

SMART FLOOD DETECTION AND ALERTING SYSTEM USING IOT PLATFORM

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Abstract-Flood is one of the catastrophic events which can't be forestalled. Consistently, demise rate expands due to nonappearance of early notice. To take care of this issue, this task exhibits the thought and execution of a Flood Monitoring and Alerting framework utilizing Internet of Things (IOT) innovation. Flood observing and ready framework utilizing remote sensor network is a venture to gather flood information and caution individuals. The task will build up a framework that utilizes a remote sensor network which comprises of a sensor, handset to send information, and computational gadget to screen and foresee the flood. Water level, Temperature, and Water speed information are imperative to foresee the debacle. The working guideline for this instrument starts with sensors gathering flood boundaries at a particular area, trailed by the transmission of these boundaries from the gadget to the customer. The framework will naturally contrast the deliberate boundary and the limit esteem that we set for the likelihood of flood catastrophe. On the off chance that the deliberate qualities surpass the edge esteems that are set, an alarm message will be set off using IOT stage.

Keywords: Internet of Things, Node MCU ESP 32, Wireless Sensor Network, Sensors

I. INTRODUCTION

Flood is a cataclysmic event that routinely happens every single year. During event of a rising water streams out from the waterway and lowers the land that is normally dry. Flood, a characteristic wonder that by and large outcomes from substantial downpours brought about by storm, typhoons, cloud blasting, softening of glacial masses, which surpasses the abilities of water bodies. However, one of the fundamental parts of the wellsprings of ostentatious floods is substantial downpour. There are numerous sorts of flood which are streak flood, flowing flood and storm flood.

Flood calamity can be in enormous scope and adequately incredible to convey large obliteration to specific territories. The misfortune is huge in causing lost in

existence of occupant, the harm of property and food supply, and annihilation to government framework. Numerous significant advances should be taken to relieve monetary and human misfortunes. The expectation and cautioning framework could can possibly diminish the extraordinary Flood misfortune. There are still a few territories with early flood notice frameworks, however the vast majority of them are not as compelling as possible regularly just present the information to certain associations with little distances. So it requires some investment to send the message to general society dwelling in the encompassing regions in the event of flooding with the goal that individuals couldn't save quite a bit of their property on the grounds that the water level ascents radically in less time.

The flooding couldn't by and large be ignored, yet early abnormalities can be made, i.e., early admonition frameworks can be utilized to limit the losses experienced by the local area with the help of consistent observing. Keeping up of key separation from before outrageous damage can give sufficient chance to inhabitants void in the nearby locale. The principle subject of this undertaking is to create and plan a flood recognition framework that will identify naturally and send information through IOT.

II. RELATED WORK

[1] D. Samarasinghe, P.M. De Silva, T.U Mudalige, M.K.I Gamage, P. K. W. Abeygunawardhana. The flood prediction module was implemented based on Seasonal Auto Regressive Integrated Moving Average and Naïve-Bayes Algorithm with the real data set gathered from Disaster Relief Management Department, Meteorology Department and Irrigation Department of Kelaniya, Sri Lanka and sensor data collected from floating devices. Every year we can hear minority deaths caused and majority of damage for property due to flood. For the last 3 years flood was

being recurred for the Kelaniya area but no one could not able to acknowledge impending situation.

To achieve this task we are introducing Smart Guardian Flood Alerting System in trusted manner to survive human lives from flood. People would be able to prepare themselves and their most valuable property that would be able to take with them by predicting the flood situation. We could not break off flood but we could try to save 65% of human life via this proposed system caused due to flood. As the proposal explains this product is suitable for every man kind in Sri Lanka that ultimately provide efficient solutions to mitigate drowning death and also disaster solution which will minimize the number of deaths and damages due to Flood.

[2] Venita Babu, Dr.VishnuRajan X. Designing and implementation of Flood and earthquake detection and rescue using IOT technology is successfully completed. The system is able to monitor the water level sensor, accelerometer sensor, rain sensor to detect the presence of flood and earthquake to alert house hold members and authorities. The system performed well as per the design.

By analysing various technologies it is better understood that IoT. The future work includes visualizing the location of flood and earthquake affected area in ThingSpeak IoT platform and monitoring those data on internet enabled devices. Also, the system can be extended to IoT based other natural disaster detection system.

III. EXISTING METHOD

- The existing innovation used to screen and alarm flood can be sorted into two classes, far off detecting information and nearby detecting information.
- Remote detecting information typically utilize Satellite to record the picture of the cloud and foresee the downpour development.
- Local detecting information will quantify the flood boundaries nearby investigation which is at the stream by introducing sensor hubs along the waterway.

IV. PROPOSED METHOD

- This project will plan a flood checking framework for flood Region that will utilize nearby detecting information by means of microcontroller framework for observing and the framework can likewise quantify different flood boundaries, for example, water speed, water level and temperature.

- An alarm will be shipped off the client when the perusing of the boundaries surpasses the limit esteems showing hazardous flood condition.
- In this project, the gadget will distinguish the information and communicate it to the customer from its territory.
- From the information to the customer, in the event that it expands a specific limit esteem it sends an alarm message.
- So, the client can be educated about the flood and prompt precautionary measures can be taken.

V. BLOCK DIAGRAM

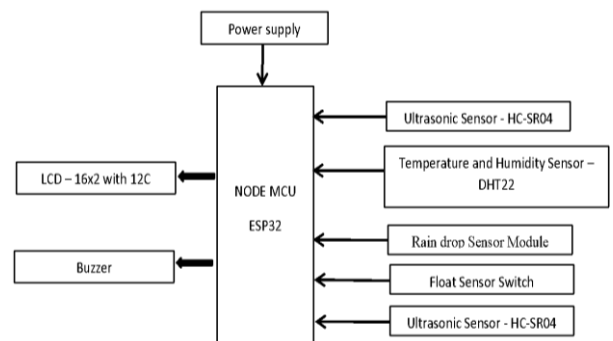


Fig. 6.1 Block diagram

VI. EXPERIMENTAL RESULTS

The below shown figures are the experimental results of our project wherein a circuit board is placed to process the information and results are displayed on a Laptop and LCD.



Fig. 7.1 TEMPERATURE MEASURED

The above figure shows that the Temperature measured.



Fig. 7.2 HEAT INDEX

The above figure shows the Heat index being measured.



Fig.7.3 DISTANCE MEASUREMENT

The above figure shows the distance measurement from 1st and 2nd Ultrasonic sensor.



Fig. 7.4 RAIN FALL MEASUREMENT

The above figure shows the Rain Fall being measured.



Fig. 7.5 NOMAL CONDITION

The above figure shows that there is no harm in the surrounding indicating Normal Condition.



Fig. 7.6 FLOOD WARNING

The above figure shows that there is harm in the surrounding indicating Flood.



Fig. 7.7 WEB PAGE

The above figure shows the output displayed on the Web page.

VIII. CONCLUSION

The proposed thought of flood detection utilizing the NodeMCU is extremely cost productive and simple to utilize. It very well might be upgraded with raspberry pi and can be actualized taking all things together sorts of flooding regions. By utilizing this technique, a monstrous obliteration of life and property can be kept away from. This undertaking can be upgraded to refresh the climatic conductions of that neighbourhood without time span.

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