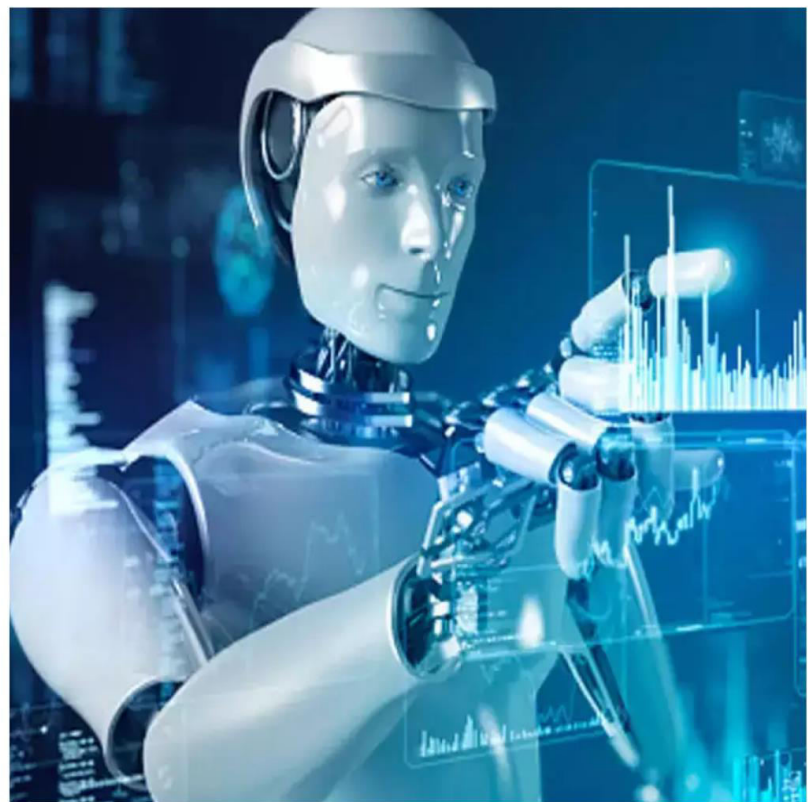




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Disaster Preparedness and Response App

Prof. Mrs S.S. Jogdand¹, Sanika Patil², Swanandi Kulkarni², Kadambari Abuj², Diksha Salunkhe²

Professor, Department of Computer Engineering, Pimpri Chinchwad Polytechnic, Pradhikaran, Nigdi, Pune, India¹

Student, Department of Computer Engineering, Pimpri Chinchwad Polytechnic, Pradhikaran, Nigdi, Pune, India²

ABSTRACT: Now in recent years the natural disasters is a very important issue and this issue is occur in many more region like Kerala, Bhopal, and Malian. This issue is occur due to the global warming, Deforestation, Heavy use of unwanted chemicals. Natural Disasters leads the vast loss of life and property damages in many countries. Hence we decided to implement one system that will help to our society from the losses. So the objectives of this project is to monitor the floods, fire, spark, landslides and send the alert in case of danger in the form of text message and call to take appropriate action. In this proposed system the detection section will consist of microcontroller and different sensors to detect the different situations like fire, floods, sparks, and landslides. The system deal with monitoring and controlling the conditions with sensors and send the information to people using SMS and call. Internet of Things (IoT) connects several devices in the world and they can exchange information in between them. To support Smart city vision, Urban IoT design plans exploit added value services for citizens as well as administration of the city with the most advanced communication technologies. To make emergency response real time, IoT enhances the way first responders and provides emergency managers with the necessary up-to-date information and communication to make use those assets. IoT mitigates many of the challenges to emergency response including present problems like flood, fire, emergency medical treatments etc. In this paper we propose an IoT based emergency alerting system which handle the emergency situations like disasters, medical emergencies or fire using mobile application or by using an IoT device placed in the buildings. If any of the above situation occurs, then the people can easily inform to the emergency monitoring center by single button click and that will update the database of monitoring centers with their map location. Authority can take action based on this data as well as they can give location wise alert to people where the chance to occur problems in the near future.

I. INTRODUCTION

In the proposed system based on IOT technology gives a real warning system using IOT is a new technology to implement the time analysis of flood and earthquake and so that can efficient flood and earthquake observatory and warning system with monitor the flood and earthquake affected areas. In the existing paper proposed and implemented such cloud based IOT system. This implemented on the IOT kit and Developed and android application, and a cloud based middleware platform is not only able to exchange data between publisher and subscriber but also perform the load balancing.

