iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 **Issue:** V **Month of publication:** May 2020

DOI: http://doi.org/10.22214/ijraset.2020.5105

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue V May 2020- Available at www.ijraset.com

Flood Monitoring and Alerting System using IOT

Mrs. Kavita Joshi[1], Amruta Janugade[2], Shruti Walikar[3], Anuja Padwal[4]
[1]*Prof,* [2, 3, 4]*Student, Dept. of E & TC Engg, Dr. D. Y. Patil Institute of Engineering, Management and Research, Akurdi Pune, India*

Abstract: ***As Maharashtra faced recent devastating flood in Kolhapur, Sangli and Satara there arise a need of efficient flood monitoring systems. Flood are the most damaging natural disaster , on the occasion of heavy flood ,it can destroy the community and killed many peoples. . The government would spend billions of to recover the affected area . It is important to develop a flood control systemas a mechanism to reduce the flood risk .Providing a quick feedback on the occurrence of the flood is necessary for alerting resident. Flood forecasting and the issuing of flood warings are effective ways to reduce damage. The proposed system will be good because it has better coordination of monitoring and transmission technologies which are adaptable to flood conditions. This system would be beneficial to the community for decision making and evacuation planning .***

Keywords: Raspberry pi, cloud, android application IOT based system

I. INTRODUCTION

Flood happen everywhere in the world, they can be completely disturbing the peoples and the economy of the country. The system is much advantaged for protecting lives of humans and animals. The proposed model is utilized for monitoring of the water level, flow in rivers and the same can be used for measuring level at dam or on river bridges. The measured value are regularly updated on cloud 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 parameters measured using sensors are processed using raspberry pi. This information transferred from corresponding node to alerting system. Cloud (API) is used as a data logger 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 natural phenomenon can leave. That is why creating a android application specifically to monitor flood condition can greatly help those who are travelling or on who's their way to somewhere. Notify peoples about the condition of the roads ahead of time will lessen the hassle of their travel, and it will decrease accidents caused due to floods.

II. PROPOSEDSYSTEM

The 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 sensors, processes the data . Raspberry pi will send the values measured by sensors to cloud.

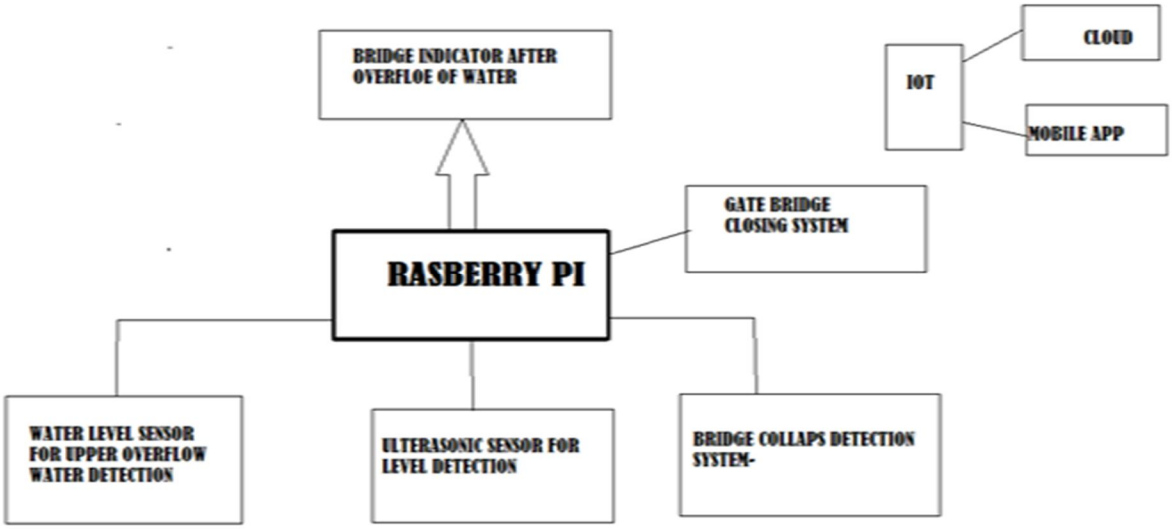


Fig. 1: System Block Diagram

©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue V May 2020- Available at www.ijraset.com

III. BLOCK DIAGRAMEXPLANATION

A. Mercury Sensor

A mercury sensor or switch is an electrical switch that opens and closes a circuit when a little amount of the liquid mercury connects electrodes to close the circuit. There are many different designs but they all share the same design strength of non-eroding switch contacts. The mercury tilt switch is most common. It is in one state when tilted one direction with respect to horizontal, and the other state when tilted the another direction. This is what old style thermostats used to turn a heater or air conditioner start or stop. The plunger of switch, raises the level in the container to contact at electrode. This design is used in industrial applications that need to switch high current loads . These relays use electromagnetic coils to pull steel containers.



