IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

DOI: 10.17148/IJARCCE.2022.11530

Implementation of early flood detection and avoidance alert system based on IOT android application

Rahul Choudhari[1], Swapnil Satbhave[2], Maithali Panchbai[3], Saurabh Kubde, Prof .D.A.Kapgate[4]

Student, Department of Electronics & communication, Priyadarshini College of Engineering, Nagpur, India[1-3]

Assistant professor, Department Electronics &communication, Priyadarshini college of Engineering, Nagpur, India[4]

Abstract: This kit will help doctor and their staff to monitor their patient accurately and take decision as fast as possible to help to improve their quality of service to patients. This system introduces a smart patient health tracking technique that utilize Sensors to track health of patience and uses wireless internet to inform their loved ones in case of any emergency or issues. Our system uses temperature as well as heartbeat sensing for monitoring the patient health. The sensors are bridge to a microcontroller to monitor the report which is in turn interfaced to an LCD display as well as WIFI connection in order to transmit issues in the particular range. If system detects any sudden changes in patient heartbeat or any sudden changes in body temperature, the system automatically alerts the end user about the patients status over IOT and also shows piece of information of heartbeat and temperature of patient live on the internet. Thus IOT based smart patient health tracking smart kit effectively uses internet to monitor health of patience stats using android platform and ardino and save lives on time.

Keywords: Flood detection system, Arduino, Android platform, monitoring system

I. INTRODUCTION

We are seeing different intense progressions in the areas of science and innovation throughout the course of recent many years. The ongoing modern age has altered our lives and gives us a lot of solaces and accommodations. In any case, this modern advancement has come at a strong expense of an Earth-wide temperature boost and other ecological calamities like flood, quake, and so on. Besides, the misfortune made by such catastrophes life and property is tremendous. The rising carbon impressions and ozone harming substances have seriously prompted an awkwardness and unsettling influences in the normal pattern of downpours and floods. Subsequently, we are confronting the risks of unwarned and unavoidable floods like never before previously. To identify and keep away from floods on time, innovation assumes a vital part. With the assistance of the ongoing innovation honors, we can recognize and set ourselves up for a forthcoming fiasco.

"IoT Early Flood Detection & Avoidance System" is an intelligent IOT basesd system which keeps close watch over various natural factors to predict a flood, so we can embrace ourselves for caution , to decrease the natural damage caused by the flood. Natural disasters such as a flood is a devastating leading damage to property and loss of lives.
To stop or low down the cause of the flood, the system have natural factors to prevent and detect flood. The system has a wifi connectivity, thus it's gathered data is accessed from anywhere quite easily by using IoT. To detect a flood the system observes various natural factors, which includes humidity, temperature, water level and flow level. To collect data of the following natural factors the system have different sensors which collects data for individual parameters. To detect changes in humidity and temperature the system has a DHT11 Digital Temperature Humidity Sensor.

Flood caution framework is created by numerous analysts for real-time stream surge observing and alarming framework for the surge inclined ranges.
This overview centres as it were on the location and early caution alarm that cautions neighbourhood supporters of potential flood occasions.Mohd Sabre et al developed a system, which is used to find out the flood level by collecting the information such as water level, pressure of water, and the level of rainfall.
The collected information passed to the microcontroller for further processing, and then the data connected to the server through Wi-Fi and allows sharing of the data to internet.
According to previous related works, there are many methods which are used for developing the system.

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

DOI: 10.17148/IJARCCE.2022.11530

The web based IoT 'Thing speak' platform is used which has an open API service that store and retrieve the data from the sensor and the sensed data output is displayed in graphical form.

In this project, sensors will be used for implementation of the IoT Operation for sensing and monitoring the heat, humidity, temperature, light intensity, rain sensing, air quality, barometric pressure and sea level pressure of the surroundings.

II. PROPOSED SYSTEM

Authentic time dam and climate boundaries observing are the present need. These days dam authority is dealing with issues connected with the dam and climate boundary checking.

Up to now a large portion of the more modest dams are physically checked and sending information with ordinary ways, this manual perception and transmission brings about a delay, between the information saw in dam site and choice taking level.

This occasionally causes loss of valuable constant information. Specialists believe noticed information should be promptly accessible for research reason as well as screen the legitimate time changes in different boundaries.

Ordinary citizens, mostly ranchers are uninformed about these boundaries like precipitation, Dam water level and door status. They are additionally dealing with numerous issues like vulnerability about water for crops, abrupt ascent of backwater and once in a while flood.

This venture will assist with decreasing these issues looked by Dam authority, analysts as well as normal people(farmers). The idea of this framework is to foster a web-based interface which will screen and give bona fide time boundaries connected with Dam and weather patterns like water level, downpour decrease, entryway position, temperature, moistness and so forth.

