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Natural Disaster Monitoring Alert Using IOT

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Abstract: ***Natural disasters like Land sliding , Forest Fires, Tornado and earthquakes are the great threats towards the mankind which cannot be prevented but careful planning of the emergency measures by alert system can often reduce disastrous consequences. Recent technological advances in communication made new trends in the disaster monitoring system. The system focuses on monitoring water level, earth vibrations via sensors, And generates alert signal when water level or level of earth vibrations***
crosses a threshold. Alert message is Text Message And Android app notification Service to the concerned authorities through their mobile phones. It also includes Public address (PA) system to broadcast the messages to the local people, nearby the Forest side. The module can also send status of water elevation to anyone who has the Android App . This module would be beneficial to the community and act as a precautionary action to save lives in the case of Land sliding , Forest Fires, Tornado or earthquake disaster.
Keywords: Sensors, Disasters, IOT, Android.

I. INTRODUCTION

Develop a user friendly android application which will give alerts to users. Natural disasters causes harm to man kind in very large amount. We can not control the natural calamities but we can take certain steps so that the harm
caused by them can be reduced till some extent. The system consists of a third-party server named Disaster Management Server (DMS), android device on which our application installed and user. Updates of the disaster (tsunami, cyclone or flood) are put on DMS by the local weather office. To get automatic notification of upcoming disaster device user registers on Disaster Management Server (DMS) else user can gets manual notification. The system focuses on monitoring water level, earth vibrations via sensors, And generates alert signal when water level or level of earth vibrations crosses a threshold. Alert message is Text Message And Android app notification Service to the concerned authorities through their mobile phones. It also includes Public address (PA) system to broadcast the messages to the local people, nearby the Forest side. The module can also send status of water elevation to anyone who has the Android App when the disaster or any natural calamity happens so that loss can be minimised .

A. Efficiency of existing System can be Increased Using Following Points.
1) Easy to use.
2) Help to reduce economical loss.
3) Help to reduce peoples death.
4) Instant inform about disaster to application users.

II. LITERATURE REVIEW

A. Integrating cloud WSN to analyse Weather Data and Notify SaaS user Alerts During Weather Disasters
1) Authors : Arjun D S, Arunachalam Bala, Dwarkanath V, Sampada K S, Pralhada Rao, Haribabu
2) Description : his paper presents an enhanced architecture for integrating cloud with wireless sensor networks to analyzeweather data and notify SaaS users alert during weather disasters at low cost. The occurrence of natural disasters affects lives, damages property and changes our lives completely. Existing system does not support node and network level virtualization for weather sensors.

B. Crowdsourcing-Based Disaster Management Using Fog Computing in Internet of Things Paradigm.
1) Authors : Ashish Rauniyar, Paal Englestad, Boning Feng, Do Van Thanh
2) Description : In internet of things (IoT) paradigm, crowdsourcing is the process of obtaining and analysing information or input to a particular project generated by a number of sources such as sensors, mobile devices, vehicles and human. Nowadays, every country and human are prone, natural and artificial disasters. Early detection about disasters such as earthquakes, fire, storms, and floods can save thousands of people's life and safety .

C. Effective Disaster Management using Internet Of Things (IOT).

1) Authors: Qinghai Ou, Yan Zhen, Xiangzhen Li, Yiying Zhang, Ling Zeng.

2) Description :In this paper gives idea about Effective Disaster Management using Internet Of Things (IOT).

III. PROPOSED SYSTEM

The system focuses on monitoring water level, earth vibrations via sensors, And generates alert signal when water level or level of earth vibrations crosses a threshold. Alert message is Text Message And Android app notification Service to the concerned authorities through their mobile phones. It also includes Public address (PA) system to broadcast the messages to the local people, nearby the Forest side. The module can also send status of water elevation to anyone who has the Android App

