A REVIEW PAPER ON FLOOD MONITORING AND ALARM SYSTEM USING AI

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ABSTRACT

The proposed system flood monitoring and alarm system using Ai. The project mainly constitutes a wireless sensor nodes which called as a remote and the remotes are placed along the river beds to monitor water condition. Each node is connected with a aurdino uno module. The measured parameters are processed by the Raspberry pie which contains 64-bit ARM Cortex A53 processor. The processed information transmitted from corresponding node to alert management system using cloud. Application program interface (API) is used as a data logger. Google spread sheet is mapped to free analytics software which will be called as the alert management system. The alert management System can be used to observe, record and trigger the alarm message to the people before disaster knockouts.

1. INTRODUCTION

Flooding is a form of natural disaster that occurs all over the world. Currently the warnings or the notification of the flood are late which end up flood taking lives of many people and animals and it affects the economy as well, this makes monitoring and alerting about the flood very important. There are several conditions that we must remember in order to make a sound decision to avoid flooding.Many families prefer to live close to bodies of water, especially rivers. Rivers offer a diverse range of services and possibilities. Rivers are a source of water food, water, transportation, and safety are all necessities. This seemingly innocuous watercourse, however, has the potential to transform into a raging river of large-scale devastation. Unprecedented cataclysmic flooding may result in fatalities and loss of humans & animals .most probably this kind of problem mostly faced in rainy sessions.
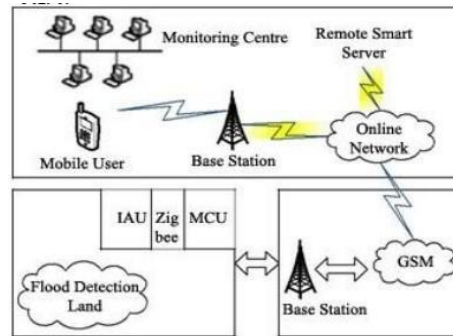
II Existing system:

There are a number of systems that are designed for predicting flood and warning the population residing near danger zone. Some of the major ones are discussed below.

According to Pallaviet. al

The consequences for humanity The most common natural disaster is flooding. Floods are known to cause extensive damage. Many sophisticated systems for tracking flood levels in flood-prone areas are commonly used by organisations and responsible authorities. The majority of these devices are extremely expensive to use and maintain. The proposed system employs N-motes and N-gateways to collect sensor data.(1)

According to Tobin Mathew Thekkil:

Flooding downstream from dams caused by environmental disasters results in the failure of evacuation of local residents, due to high mortality and casualties. To prevent erosion and, as a result, injuries, it is critical to record the height reached by the water and the leakage of water through dam walls in real time. Traditional manual control is inconvenient and dispersed these days.

Fig 1 flow diagram of the Exisirg System

**According to Mohamed Ibrahim Khalafalfahadiwy**

The aim of this paper is to describe a flood detection system that generates alerts. This paper focused on the creation of a device that will use sensors to calculate the current water level and then send a notification via GSM modem using a wireless sensor network. The device, on the other hand, does not stop there; it also sends notifications via popular social media platforms.(3)

According to Abhijeet A Pasi:

Environmental monitoring using a wireless sensor network (WSN) is one of the most difficult tasks that the research team has tackle da neighbourhood As a result, it is important to use modern sensing and communication equipment to track and detect flood events. Wireless sensor networks on the ground are the focus of a lot of research and development. Several programmes are used low-cost advantage (4)

According to Hassanain Al-Majeed :

Environmental data collection has historically been a very manual method. And with the introduction of electronic records. The workload for handling instruments in the field has not been substantially decreased by recording instruments. Wireless sensor networks (WSNs) are low-cost microcontroller systems with wireless connectivity that have recently been created. With the rise of low-carbohydrate .foods,It shows in fig(2)
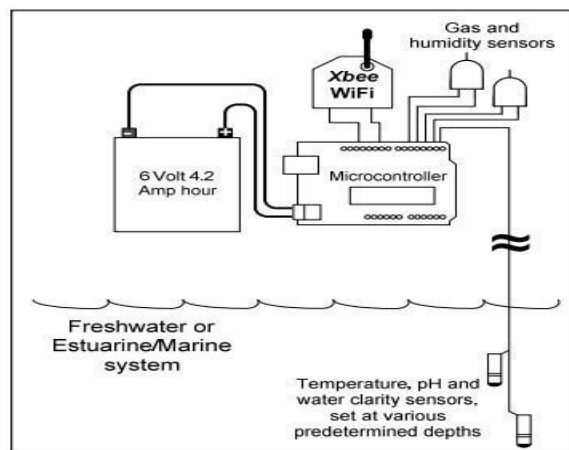
Fig 2 Layout diagram of given system

