Name : Ganesh Patel

Class : D6

IoT based Earthquake prediction

Index Page No

Understanding the problem statement :

Earthquake is commonly said to be a natural disaster which is also known as tremor or temblor.There is abrupt shake in the outside of the earth, which shades down the structures and kills a great many living souls in a second.The second size of a seismic tremor is traditionally detailed, or the related and for the most part out of date Richter extent, with greatness 3 or lower tremors being for the most part vague and size 7 causing genuine harm over enormous areas.Intensity of shaking is estimated on the changed Marcella scale. A seismic tremor is an erratic cataclysmic event that makes harm lives and property. It happens out of nowhere and we can't stop it however we can be cautioned from it. Presently a-days, there are numerous advancements which can be utilized to distinguish the little shakes and thumps, so we can avoid potential risk before some significant vibrations in earth.This work utilizes an accelerometer to recognize the pre-quake vibrations. Accelerometer is exceptionally delicate to shakes and vibrations alongside every one of the three tomahawks. The benefit of building an Arduino based Quake Locator utilizing Accelerometer is to diminish its destructivelosses.

Causes :- Earthquakes are caused by tectonic movements in the Earth's crust.The main cause is when tectonic plates ride one over the other, causing orogeny and severe earthquakes.

1. Volcanic Earthquakes : Earthquakes which are caused by volcanic eruptions are quite destroyable.

2. Collapse Earthquakes : In areas of intense mining activity, often the roofs of underground mines collapse and minor tremors take place.

Effects :- The primary effects of earthquakes are ground shaking, ground rupture, landslides, tsunamis, and liquefaction. Fires are probably the single most important secondary effect of earthquakes.

Components Used:

Hardware	Software
1) Arduino UNO	1) Proteus
2) Accelerometer ADXL335	2) Arduino IDE
3) 16*2 LCD	
4) Buzzer	
5) BC547 transistor	
6) 1K Resistors	
7) 10K POT	
8) Power Supply 9v/12v	
9) Berg sticks male/Female	
10) LED	

Additions Updates:-

We can also work with GPS that will lead to give exact location of earthquake that will be beneficial for rescue team.

Also GSM module can be used to reach each individual.

Applications, Advantages & Challenges :-

Application:-

The main reason is use to protect the human beings and animal.

Earthquake Alarm Systems can provide warning of ground shaking during an earthquake due to these people can be understood and run away from these place.

Advantages :-

(i) Ability to observe the operations more accurately.

(ii) Creation of further information resources which are faster and more easy.

(iii) It is economical and its price is less in such a way that it is affordable by every individual.

Challenges :-

Possibility of leak information in incorrect.

Delay in responding due to the high scale of networks.

Conclusion :-

We have presented a novel technique to solve the automatic detection and classification problem of earth tremor in single step by using Arduino based earthquake detecting device. In our system the majority of cases offer real practical benefits in the event of an earthquake to safeguard lives and resources. We can easily set up this system for household purposes as it consumes less power.

Reference :-

1] Jangsoo Lee, Irshad Khan, Seonhwa Choi and Young-Woo Kwon “A Smart IoT Device for Detecting and Responding to Earthquakes”issued: 15th December 2019

2] http://www.Circuitdigest.com

3] SHYAM JOSEPH A, ARUNKUMAR A, JAYASUDHAKAR J, MANIKANDAN P S“Earthquake Early Warning System by IOT UsingWireless Sensor Networks” issued: 25th March 2016

4] ChandamThousaina Singh, Ngangbam Michael Sing, “Anti-Theft Security System using Seismic Sensor ADXL335 (GY-61)”, IJESC, (Vol. 9, No. 7, July 2019.