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Earthquake Detection & Warning System

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This project is based on the oscillations produced in a stationary simple pendulum due to the minute vibrations in the earth crust that usually precedes a major earthquake. Through the application of this apparatus enormous loss of human life can be prevented as the system emits an alarm facilitating early evacuation.

The apparatus consist of a stationary simple pendulum suspended between 2 light rays the light rays fall on a phototransister that is connected through an electronic circuit & a 4-OHM speaker. The circuit is explained in the attached circuit diagram. The entire apparatus is placed in an underground compartment. The equipment therefore becomes sensitive to the slightest movement of the earth.

An earthquake consists of movements in the earths crust. These movements cause the pendulum to oscillate the oscillations cause it to obstruct the light rays. Thus the rays cannot fall on the phototransistor. The phototransistor using sensitive to light consequently conducts a current to the relay that triggers an alarm emitted through the 4-OHM speaker. The resulting alarm can warn people to evacuate before the 'quake' reaches its full magnitude.

The lighted movements of the pendulum on destruct the light as the rays are placed in close proximity of the pendulum. The sensitivity of the equipment is thus increased manifold. However the apparatus should be kept away from area of artificial vibratory emissions (rack as a heavy object being chopped over the underground compartment) so that a false alarm is prevented. The otherwise large electric consumption can be minimized by the utilization of a solar cell.

The equipment can therefore detect an earthquake and the arising alarm can prevent the enormous loss of life (that usually forms the after mark of such calamity.)