Research Paper

IoT Based Flood Detection and Notification System using Mobile_app

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Abstract- *Flooding is considered one of the most devastating natural disasters in the world. In countries like India with climatic conditions occurrence of heavy rain fall and subsequent discharge of water leads to Flood. Flooding creates major damages to life, their habitats and the economy by installing of flood alerting systems near major waterways vital information can be provide so that lives and property can be protected. Normal Weather monitoring and alerting systems are not quick and accurate enough to predict floods in time to prevent personal or environmental damages. The government has to spend tons of money in flood mitigation plans to help the victims and also to reduce the number in the long run damages that can occur after flooding. Since Most of the flood alerting systems involves high cost they are deployed on select locations based on priority.*
Keywords- *flood, IOT, Diaster warning.*

I. Introduction

Flooding can be very dangerous, when floods happen in an area that people live, the water carries along objects like houses, cars, furniture and even people. It can wipe away property, trees and many heavier items. For years, flooded roads have been a problem in Metro Manila. It causes heavy flow of traffic. Both motorists and computers are getting stuck in a flooded areas and getting lost in finding possible routes just to go to their destinations. When traffic happened people's money, time and effort are wasted. Through the local government unit flood control has been extending their efforts to inform the commuters regarding the situation in flooded areas during rainy season, still the dissemination of information to the locals are not enough. For this reason, the "Arduino Flood Detector System" is been develop, to help the road user to avoid this problem happened. It was invented based on problem faced by motorists and commuters when flood occurred. This will avoid the traffic jam because the users have a time to find a possible route before they are going to be stuck at the flood area.

The Internet of Things builds on three major technology layers: Hardware (including chips and sensors), Communication (including mostly some form of wireless network), and Software (including data storage, analytics, and front end applications). IoT describes a system where items in the physical world, and sensors within or attached to these items, are connected to the Internet via wireless and wired Internet connections. The physical objects that are being connected will possess one or more sensors. Each sensor will monitor a specific condition such as location, vibration, motion and temperature. In IoT, these sensors will connect to each other and to systems that can understand or present information.

1.2 Objective of project:

This flood alert system is basically useful to get idea about flood in forecast to do the sensing of the incoming water level for detection of flood is done by implementing sensors. In this way water level will be sensed by the sensor and concerned messages will be given to the controller then it will take the further action on that command.

1.3 Scope of project:
➤ The given product is develop using sensor network.
➤ The main purpose of application is to know nearest flood situation.

1.4 Application
The early flood detection and avoidance system has following applications:
Early information about flood.
The main purpose of application is to know nearest flood situation on a simple android app. Gives the real time temperature and humidity data along with level of water.

II. Existing System

Disaster flood alert system using GSM and ultrasonic frequency sensors is one of the important technology which is useful to make the people alert from disaster flood, in this project ultrasonic transducers are used to find out the water level of the flood . And then information given to the controller and GSM, this system continuously send the messages towards control room about the level of the flood when water level will change.

2.1 Proposed System
The existing system in terms of efficiency, a test was conducted by recording the time delay of the detection of the water level to be transmitted updated in the website. Through this system, the information could be available to anyone who could access the internet once the website will be given a domain and can be broadcasted live in the internet. Aside from the people near the river who would be alarmed once the water level will be of critical level, those who are away will also be informed of the current situation. With that, necessary preparations and safety measures can be done. It could be a help to prevent or lessen the damages that flood may bring. The flood warning system should be carried a step further in notifying the public. Since social networking is at the moment one of the popular medium of communication, sending an alert through it would hence reach a larger audience.

III. System Architecture

Disaster flood alert system using and water level Sensor or Moister Sensor is one of the important technology which is useful to make the people alert from disaster flood, in this project Moister Sensor are used to find out the water level of the flood. And then information given to the controller, this system continuously sends the messages towards control room about the level of the flood when water level will change it send to server.

In this system we are checking the Flood alerting system, we are using the sensor to find the water level, according to water level will find the flood level increased. The flood alerting data stores in server. Thi
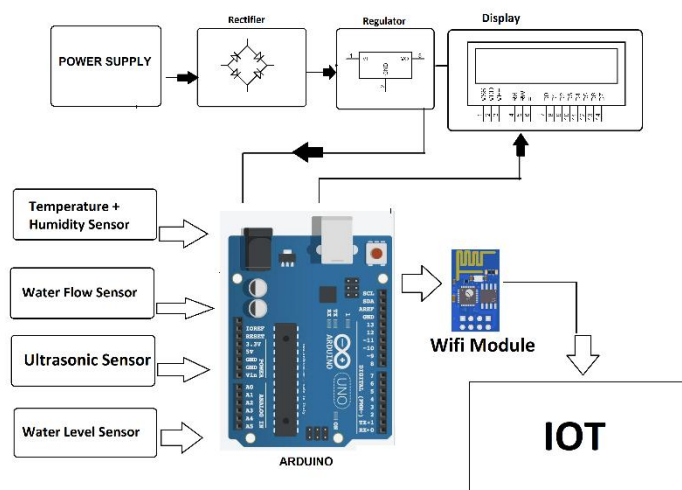
Things (IOT) In fact, it offers a complex scenario for the variety and number of sensors involved, their location and relative communication problems. The type of sensors involved in the process and the corresponding type of installation depend on the kind of collected data and on their geo-localization(i.e., urban areas, where powering and communications are relatively simple, or in remote and diffcult to access mountainous or country locations). The kind of data collected ranges from rain monitoring to river gauging with several parameters to be monitored and compared. In the case of rivers, the problem depends on their size and dimension and geography of the region where they flow, if they are small creeks or wide rivers, if they flow in a steep or at area, in open air or are channeled.

IV. CONCLUSIONS

This project deals about the monitoring of flood speed and flood level remotely from anywhere in the world using internet through a personal computer or Smartphone and alert the general public. In this project raw data loaded in the cloud can be visualized in graphical format with in a very short span of time.

Finally, it is concluded that, the system can detect and hypothesize the flood earlier. The project is based on embedded system and close loop control system. System consists of hardware and software applications to detect water level of rivers, dams etc. System automatically detects the change in level of water and alerts the system when it crosses the threshold value (less than 20cm). The system includes ultrasonic sensor to detect the rise in water level and alert if distance between water and sensor is less than 20 cm. DHT11 sense the temperature and humidity which help to analysis the environmental factor for flooding. If the water level crosses the threshold value than Raspberry pi turns the buzzer and led turn on which symbolizes the warning for early flood.

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