

## **ABSTRACT**

*Telkom University Dormitory is a temporary residence for new students and students located in the Bandung Technoplex area. This dormitory consists of ten male dormitory buildings and eight female dormitories, each building consists of four floors with each floor having an emergency exit that can be used for evacuation in the event of a disaster. But at this time, the key to unlocking the emergency door is still held by the security guard to avoid things that are not desirable, one of which is students who are not disciplined in terms of curfews. This is one of the disadvantages if one day a disaster occurs which causes the evacuation process to be hampered.*

*In this final project, a microcontroller-based smart evacuation gate and design of the evacuation gate will be carried out in the Telkom University dormitory building which can provide information in the event of a disaster, either an earthquake or a fire, as well as being able to open the door automatically under certain conditions. This system consists of a sensing node in the form of an arduino uno, ethernet shield, vibration 801S, accelerometer Adxl 335, as well as an actuator node in the form of a solenoid door lock, buzzer, and LED.*

*With the implementation of the microcontroller-based smart door evacuation system in the Telkom University student dormitory, it is proven that the system helps the process of evacuating students in the event of a disaster. The web server system can provide ease in controlling the solenoid door lock and monitoring on the sensor with an average delay of controlling the door opening by 6.012 seconds and closing the door by 5.649 seconds. The Vibration 801S sensor the percentage of accuracy is 80% with an average delay of sending data to the web server 18.46 seconds, while the accelerometer sensor adxl 335 gets an accuracy percentage of 80% with an average delay of sending data to the web server by 17.05 seconds.*

**Keywords:** *Disaster, evacuation, node sensing, node aktuator.*