In the paper of early warning system of flood detection build the approach allows the sensors to be deployed at any desired location, the system developed in this project has low power requirements, is more maintainable, and is extremely low cost. Our system does not follow the multi-tiered approach which should lead to lower latency, and requires lesser resources. Research work aims at developing a system which facilitates aids in the collection of data with the help of interconnected modules consisting of multiple sensors useful for smart city monitoring as well as disaster management. This will consist of multiple Wi-Fi module that together share in the distributed resources and data, capabilities provided by physical objects such as sensors, microcontrollers, actuator etc. The paper reviews different for disasters monitoring system, after reviewing the different paper or methods and that paper no any single technic to give alert messages through calls. And this altering system help to villages to prevent the different losses like social and economic.

II. LITERATURE SURVEY

1 A cost effective and sustainable relief material supply visibility system for devastated areas designed a novel master-slave architecture-based system “Tensai Gothalo” to control the large-scale network fault to guaranty the robustness, network stability, ensure disaster readiness, and assist the network administrator in the decision-making process. A novel algorithm for fault restoration in the network, in conjugation with IoT, has also been proposed and

validated in this experiment. Post disastrous situation is key for the relief of the living ones. But, food and other necessary consumable items become very difficult to be handed over topology the victims of the disaster

2 Developing an integration framework for crowdsourcing and Internet of Things with applications for disaster response The main purpose of SCALE is to provide an alarm when it detects such prospective act of nature. This work proposes the Data in Motion Exchange (DIME) platform that is designed to allow heterogeneous integration of devices (and services) to publish/subscribe to any other data feed [1].

3 A semantic IoT early warning system for natural environment crisis management Real-time stream processing may be helpful for providing network services to the disaster affected people. But, inefficiencies in spanning memory, scheduling algorithm, effective networking, and stream processing kernels cause high throughput in streamprocessing. To solve this problem, “NEPTUNE” is proposed that reuses of objects that in turn performs memory swapping, page faults, and thrashing functionalities in a stabilized mode while throttling up the earlier stages in the processing pipeline

III. PROPOSED SYSTEM

This emergency alerting system provide a cost effective quality of services for the society. If any emergency situations occur, then the people can easily inform to the emergency monitoring center by single button click and that will update the database of monitoring centers with their map location. Authority can take action based on this data as well as they can give location wise alert to people where the chance to occur problems in near times.

Moisture Sensor: This will detect moisture in a tile and send the value of moisture to ESP32. ESP32 microcontroller: This will check the threshold of both the above sensor and will control the flow of water from river.

Notification: ESP32 microcontroller will send the notification to user about the status of the water or fire to depot manage.

A. Registration Module

This module is responsible for adding or managing users. Suppose new user download the app and creating a new account. The user can registration are successful then used for this app.

B. Disaster Detection

This module is responsible for a getting threshold value and checking the current value getting by sensors and managing the buzzer according to reading values. The disaster are occurred then sensor are sense the disaster then threshold value are compare with sensor value . The sensor values are crossed the threshold values then admin alert to the user through buzzer or text message.

C. Device test Module This module is responsible for a only checking the device is properly working or not

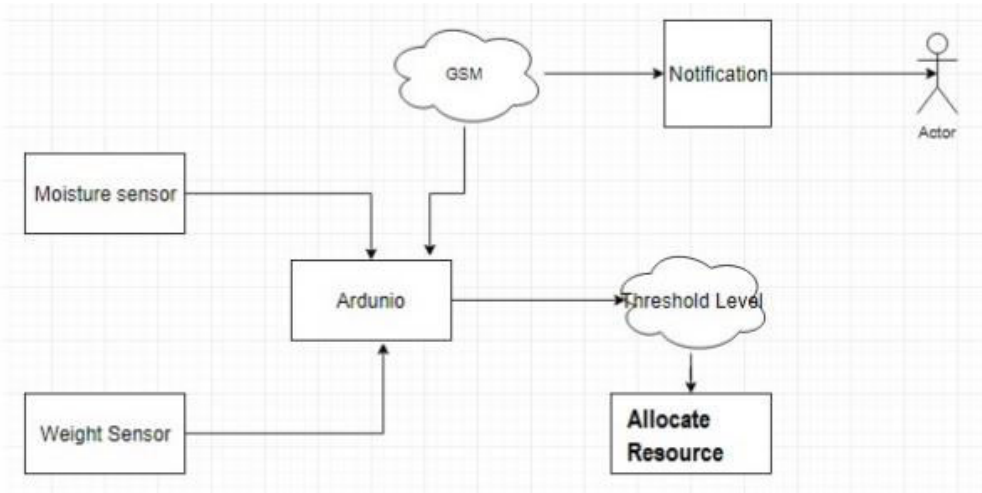


Figure 1. System Architecture diagram of the setup

IV. SCOPE

The project aims to develop a mobile application that provides real-time information and tools for disaster preparedness and response, enhancing community safety and reducing the impact of natural disasters.

