# Piezoelectric Technology-Based Seismic Sensing Device for Earthquake Magnitude Detection

A Research Study

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# TABLE OF CONTENTS

# LIST OF FIGURES

# LIST OF TABLES

# ABSTRACT

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|---|---|---|
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Earthquakes occur all over the world everyday. Most of the time, we never hear about them and even feel them but they happen. Once in a while, a really large earthquake will occur causing damaging effects to the areas they act upon. Earthquakes and their resulting aftershocks can be devastatingly destructive. This includes damage/s to buildings and in worst cases the loss of human life. The effects of rumbling produced by earthquakes usually lead to the destruction of structures such as buildings, bridges, and dams. It can also trigger landslides. The aim of this study is to look for an alternative sensor that is comparative to the seismograph, for the latter is costly and complex in circuitry.

The research analyzes how piezoelectric works as a vibration sensor used to measure and determine G and Grms values. This research also concentrates on how to develop a seismic sensing equipment that is low-cost and simple in circuitry. It focuses on piezoelectric film sensors in experimental and simulation method needed for detecting seismic signals. Using a vibrating platform that is run by a motor, the researchers conducted a miniature model of an earthquake that was scaled prior to the real life earthquake. The goal of this study is to obtain reading-based from the vibrations produced by the motor. The seismic sensing circuit is driven with piezoelectric film transducers, which tell the corresponding G and Grms values measured in actual and interpreting the corresponding magnitude by the LCD.