III PROPOSED SYSTEM

The given system is a low cost easy to built warning system..Arduino UNO R3 is an open-source microcontroller board based on the ATmega328P microcontroller. This microcontroller is perfect for beginners who want to start tinkering. Arduino Uno has a flash memory of 32KB which is sufficient for your DIY projects.It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header.would be required to achieve low revisit times using this technique, even though it is cheaper. Sentinel 2's revisit time, for example, is two to five days. It is possible to get around this limitation by using remote control technology. Sensing images is a form of perception. A satellite-based SAR system of the latest generation can detect small ships (up to a few metres in length) at sea in most weather conditions, including day and night and through
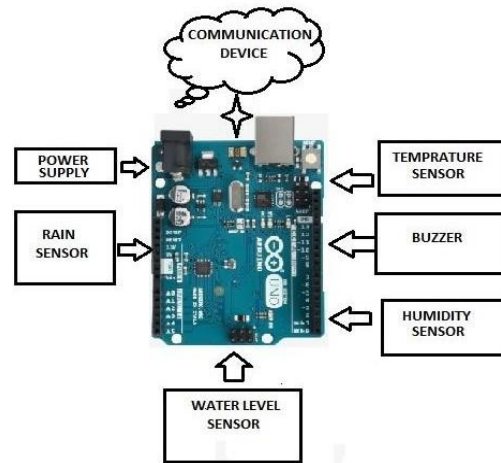
Fig 3 Block Diagram of Arduino based proposed system

HARDWARE:

Arduino : The Arduino Uno is an open-source microcontroller board designed by Arduino.cc and based on the Microchip ATmega328P microcontroller. The board has a combination of digital and analogue input/output (I/O) pins that can be used to connect to different expansion boards (shields) and other circuits. 1st The board has 14 digital I/O pins (six of which can output PWM) and 6 analogue I/O pins, as well as being programmable which will be work on 12 V.

Temperature sensor :A temperature sensor is an electronic system that measures the temperature of its surroundings and transforms the input data into electronic data in order to log, track, or signalchanges in temperature.

Humidity sensor :A humidity sensor is an electronic system that detects humidity in its surroundings and transforms the results into an electrical signal. The maximum amount of humidity for air at the same temperature is compared to the live humidity reading at that temperature to measure relative **.**
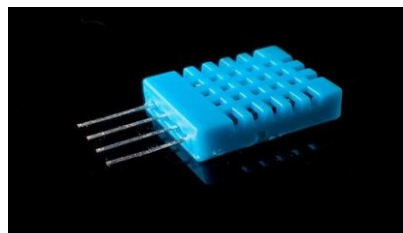
Fig 4 Snapshot of actual humidity sensor

Water level sensor :
The level of substances that can flow is detected using level sensors. Liquids, slurries, granular content, and powders are examples of such substances. These measurements may be used to figure out how much material is in a controlled atmosphere or how much water is flowing in open channels
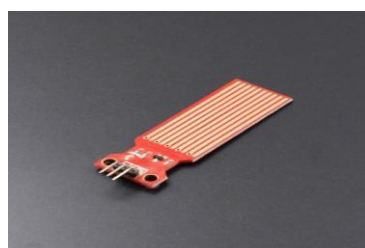
. **Fig 5 Snapshot of actual Water level sensor**

Rain water sensorWith the weather being as fickle as it is, it's convenient to leave your skylights open, just for it to start

Fig 6 Snapshot of actual Rain water sensor

raining unexpectedly, putting the interior below at risk. You can, however, prevent this from happening with this rain sensor.When rain or slushy snow/hail is detected, you can use this sensor to send closure requests to electronic shutters, windows, awnings, or skylights

We have to create our main server which will be placed on Dam side .create sub devices which will be place on River beside or nearby villages. We will collect data form all the sensor and uploaded in any specific cloud that I have get best preference. As per data monitoring get weather report & water level data with help of Artificialintelligence technique we will analysis and get alerts

IV ANALYSIS & ALARM SYSTEM:

The proposed system + measures water level and rainfall. One system will be implemented . Our aim is to predict flooding before flood and Alerting .as per research whenMadhya Pradesh Dam open in Rainy session water lever suddenly increase in Maharashtra rivers .

We can implement our main system in MP dam and & sub system are placed in River beside or near by villages.it will be connect multiply with each other will we will create our own server all are connected with each other and finally all gathering data will be send in main server its will take action and seems water level increase in river they will get alert ..

Alert will be divide in 3 step & 3 different sounds.

- Normal Level
- Extrema level
- Risk factor
- Basically normal level indicated sound peoples aware about flood.
- Extrema level Alarm can be use foe sudden water level increase due to heavy rains or some time open dam door..
- Final is Risk Factor alarm will be placed for something uncertain or unexpected natural disaster occurs for examples Dam are broken or sudden heavy

Fig 7 GUI OF THE DESIGN SYSTEM

V) CONCLUSION

In this paper This system is very beneficially for those peoples who lives nearby rivers .as per research every year peoples faced this kind of problems specially is in in rainy session.As per our system we will protect peoples from flood .save humans & animals life.

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