

ABSTRACT

Indonesia is a country that has a high level of rainfall. Water discharge that exceeds the capacity of the river can cause flooding. In addition, the construction of buildings and people's habit of disposing of garbage makes the river function is not optimal. So that the occurrence of floods become commonplace for the people of Indonesia. Floods that occur can cause damage to houses, public facilities and casualties. Based on the above, a system capable of knowing the water level of the river and being able to provide such information to the public.

The system uses Arduino Uno, ultrasonic sensors and GPRS modules. Working principle on hardware, ultrasonic sensor and GPRS module connected with Arduino Uno as microcontroller. Ultrasonic sensor has a frequency of 40kHz, the frequency is propagating with a speed of 340m / s. When it meets the water level, the signal will be reflected back by the water surface so that the signal can be processed to calculate the surface distance. After getting the surface distance, the microcontroller will adjust the height of the pole used so that it gets the high water data. Subsequently sent to the webserver using GPRS module and proceeded to firebase as data storage in realtime.

Based on the test results, the sensors used in the measurement of distance that is equal to 99.7%. Data delivery at firebase is very much in line with the data acquired on the tool. The accuracy of the coordinates is 93%. In GPRS Module there is delay with average delay in tool 1 that is 9.8 second and tool 2 that is 11.3 seconds. While the quota used in sending data to the webserver that is as much as 51.2 KB for one delivery. The implementation of carried across a river get the result testing in a average of 99.25%.

Keywords: *Water Height, Sensor HC-SR04, GPRS module, Web Server, Firebase*