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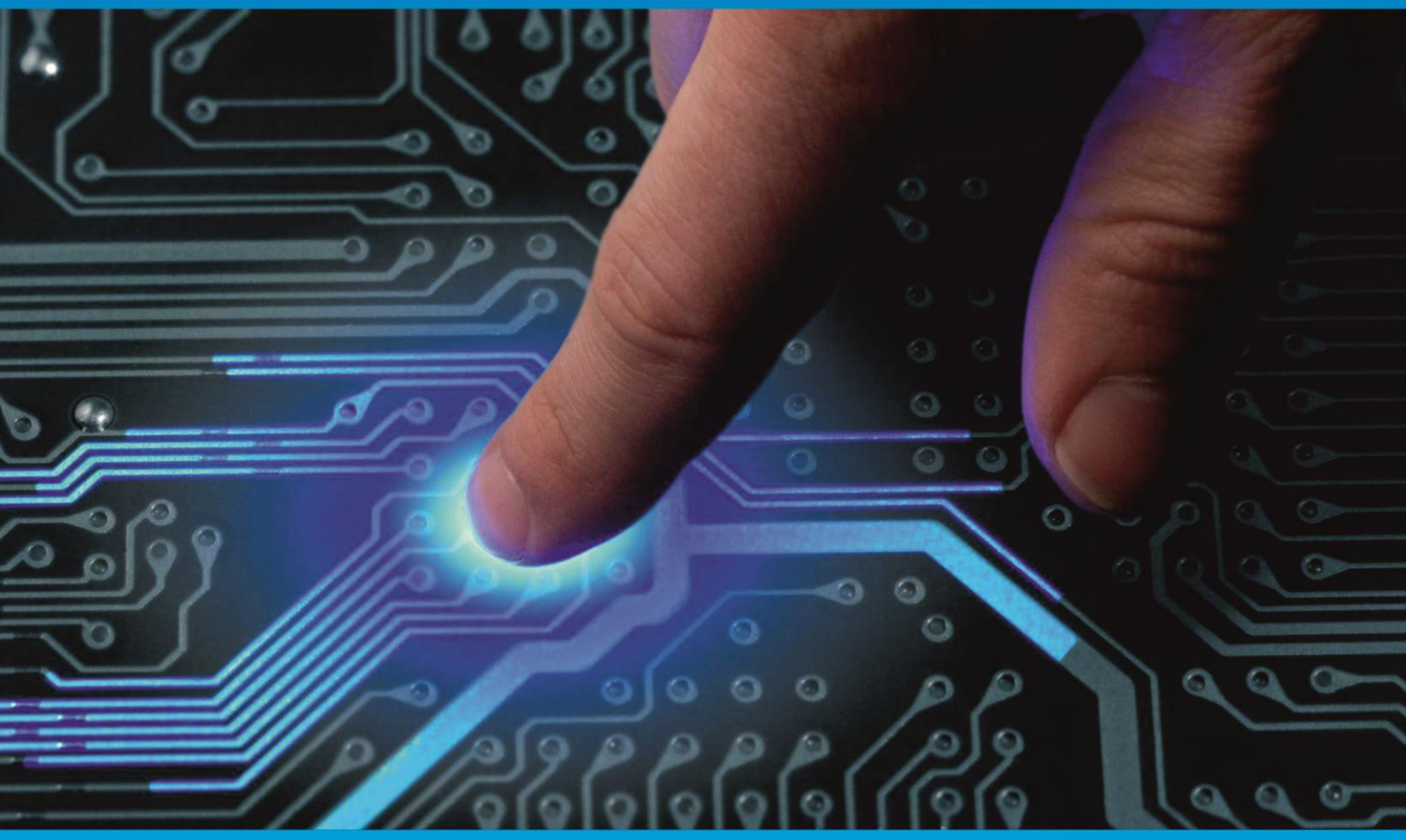

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Disaster Management using IOT

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ABSTRACT: Disastrous events are cordially involved with the momentum of nature. As such mishaps have been showing off own mastery, situations have gone beyond the control of human resistive mechanisms far ago. Fortunately, several technologies are in service to gain affirmative knowledge and analysis of a disaster's occurrence. Recently, Internet of Things (IoT) paradigm has opened a promising door toward catering of multitude problems related to agriculture, industry, security, and medicine due to its attractive features, such as heterogeneity, interoperability, light-weight, and flexibility. This paper surveys existing approaches to encounter the relevant issues with disasters, such as early warning, notification, data analytics, knowledge aggregation, remote monitoring, real- time analytics, and victim localization. Simultaneous interventions with IoT are also given utmost importance while presenting these facts.

I. INTRODUCTION

Disasters often take place in the vicinity of human livelihood. Most of the time, it is either natural (e.g., landslide, earthquake, tsunami, flood, forest-fire, and lightning) or manmade (e.g., industrial explosion, leakage in an oil pipeline, leakage in gas pro- duction, and terrorist attacks). Regardless the cause of incident, disaster leads to huge destruction in terms of economic and human lives. Some of the dangerous disasters in the history of mankind are Bhopal (India) gas accident (1984), Chansala (India) min- ing disaster (1975), 9/11 terrorist attack (USA), Chernobyl (Russia) nuclear accident (1986), Indian Ocean tsunami (2004), Nepal earthquake (2015), and Fort McMurray (Canada) forestfire (2016)

II. LITERATURE SURVEY

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 dis- aster 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

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 prospec- tive 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 pub- lish/subscribe to any other data feed [1].