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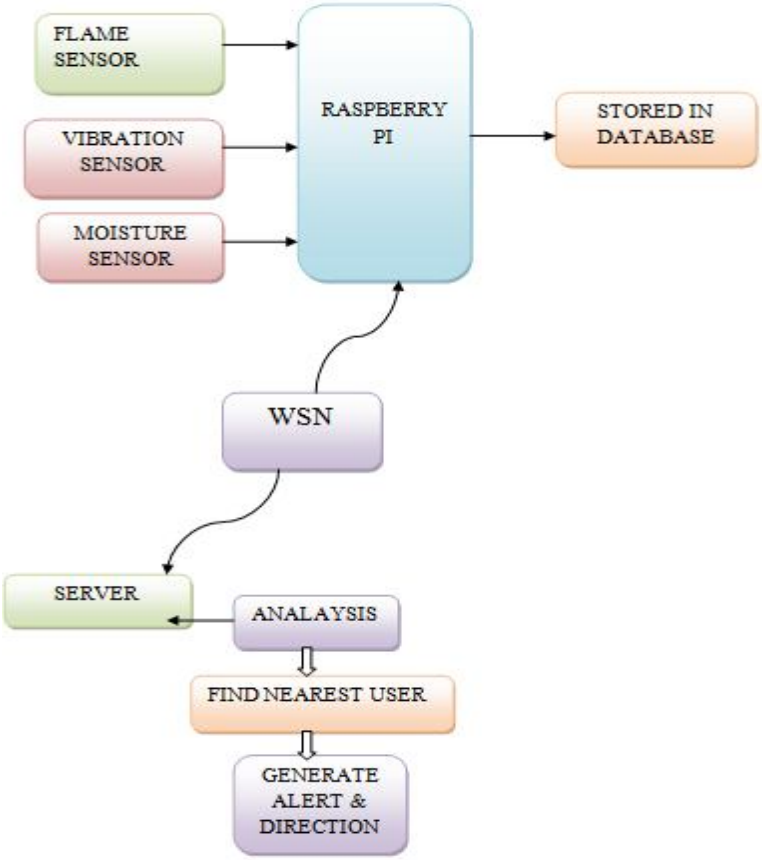
IV. SYSTEM ARCHITECTURE



A description of the program architecture is presented. Subsystem design or Block diagram, Package Diagram, Deployment diagram with description is to be presented.

This above diagram shows Raspberry Pi connected to three sensors which are Flame Sensor, Vibration Sensor, Moisture Sensor they directly connected which sense the data . All data which sense by sensors with respect to environment all it store in database. And then through Wireless Sensor Network (WSN) it is connected then the data which get by sensor is analysis first if it greater than threshold value then generate alert system to nearest user.

V. COMPNENT DIAGRAM

Component diagrams are used to visualize the organization and relationships among components in a system. These diagrams are also used to make executable systems. Component diagrams are different in terms of nature and behaviour. Component diagrams are used to model the physical aspects of a system. Now the question is, what are these physical aspects? Physical aspects are the elements such as executable. libraries, files, documents, etc. which reside in a node.

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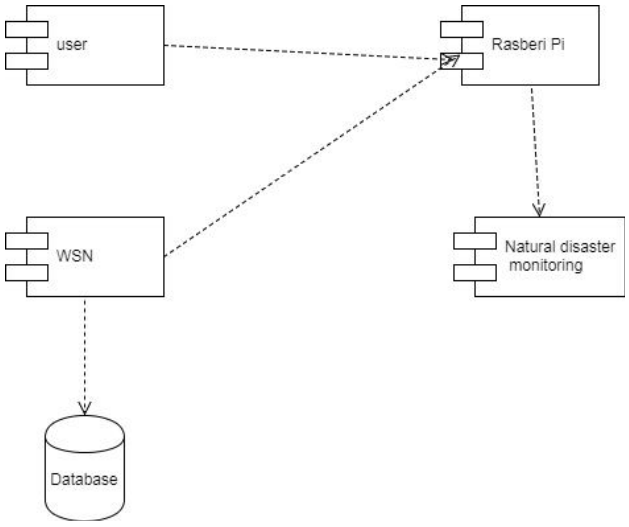

VI. CONCLUSION

Our proposed system is an android mobile phone application consisting of WSN. Three commercial sensors had been integrated with the system to monitor and compute the level of existence level sensor, monitors water level, earth vibrations via sensors, And generates alert signal when water level or level of earth vibrations crosses a threshold. The system can also send status of water elevation to anyone who has the Android App. This system helps out people to reach to the nearest safe place prior to disaster. Our application also facilitates the work of authority to track evacuation progress constantly so that user can take immediate steps if needed to reach to safe place. Lack of details on Google Map of developing countries is the main challenge of our work. The more volunteers working on Google Map can make map of the countries rich. In such case, our application will perform better in developing countries. We have future plan to implement an application for rescue and relief operation with better server side application to totally automate the system of detecting disaster prone area.

