ABSTRACT

Indonesia is a country located on the Australian plate, the Eurasian plate and the Pacific plate. In addition, Indonesia is also a Pacific ring of fire country which has many volcanoes in it. So that in Indonesia there are lots of tectonic and volcanic plate movements that cause earthquakes to occur [1]. Therefore, natural disasters that often occur in Indonesia are earthquakes. The National Disaster Management Agency (BNPB) has recorded 62 earthquakes in 2021 with 117 fatalities [2].

In this endeavor, the solution developed harnesses Internet of Things (IoT) technology using ADXL 345 sensors to detect earthquake occurs by PGA values. The collected data is then processed through a Decision Tree algorithm, which classifies earthquakes into three categories: normal, non-destructive earthquakes, and destructive earthquakes. This classification is aligned with the established Peak Ground Acceleration (PGA) standard.

Based on the results of implementing the decision tree algorithm used to determine the classification of earthquakes, the algorithm testing system shows a maximum accuracy result of 81,761%. The classification carried out aims to carry out the classification of earthquake detection, if the results of the earthquake classification are damaging then the warning system will turn off the electricity, and sound an alarm and notifications on the application will appear.

Keywords: ADXL345, Decision Tree, Earthquake, Internet of Things, Peak Ground Acceleration