A semantic IoT early warning system for natural envi- ronment 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 stream- processing. 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. PROBLEM DEFINITION

The system proposed is an advanced solution for monitoring the natural disasters at a particular place and make the information visible anywhere in the world. The technology behind this is Internet of Things (IoT), which is an advanced and efficient solution for connecting the things to the internet and to connect the entire world of things in a network.

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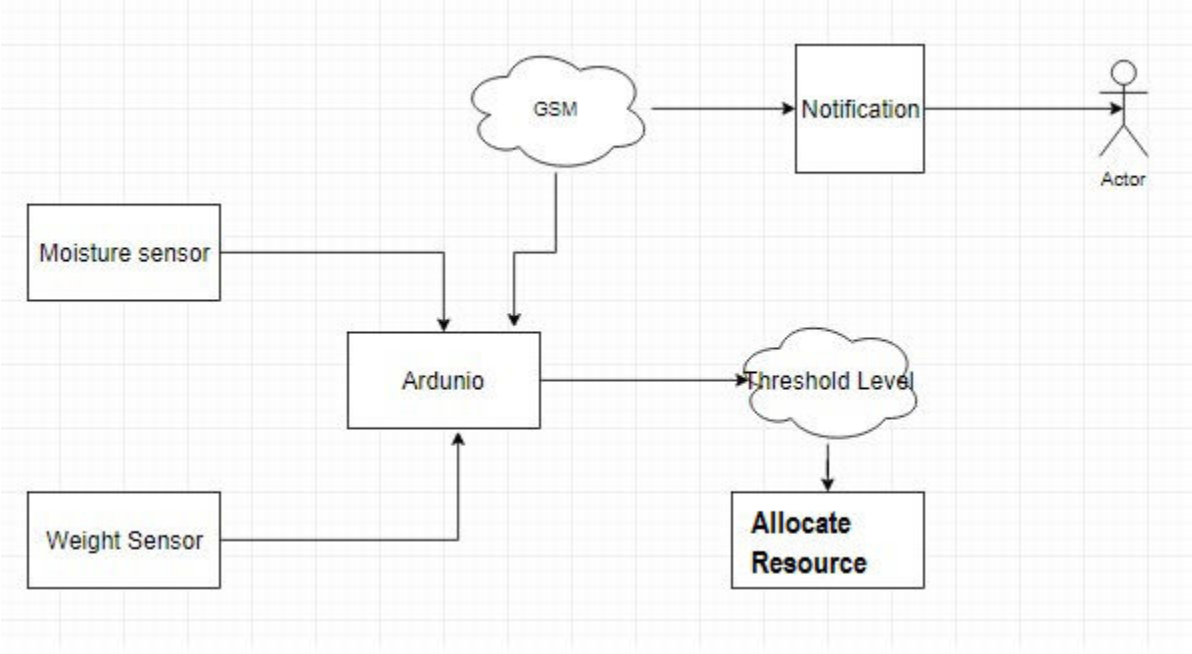
IV. METHODOLOGY

The proposed Embedded device is for monitoring coordinates of the earth, and water levels in a particular region to make the environment intelligent or interactive with the objects through wireless communication. The proposed model is shown in figure 1 which is more adaptable and distributive in nature to monitor the coastal areas parameters. The proposed architecture is discussed in a 4- tier model with the functions of each individual modules developed for earthquakes and floods monitoring. The proposed model consists of 4-tiers. The tier 1 is the parameters to be considered, sensor devices in tier 2, sensor data acquisition and decision making in tier 3 and intelligent environment in tier 4.The proposed architecture is shown in figure 2.here, the tier 1 provides information about the parameters under the region which is to be monitored for floods and earthquakes control. Tier 2 deals with the sensor devices with suitable characteristics, features and each of these sensor devices are operated and controlled based on their sensitivity as well as the range of sensing.

V. SYSTEM ARCHITECTURE

Moisture Sensor: This will detect moisture in a tile and send the value of moisture to arduino.
Arduino microcontroller: This will check the threshold of both the above sensor and will control the flow of water from river.
Notification: Arduino microcontroller will send the noti_cation to user about the status of the water
or fire to depot manager.



VI. CONCLUSION

This project will help to detect any disastrous situations and can alert the user.It will also apply machine learning algorithm and sends the resource allocation to particular sites depending upon the severity level of disaster.

VII. FUTURE WORK

The proposed system depends on user interaction to get the status of fire or water. Additionally, a timing mechanism can be implemented where the user specifies a particular time during the day when the system can check the water automatically depending on the level of water. • The time can be set and changed by the user according to his wish. Furthermore, the data collected by the system can be utilized to judge the water level. • Data obtained can be analyzed

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by using Data Mining techniques in order to predict efficient water level or fire level.

VIII. APPLICATIONS

. The application is fed with various details and the water wastage is avoid if the water overflow is detected. The application allows user to share their water related issues. It then processes user specific details to check for water wastage by continuing monitoring the weight of bucket and overflow from bucket .

1. Private Homes or Bungalows
2. Housing Societies
3. Apartments
4. Schools and colleges hostels
5. Hospitals
6. Offices
7. Municipal overhead tanks (with slight changes in hardware)

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