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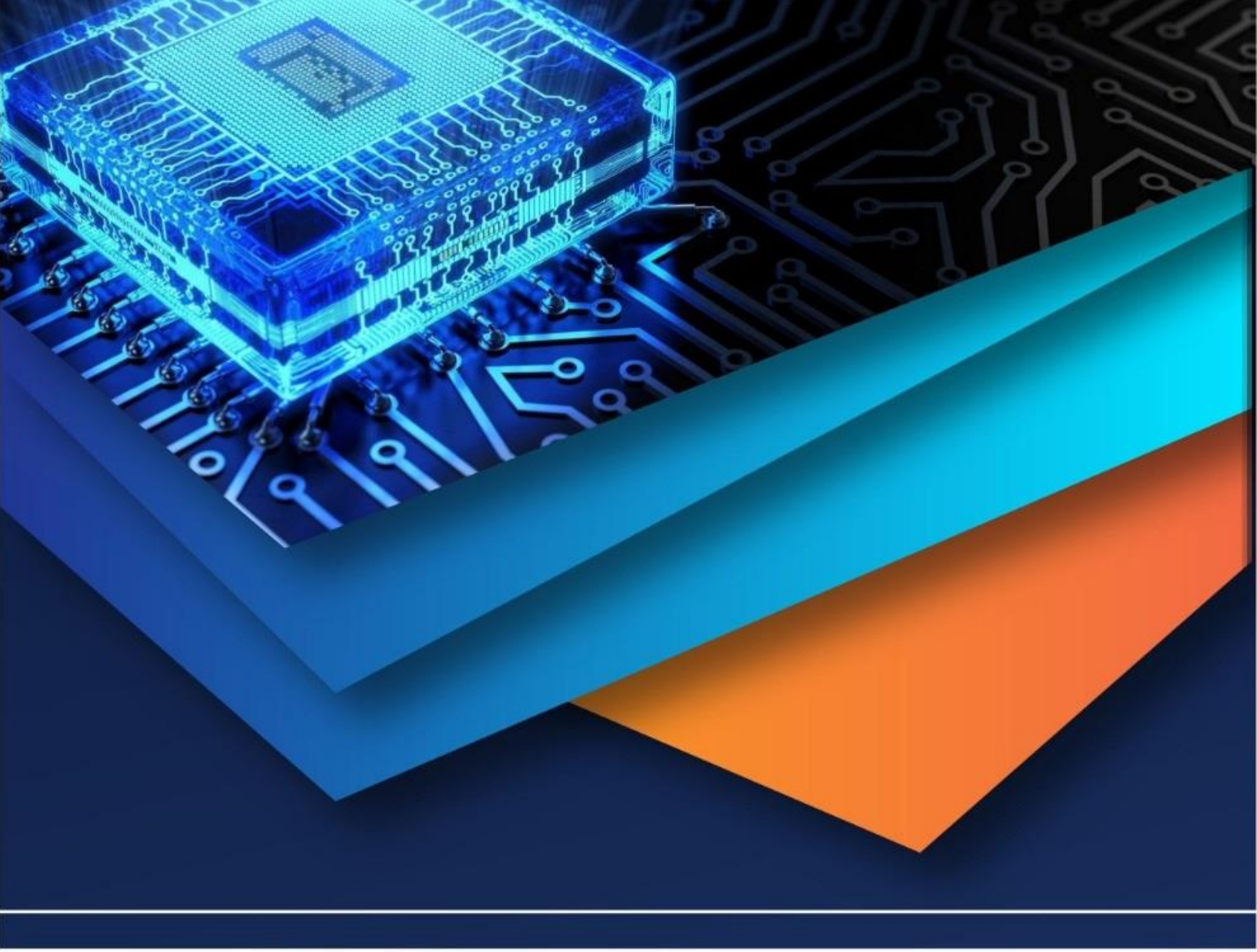

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