**1. Problem Statement**

The primary objective is to develop a prototype system that can detect seismic activity (earthquakes) and provide timely alerts to reduce risks to life and infrastructure. This system must be capable of real-time earthquake detection and deliver alerts through an appropriate medium to ensure maximum efficacy.

**2. Scope of the Solution**

The solution focuses on creating a low-cost, efficient earthquake alert system leveraging microcontrollers and seismic sensors. The prototype will:

* Detect vibrations indicative of an earthquake using a sensor (e.g., accelerometer or piezoelectric sensor).
* Process data using a microcontroller to filter and analyze signals.
* Trigger an alert mechanism, such as a buzzer, LED, or SMS alert via IoT.
* Be scalable for future integration with advanced telemetry systems or cloud-based monitoring.