Fig.2: Mercury sensor

B. Water Level Sensor

This sensors are used for the measurement of the water level. Such substances can be like water, oil, slurries as well as solids which can flow Level measurements can be level of a river or lake. This meaurements can be used to determine the water level in proposed system

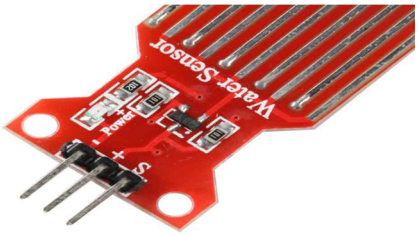


Fig.3:Water Level Sensor

C. Raspberry PI

The Raspberry pi is a single computer board with ATM card size, that can be used for many tasks that your computer does, like games, word processing and also to play HD video. It was established by the foundation which is from United Kingdom.The board comprises a program memory , processor and graphics chip,UART, CPU, GPU, Ethernet port, GPIO pins ,power source connector and interfaces for other external devices. It also requires storage, for that we use an SD flash memory card. So that raspberry pi board will boot from this SD card similarly as a computer boots up into windows from its memory.Essential hardware specifications of raspberry pi board mainly include SD card containing Linux OS, power supply and video cable. Optional hardware include mouse, net connection, WiFi adaptor is used and internet connection to Model B is LAN.



Fig.4: Raspberry Pi

©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue V May 2020- Available at www.ijraset.com

D. LED

LED stands for Light Emitting Diode. It is a semiconductor light source that emits light when current pass through it. Electrons recombine with holes, release energy in the form of photons. The color of the LED light is determined by the energy used for electrons to cross the band gap.LEDs were often used as indicator lamps, replacing incandescent bulbs, and in seven-segment displays. Now developments in LED's have produced white light LEDs suitable for home and outdoor area lighting. LEDs have led to new sensors and displays, technology. Here in this system LEDs useful for indicating edges of bridge.



Fig.5:LED

E. Cloud

In the simple terms, cloud is store and accessing data over the web instead of computer's memory. The cloud is like metaphor for the Internet Cloud computing, often called simply "the cloud," involves delivering data, applications, photos ore over the Internet to data centers. The cloud is a huge, interconnected powerful servers that performs services for people and businesses.Once the data gets to the cloud, software processes it and then decide to platform an action, such as sending an alert.

IV. SYSTEM FLOW DIAGRAM

The software flow for the proposed system is given below

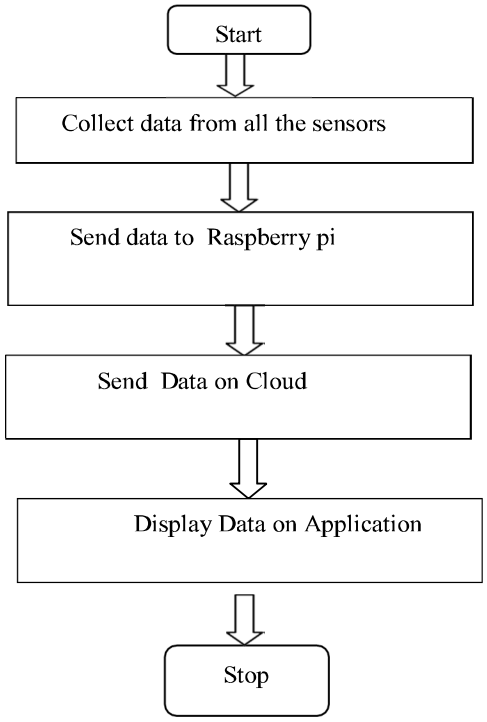


Fig. 5: Flow Diagram of System.

©IJRASET: All Rights are Reserved

V. RESULTS

We have Successfully design effective system for flood monitoring and alerting.

VI. 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.

REFERENCES

[1] R. R. Guadaña, R. A. Santos, E. De Guzman, V. S. Cuadra, A. G. De Luna, C. Villanueva, "FLood Detector System Using Arduino," in Proceedings of 37th The IRES International Conference, Bangkok, Thailand, 14th May2016.

