, 3G and 4G Telkomsel, each has 1 second delay, 0 seconds and 0 seconds. Based on the results of the questionnaire, respondents answered 91.7% of this website is interesting to use and 100% of this website runs according to its function

Key Words : Optical Sensor, Photodiode, Firebase, Website, NodeMCU, NTU