

Flood Monitoring and Alerting System

Kavita Joshi¹, Amruta Janugade², Shruti Walikar³, Anuja Padwal⁴

¹Professor, Department of E and TC Engineering, DR. D. Y. Patil Institute of Engineering, Management and Research, Akurdi, Pune, Maharashtra, India

²⁻⁴Department of E and TC Engineering, DR. D. Y. Patil Institute of Engineering, Management and Research, Akurdi, Pune, Maharashtra, India

ABSTRACT

Flood are the most damaging natural disaster in the world on the occasion of heavy flood, it can destroy the community and killed many lives. The government would spend billions of dollars to recover the affected area. It is crucial to develop a flood control system as a mechanism to reduce the flood risk .Providing a quick feedback on the occurrence of the flood is necessary for alerting resident to take early action such as evacuate quickly to a safer and higher place.as solution to this paper propose a system that is not only able to detect the water level but also alert about bridge collapse. The development of an android application for all the vehicle owners that uses their smart phones while travelling and getting flood report on the route that they are going to pass through. Working with raspberry pi to detecting the flood, the application alerts the user if their vehicle can either pass through the flood safely, proceed with precaution or shouldn't pass the route at all because of the flood.

Keywords: Raspberry pi, IOT based system

I. INTRODUCTION

Natural disaster happens everywhere in the world, they can be completely disturbing the human life and the economy of the country. Economy and growth of any country depend upon agriculture alert forecasting makes the farmer to protect the crop from flooding. The system is much advantaged for protecting lives of people and animal. The proposed model is very much utilized for monitoring of the water level, flow variance in rivers and the same can be used for measuring water level at dam or on river bridges. The measured value is regularly updated on web server which is very much useful to send flood alerts to consist authority and people for faster action. The project mainly constitutes a wireless sensor to monitor water condition. The measured parameters are processed by raspberry pi. The processed

information transmitted from corresponding node to alert management system GPRS. Google spread sheet application program interface (API) is used as a data logger. The Google spread sheet is map to free analytic software which will be called as the alert management system. The alert management system can be used to observe, record and send a message to the people before disaster knockouts.

Android application in system, minimize the impact or the damage that natural phenomenon can leave. That is why creating a mobile application specifically to monitor flood condition can greatly help those who are travelling or on who's their way to somewhere. Notify them about the condition of the roads ahead of time will lessen the hassle of their travel, and it will decrease their travel time dramatically instead of trying to find a non-flooded route blindly.

II. METHODS AND MATERIAL

A. Proposed System

The prototype of proposed system can be implemented using Raspberry pi. The proposed system block diagram is shown in the Fig. 1.

The Raspberry Pi receives Information from connected input devices, processes the data and triggers the data based on pre-programmed parameters. Raspberry pi will send the values measured by sensors to the ser.

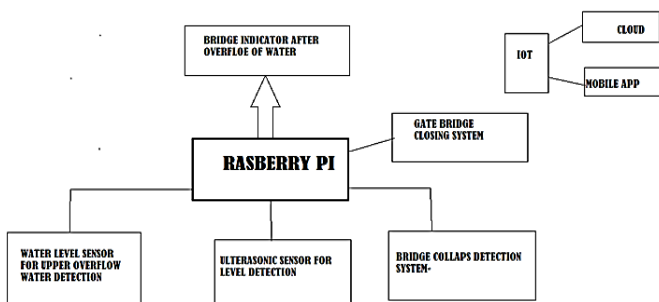


Fig. 1: System Block Diagram.

B. Block Diagram Explanation

Level sensor: level sensors are used for the measurement of the water level. Such substances can be liquids like water, oil, slurries as well as solids which can flow.



Fig. 2

Ultrasonic sensor: Ultrasonic pulses travel outward until they encounter an object, the object causes the way to be reflected back towards the unit. The

ultrasonic receiver would detect the reflected wave and stop the stop timer.



Fig. 3

Raspberry pi: Raspberry pi is a series of single board computers developed by the raspberry pi foundation for basic computer science in schools for developing countries. Raspberry pi models have one thing in common, through: they are compatible, meaning that software written for one model will run on any other model. It's even possible to take the very latest version of the raspberry pi operating system and run it on an original pre-launch model B prototype. It will run more slowly, but it will still run.

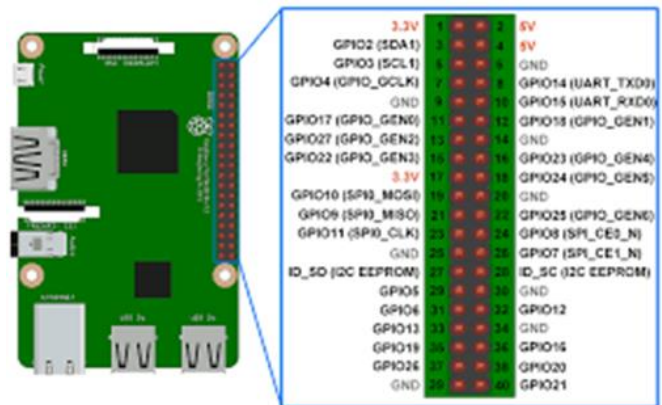


Fig. 4

Mercury Sensor: Mercury is a very toxic element that is widely spread in the atmosphere, lithosphere, and surface water. This sensor controlled the mercury pollution and reduce mercury damage to human health, sensitive determination of mercury is important. Natural mercury emissions have led to the

distribution of mercury throughout the environment. Fires, rivers and biological processes can all serve as the primary vehicles for this distribution.

