## *ABSTRACT*

*Natural disasters, are natural phenomena that have a detrimental impact on humanity. One of the natural disasters that often occur in the area of Bandung Regency, especially, is that flooding is caused by the intensity of high rainfall and river flows that are not smooth due to sedimentation in river beds, waterways, or reservoirs.*

*As technology develops, a flood early warning system is developed, as part of a disaster management system, using Internet of Things (IoT) technology for pre-disaster preventive measures such as monitoring, early warning systems supported by various sensors.*

*Using ESP32 microcontroller, ultrasonic sensor and rain gauge to detect the intensity of rainfall and water level. After the sensor measurement data is received, the data will be read by ESP32, which then with an internet connection will forward the data to Telegram as an early warning platform, and will be stored in Firebase and android applications that can be used as a monitoring system.*

*For this reason, a simulation of measurements of rainfall intensity and water level is carried out with each parameter being rainfall 1mm / hour, and water level in cm, which will then be classified and then sent as a flood status. Then an analysis of the network quality of the IoT-based rainfall and water level detection system will also be carried out with parameters such as delay, jitter, and throughput*

*In this research, the average delay is 0.03 seconds, the average jitter is 0.01 seconds, and, the average value of throughput is 2.997 byte/s.*



***Keywords:*** *Flood, Rainfall, Early Warning System, Microcontroller, Internet of Things.*