The complete implementation of this system consists of hardware part and a software part. Software part is mainly implemented using Java, php and Json in between these two. Java on Android provides object oriented functionality and user friendly environment. Three buttons for three category of situations and other two are for reset and test • Activated, registered sim card Software Mobile application also used to handle the emergency situations. Home page contain three buttons representing three categories for users logged in

1. Hardware and Software

- 1) Android Studio.
- 2) Java 8
- 3) Embded C for hardware coding.
- 4) MySQL database.
- 5) Sensors: SEN0114 moisture sensor
Vibration sensor
MQ2 gas sensor
- 6) Arduino IDE

2. Platform: Android

V. CONCLUSION

This project will help to detect any disastrous situations and can alert the user. It will detect flood situation, earthquake and fire. Once it is detected it will send data to users. IoT based emergency alerting system is giving alert in emergency situations. We developed an efficient mechanism to handle and provide coordination of smart devices to perform an emergency alerting. The device which used in the system is reduce energy consumption, improve transmission speed and accuracy. It provides an energy-efficient data collection for the IoT applications. One major challenge for the IoT emergency alerting systems is to handle vast amount of location data generated from the smart devices. So, there should be an efficient mechanism to handle data from different IoT device with reduced energy consumption and improved data quality. These are resource-limited and subject to missing data due to link or node failures. Moreover, this proposed emergency alerting system is best one in emergency conditions. In future, more categories of emergency conditions can be added to the system to make it useful all situations. If we use sensors predictions can be made more accurate and advanced.

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REFERENCES

- [1]. Arjun D. S ,” Integrating cloud-WSN to analyze weather data and notify SaaS user alerts during weather disasters” Published By 2015 IEEE International.
- [2]. Ashish rauniyar, ”croudsourcing-Based Disaster Management Using fog computing in Internet of Things Paradigm” Published By 2016 IEEE 2nd International Conference.
- [3]. Rajesh singh ,” Land sliding and monitoring using WSN” Published By 2014 IEEE International.
- [4]. yiyng zhang ,”Internet of Things(IoT) foe Effective Disaster Management ” Published By 2012 conference Publication.

- [5]. Garcia, A., Hördt, A. and Fabian, M. (2010). "Landslide monitoring with high resolution tilt measurements at the Dollendorfer Hardt landslide, Germany", Geomorphology.
- [6]. S. S. Vishnu "Disaster Alert and Notification System via android mobile phone by using google map, published by 2014.
- [7]. Sagar D. Kharade, "Natural Disasters Alert System using Wireless Sensor Network" Published By 2015 conference Publication.
- [8]. The next frontier for innovation, competition and productivity ,McKinsey. [9]. "Digital competition://www.mckinsey.com/insights."
- [9] Yuan Jie Fan, Yue Hong Yin, Yan Zeng and Fan Wu, "IoT-Based Smart Rehabilitation System". IEEE transaction on industrial information, VOL. 10, NO.2, MAY 2014.
- [10] Yuan Jie Fan, Yue Hong Yin, Yan Zeng and Fan Wu, "IoT-Based Smart Rehabilitation System". IEEE transaction on industrial information, VOL. 10, NO.2, MAY 2014.
- [11] Ravi Kishore Kodali and Subbachary Yerroju, "IoT Based Smart Emergency Response System for Fire Hazards". 2017 IEEE.
- [12] Paul N. Gergen, Pass Christian, Miss, "Emergency alerting system for remotely located site". Aug 19, 1996.
- [13] Swapnil Bande, Prof. Dr. Virendra V. Shete, "Smart flood disaster prediction system using IoT and Neural Networks ". 2017 IEEE.
- [14] K Prabodh Sakhardande, Sumeet Hanagal, Savita Kulkarni, "Design of Disaster Management System using IoT Based Interconnected Network with Smart City Monitoring". International Conference on Internet of Things and Applications (IOTA) Maharashtra Institute of Technology, Pune, India 22 Jan - 24 Jan, 2016



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