

ABSTRACT

The effects of global warming are causing extreme weather change and several natural disasters that can occur at any time. Therefore, people must be aware of this threat. Extreme weather changes make it is uncertain. It causes prolonged rainy season and seasonal changes that should occur at that time. The continued rain caused natural disasters such as floods that frightening people. For floods that occur very frequently, we have therefore designed a water level monitoring system based on IoT Blynk, which has integrated with social media, such as Twitter.

This IoT-based water level monitoring system is implemented by using an ultrasonic sensor, Esp8266 module, and an Arduino Mega controller. The Esp8266 module connects with a wifi router, and it transfers data from the Arduino mega controller to the IoT Blynk. For the next step, Ultrasonic sensors read the distance of reflection to the surface of the water and produce data, then the data obtained from the ultrasonic sensor is processed by Arduino Mega, then Esp8266 sends data that has been processed by Arduino Mega to IoT Blynk. From the data sent earlier, we will find out the height of the water surface created at certain water levels, and it can be monitored directly by IoT Blynk through a Smartphone. This tool determines water level status levels, namely "SAFE," "ALERT," and "HAZARD" status levels, during the alert and danger status levels IoT Blynk will send data automatically to Twitter so that it generates a Tweet that notifies the flood status.

The results obtained are based on the analysis of the test by using an IoT Blynk-based integrated with social media Twitter. This experiment was successfully realized by sending IoT data using the Wi-Fi Module to get a delay value of 11 seconds, the value of delay when sending data to Twitter once every 10 seconds at 1.16 seconds, and packet loss of 0%. When sending data every 5 seconds, 1.17 and packet loss 6.66%. When sending data once every 3 seconds for 1 second and packet loss by 50%. Packet loss when sending data to Twitter every 3 seconds is excellent because to send data to Twitter so that it produces a tweet that IoT Blynk has a limit that is a maximum per 5 seconds.

Keywords: Microcontroller, Ultrasonic, Esp8266, Arduino, IoT Blynk, Twitter