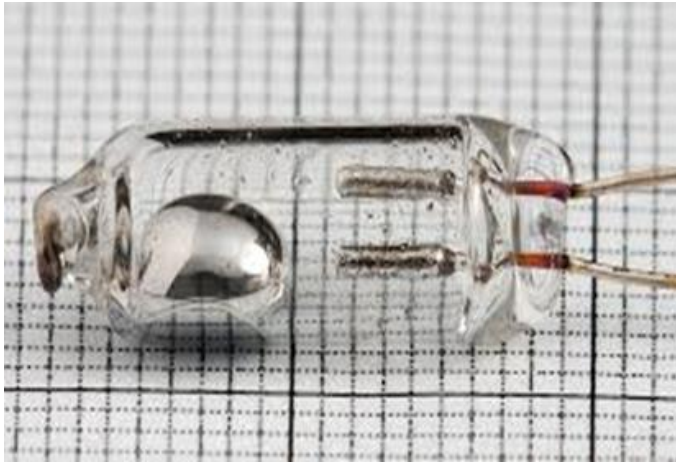


Fig. 5

Cloud:

The cloud is a huge, interconnected network of powerful servers that performs services for businesses and for people.

Once the data gets to the cloud, software processes it and then might decide to platform an action, such as sending an alert or automatically adjusting the sensors without the need for the user. Cloud computing, often called simply "the cloud," involves delivering data, applications, photos, videos, and more over the Internet to data centers.

C. System Flow Diagram

The software flow for the given system is given in three approaches as data collection, data Transmission and display of data

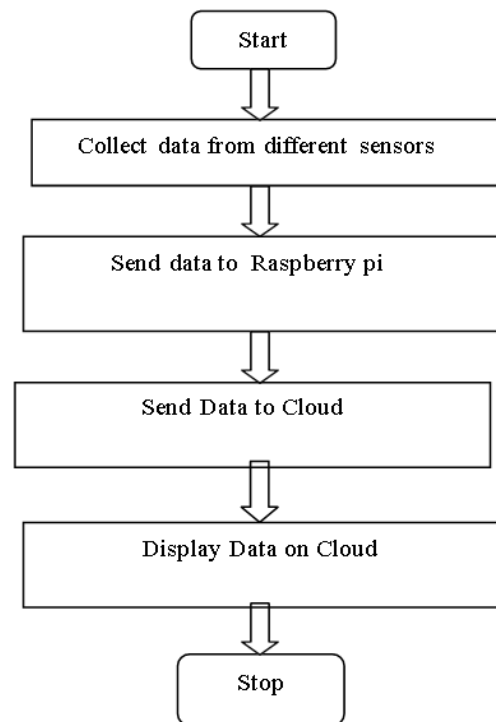


Fig. 6 : Software Flow Diagram of System.

III. RESULTS AND DISCUSSION

We have Successfully design system for flood alerting and monitoring.

IV. CONCLUSION

As India faced recent devastating floods in Maharashtra, there arise a need of efficient flood monitoring and alerting system. The system discussed in this paper is beneficial to people for decision making and evacuation planning in floods.

V. REFERENCES

- [1]. Wikipedia,
"https://en.wikipedia.org/wiki/Flood_alert"
- [2]. S.Yeon,J.King*,I.Lee.A Study on real-time Flood Monitoring System based on Sensors using flood Damage Insurance Map,The International Archives of the Photogrammetry,Remote sensing And Spatial Information Sciences,

Volumes XLII-3/W4,2018 GeoInformation for Disaster Management (Gi4DM),18-21 March 2018,Istanbul,Turkey.

- [3]. D Satria,S.Yana,R..Munadi,and S.Syahreza,"Prototype of google maps-based flood monitoring system using Arduino and gsm module,"*International Research Journal of Engineering and Technology*.(IRJET),vol.4,no.10,Oct2017.
- [4]. M.Madhumathi and R. Grace,"Flood alert management system using iot and microcontroller,"*International Journal of Innovative Research in Computer and Communicatin Engeneering*,Vol.5,no.4,April2017.
- [5]. Malaysian Communications and Multimedia Commission,"Hand phone users survey 2017,"*Tech.Rep.*,2017.
- [6]. Basha,Elizabeth,and DanielaRUS."Design of early warning flood detection system for developing countries."Information and Communication Technologies and Development,2007.ICTD2007.InternationalCon ference on.IEEE,2007.

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