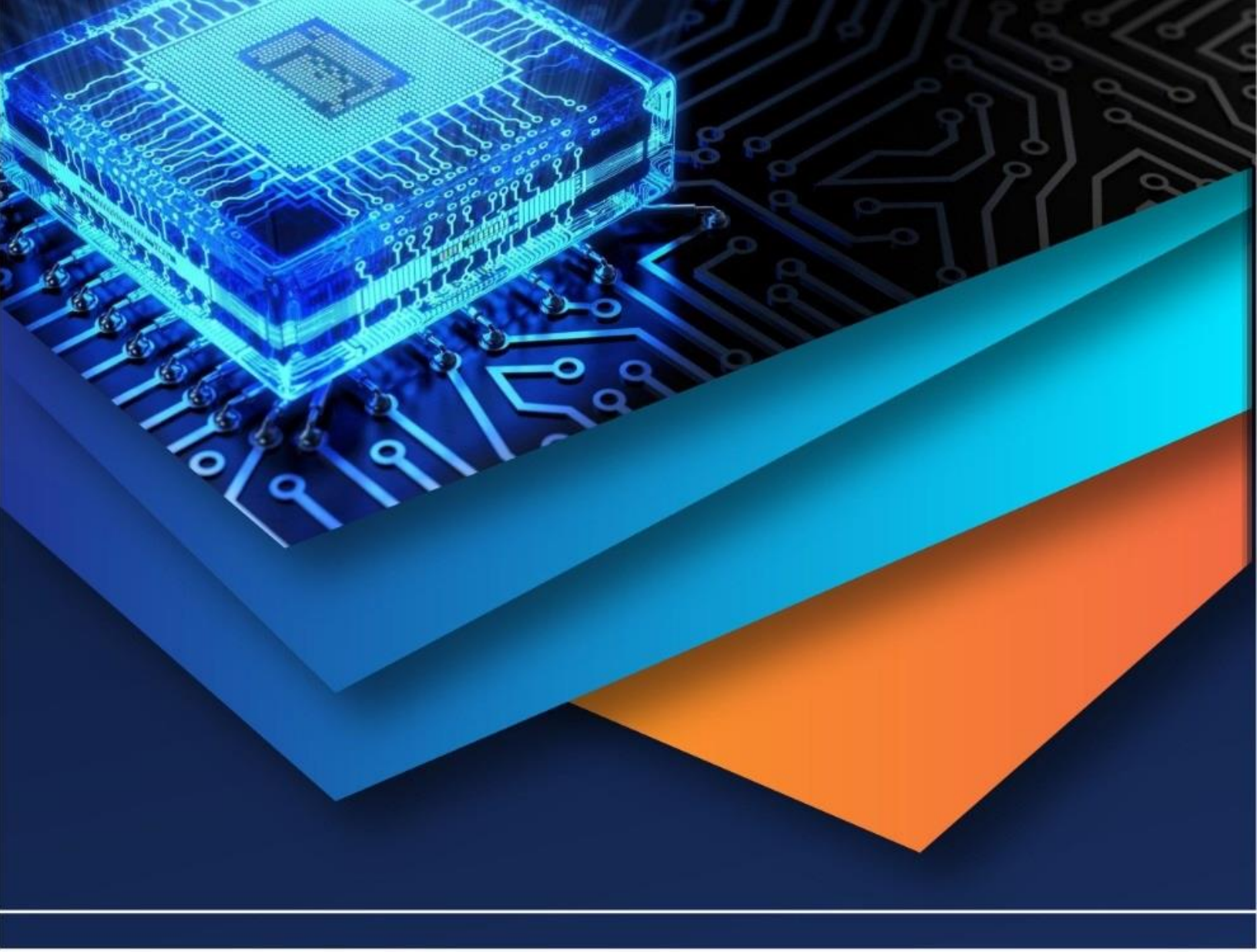
[2] B. S. Fabito, F. F. Balahadia and J. D. N. Cabatlao, "AppLERT: A mobile application for incident and disaster notification for Metro Manila.," in Region 10 Symposium (TENSYMP), 2016 IEEE, Bali, 2016.

[3] 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 Geolnformation for Disaster Management (Gi4DM),18-21 March 2018,Istanbul,Turkey.

[4] Hung Ngoc Do, Minh-Thanh Vo, Van-Su Tran, Phuoc Vo Tan, and Cuong Viet Trinh,“An Early Flood Detection System Using MobileNetworks”,in 2015 International Conference on Advanced Technologies for Communications (ATC)

[5] Wikipedia, ”https://en.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)