

ABSTRACT

The current era is an era where technological progress is very functional, because it is very helpful for human tasks in carrying out daily activities, be it work or other activities. The technology that is widely used at this time is the microcontroller, the microcontroller is a technology that was previously manual to automatic so that it can be applied to today's electronic devices. In previous research, a security system made using a motion sensor, the sensor is installed on the garage door so that if someone enters through the door, the alarm will sound. The weakness in the motion sensor is that it can only detect when the thief has passed the door if there is no movement then the sensor will not sound. To cover the weaknesses in previous research, the author will create a system that uses a microcontroller-based vibration sensor. This study focuses on the sensitivity of the vibration sensor, to determine the sensitivity of the vibration sensor, a trial was carried out when there was vibration and without vibration. The results of this study indicate that the vibration sensor is functioning properly. The vibration sensor will detect the vibration on the door and the buzzer will convert the electrical vibrations into sound, while the LED will light up. In the measurement system, the difference between the vibrations used with the measurement ranges from 0.17-4.99 V while the error rate ranges from 3.4%-99.8%. It can be concluded that when vibration occurs the error rate is smaller than without vibration.

Keywords: *microcontroller, security system, vibration sensor.*