ABSTRACT

Natural disasters are things that cannot be avoided by humans. Natural disasters can cause losses in the form of property and loss of life. One of the natural disasters that often occur in Indonesia is the tsunami. The biggest tsunami disaster that ever occurred in Indonesia was in 2004 with a wave height of 30m and killed 227,000 people. One way that can be used to reduce the impact caused by the tsunami disaster is by providing information and warning to the community in tsunami-prone areas, specifically on the coast and areas around the sea.

The system that will be designed is a wave monitoring system that can detect potential tsunamis by providing information in the form of water level and sea wave height. The system uses the BNO055 sensor module as its main component to detect the movement of ocean waves. This sensor consists of an accelerometer, gyroscope, and magnetometer to detect changes in acceleration, angular position, and magnetic field, and also integrates these three data to produce wave height measurements.

This study succeeded in communicating the BNO055 sensor with the Raspberry Pi 3 Model B+. The research begins with calibration and processing of raw data from sensors. The data that has been processed into water level and wave height data can be monitored through the Antares. After doing the test, the percentage of accuracy values obtained is 94.96% for position measurement on the X axis, 94.37% on the Y axis, 91.91% on the Z axis, and 97.31% on the wave height parameter.

Keyword: *Tsunami, BNO055, Sea Level Monitoring*