



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Kunal Jain	Project Number J1009
Project Title An Earthquake Warning System	
Abstract Objectives/Goals The purpose of this engineering project was to develop a warning system which would detect, measure, and alert everyone in the building based on the intensity of the impending earthquake. Methods/Materials Raspberry Pi with audio library installed, mini speaker, sensor module(accelerometer), EV3 lego kit, and rubber bands. I used the EV3 kit and rubber bands to build an earthquake simulator to test different sensor configurations with Raspberry Pi. Results The device I built can alert people with the appropriate warning message 100% of the time, and can measure earthquake intensities with only 5% error margin. Conclusions/Discussion I have invented an earthquake warning system by using a Raspberry Pi, speaker, and an accelerometer. The system is capable of detecting different earthquake intensities based on the Mercalli Scale. The Mercalli intensity scale is a seismic intensity scale used for measuring the intensity of an earthquake. Using the accelerometer sensor, a Python software, running on the Raspberry Pi, detects the earthquake and sends an appropriate audio alert to a wired speaker. My system is able to detect earthquakes in an area like a room or a building and can alert the people inside so that they can evacuate. I have used sensor technology and computer programming to build a user-friendly device for this application.	
Summary Statement I have invented a device that can detect, measure, and then based on the intensity, sound an alarm through the area.	
Help Received None, I programmed, built, and experimented for this project all by myself.	