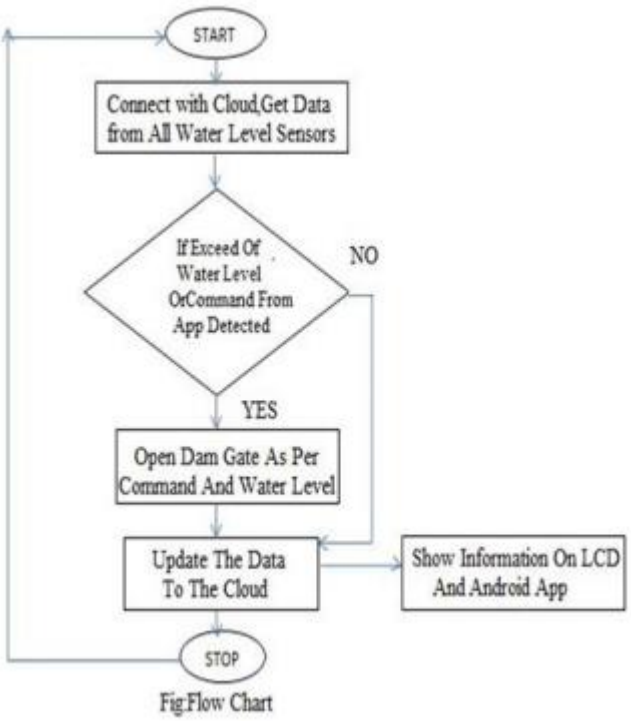


Fig:Flow Chart

So here we are using IOT i.e. hardware as well as software to detect flood. For programming part we have incorporated our framework with android we fostered an android framework that is completely fit for observing the framework climate. This is finished utilizing the information sent by the framework. Utilizing an android application makes it for portable and helpful to use as the application is only a single tick away. Everything about to the framework can be seen in this application. It can tell the client in the event that there is any chance of flood to happen. For example certain ascent in water stream expanding the general water level of the dam/compartment (for our situation) the application is sufficiently flexible to tell the client about this and report it before hand to keep away from any type of losses.

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

DOI: 10.17148/IJARCCE.2022.11530

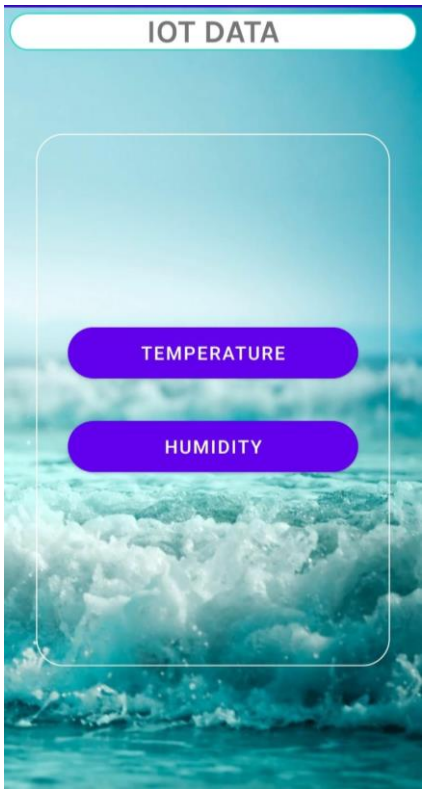
III. METHODOLOGY

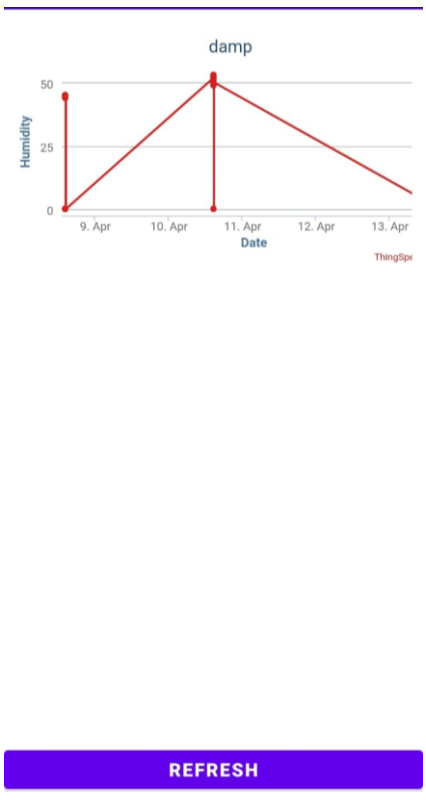
The application can likewise to be utilized to screen sensor information progressively that is all there is to it can give:

I) Distance from ultrasonic sensor to water.
II) The stream pace of water.
III) Total volume of water and
IV) Temperature and stickiness.

