

ABSTRACT

Indonesia is a country that has a high rainfall. during the rainy season almost the entire area of rain with high intensity. rainy season usually lasts up to 6-7 months and some people are not aware of throwing garbage in waterways, are also factors that aggravate the flow of water. Because the amount of rainwater that is absorbed into the ground is minim and obstruction of water flow causing flooding, and even can cause flash flooding as occurred in Garut district, West Java, on Tuesday (20/09/2016).

This Final Project is made with the concept of Internet of Things, the measurement of the water level is done by using Ultrasonic sensor, which is based on Microcontroller. The measurement of the water level is transmitted and stored to the database via Web Server and then forwarded to Android. The principle works, Ultrasonic sensors will read the water level, and will send the data to the Web server via the internet, then stored in Firebase that is already integrated with Android.

From the results of tests that have been done on this Final Project the user can do the monitoring without any distance limitations. Based on the test results, there is a delay when sending data from the database to the application with the average delay of data transmission is 0.514 seconds. The average delay when sending data from hardware to application is 6.69 seconds. The average use of application data at idle condition is 0.64 MB per hour. This application can display coordinate data sent from the hardware so that users can know the location of the monitoring tool, there are three programmed water level status that is Safe, Standby and Hazard. If the water level distance is more than the specified limit, then the smartphone will bring up the notification "Danger, water height exceeds the limit!".

Keyword : *Android, Firebase, Internet of Things, Flood*