

ABSTRACT

Indonesia is an area prone to earthquakes both tectonic earthquakes and volcanic earthquakes. The occurrence of earthquakes can not be predicted in the event. This causes the earthquake to occur suddenly in the earthquake zone. Many casualties can not save themselves because they are trapped somewhere or the lack of notice of earthquake information that occurred. The most important thing in earthquake disaster is the speed of information received by the community from the earthquake detection system, given the earthquake disaster happened very quickly.

With this condition the author is interested to make an innovation to overcome the problem, by making earthquake detection system using accelerometer and vibration sensor, to capture ground motion or ground vibration and give a notification to resident user through Android app right at the time of earthquake . This system consists of Arduino Uno microcontroller, accelerometer sensor and vibration sensor. Arduino Uno microcontroller is used as a data processor that is detected by accelerometer sensor and vibration sensor. The accelerometer sensor is used to determine the position or state of the ground when a stationary or moving state has an output of coordinate values x, y, z. The vibration sensor is used to find out the magnitude of vibration vibrating on the ground that has a voltage output.

The success parameter of this research is able to detect earthquake and detected value according to the realtime value of sensor readings processed according to the formula used in real world. After some tests and analysis of the Adxl 335 sensor has an error rate at node A of 0,80% on the x-axis, 0,30% on the y-axis, 0.017% on the z axis. Whereas, from vibration sensor has get value of stress according to portion of pressure. From the results obtained, it can be seen that the reading of data by the sensor Adxl 335 menghasikan value almost equal to the accelerometer on the smartphone.

Keywords: Earthquake, Accelerometer Adxl 335, vibration sensor, Arduino Uno