

ABSTRACT

Earthquakes are natural disasters that quite often occur in Indonesia, mainly due to interactions with tectonic plates. The energy of tectonic plates recorded on seismographs can be measured in units of the Richter Scale (SR). Earthquakes can occur suddenly, this is due to the movement of rock layers in the earth. As happened in 2007 to be precise on September 12, the earthquake centered in Bengkulu province was 7.9 on the Richter scale, resulting in a 1 meter high tsunami in the Mentawai and Pagai islands, West Sumatra. This study conducted earthquake monitoring using an accelerometer sensor based on LoRa by means of point to point communication. By utilizing LoRa (Long Range) technology to transmit sensor data values for the sending device (transmitter) and receiving device (receiver) via a laptop. The research was conducted in an open space at Hos Notosuwiryo. The test results on a 2 kg load dropped near the sensor, the average Richter scale obtained at a distance of 10 cm was 5,139 SR, 20 cm was 4.483 SR and 30 cm was 4.412 SR. At a load of 3 kg dropped near the sensor, the average distance of 10 cm is 5,358 SR, 20 cm is 5,111 SR and 30 cm is 4,801 SR. At a load of 4 kg dropped near the sensor, the average distance of 10 cm is 6,225 SR, 20 cm is 5,937 and 30 cm is 5,684 SR. The results of the LoRa QoS test with a distance of 25 meters the RSSI value obtained is an average -61 dBm and the average SNR value obtained is 9.67dB. At a distance of 50 meters the average RSSI value obtained is -86.5 dBm and the SNR value obtained is an average of 9.41 dB, at a distance of 70 meters the RSSI value is obtained an average of -94,86667 dBm, and the average SNR value is -94.86667 dBm. obtained an average of 9.65 dB.

Keywords: Earthquake, LoRa, accelerometer and QoS.