

## ABSTRACT

*Based on the results of CNBC Indonesia data survey since December 2018 there has been an earthquake that caused a tsunami 6 times in Indonesia from 2004 to 2018. Earthquakes and tsunamis in Indonesia are common natural disasters. Earthquakes can occur at any time unexpectedly, the potential for earthquakes is often centered in areas of the sea that are likely to be potential tsunamis. This is what makes the people of Padang feel very anxious (Afriani, 2010).*

*In this final task will be planned earthquake and tsunami simulator using arduino IDE software, nodemcu as microcontroller, ultrasonic HC-SR04 as water level sensor, vibration sensor module SW18010P as vibration sensor, blynk application as monitoring. There will be an earthquake simulator and tsunami simulator that will simulate the occurrence of earthquakes and tsunamis where these 2 simulators have also been installed sensors. For the drive on the earthquake simulator using a starter dynamo and will produce vibrations, the tsunami simulator uses acrylic to be bent to produce water waves.*

*At this stage, the design of the tool and the search for the components to be used, at this stage the components used are in accordance with the selected and determined at the design stage of the tool. After the creation of the tool is completed, testing will be done to find out whether the system design made is in accordance with the initial design or not. In earthquake simulators there will be 3 categories, namely safe category with low dynamo speed, alert with moderate dynamo speed and danger with high dynamo speed. There is also a tsunami simulator that has 3 categories, namely safe with a value of  $US \geq 34$  Cm, alert with a  $\leq$  value of 33  $US > 32$ , and  $US \leq 32$  Cm. for the indicator there will be indicator lights and buzzers, and for monitoring using the blynk application.*

**Keywords:** *Ultrasonic Hc-Sr04, vibration sensor module Sw18010p, Earthquake, Tsunami, Simulator.*