ABSTRACT

Flood disasters often occur in several regions in Indonesia due to high rainfall. The prolonged rainy season due to extreme weather changes causes rivers to overflow, so people need to be more vigilant against flooding. The consequences of many floods are a lot of damage and even a lot of casualties. This loss is due to residents' lack of preparedness for the upcoming disaster. Therefore, an effort is needed to minimize casualties and losses that occur. In this study a flood early detection system was designed to monitor the speed of water flow and the height of the river. The aim of this research is expected to be able to help and provide information related to early flooding. The system designed is based on the Internet of Thing (IoT) with the MQTT protocol which refers to a network that connects different physical devices to the protocol. This flood detection system uses the YF-DN50 G2 Water flow sensor to measure water discharge, the JSN-SR04T ultrasonic sensor to detect water levels, and ESP32 to read data and send it via the internet. The system automatically works when water reaches the sensor by sending real-time flood detection status information. Based on the system testing carried out, the results of the water velocity on the Water flow sensor after going through regression have an average error of 5.73% for fast currents and 9.38% for calm currents. The delay measurement produced in the 30 times test of 186.24 ms is included in the good category according to the ITU-T G.1010 standard with a delay of 150 to 300 ms. From the research results, the system can work properly and the system can read the water discharge and river level..

Keywords: *Flow rate of water, Water flow, ESP32, IOT,MQTT*