This large number of highlights given by the application can be proficiently utilized by any person to screen the framework. It is easy to understand and dodges complexity of various information utilized as the client is just given what truly is significant.

To recognize a flood the framework notices different regular elements, which incorporates dampness, temperature, water level and stream level. To gather information of referenced normal factors the framework comprise of various sensors which gathers information for individual boundaries. For identifying changes in dampness and temperature the framework has a DHT11 Digital Temperature Humidity Sensor. It is a high level sensor module with comprises of resistive moistness and temperature discovery parts. The water level is generally under perception by a float sensor, which work by opening and shutting circuits (dry contacts) as water levels rise and fall. It typically rest in the shut position, meaning the circuit is fragmented and no power is going through the wires yet. When the water level dips under a foreordained point, the circuit finishes itself and sends power through the finished circuit to set off an alert. The stream sensor on the framework watches out for the progression of water. The water stream sensor comprises of a plastic valve body, a water rotor, and a lobby impact sensor. At the point when water courses through the rotor, rotor rolls. Its speed changes with various pace of stream.





IV. WORKING & ARCHITECTURE

The main idea of our project is merging two platforms android and IOT in order to realize a system that is dependable of easy to access at the same time. Currently we are using Arduino and different sensors in order to collect and upload the data to a real time database and android to use this data for monitoring purpose. Hardware implementation.

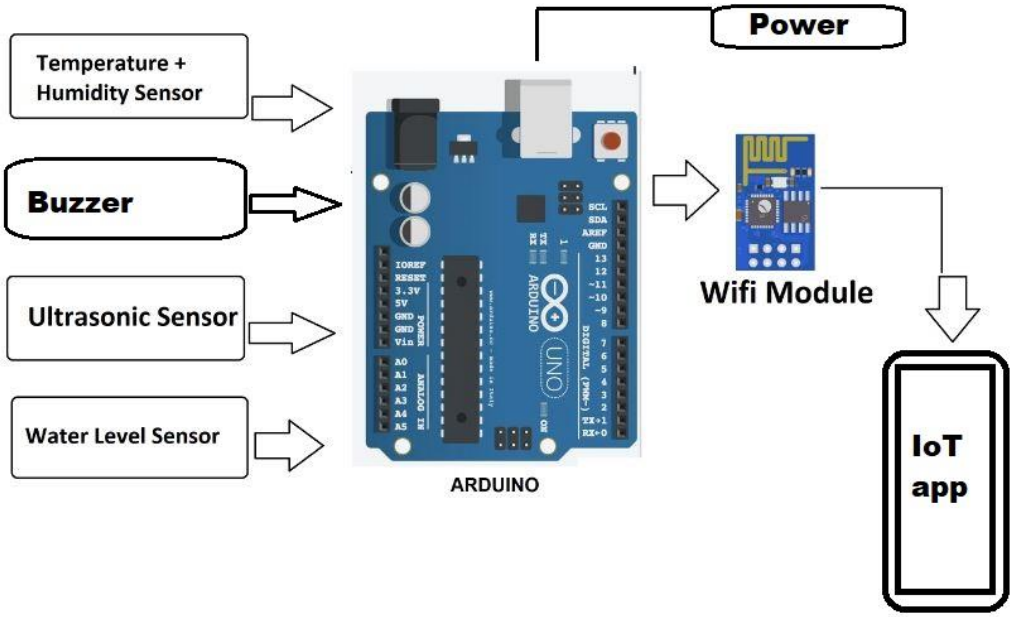
IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

DOI: 10.17148/IJARCCE.2022.11530

Different hardware used in our projects are:
i) Arduino Wemos D1 R1.
ii) Ultrasonic sensor.
iii) Flow sensor.
iv) Dht11(Temperature and humidity sensor).



1. Arduino uno R3 : The Arduino Uno is an open-source microcontroller board in view of the Microchip ATmega328P microcontroller and created by Arduino.cc. The board is furnished with sets of advanced and simple info/yield (I/O) sticks that might be interacted to different extension sheets (safeguards) and different circuits.

2. Buzzer : A buzzer or beeper is an audio signaling device,[1] which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

3. Esp8266 wifi module :

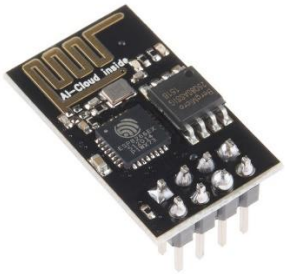
- The ESP8266 Wi-Fi Module is a self contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your W-iFi network.

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

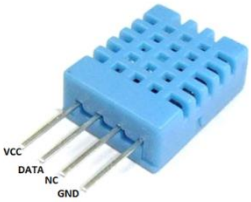
DOI: 10.17148/IJARCCE.2022.11530



4. Ultra Sonic Sensor : Ultrasonic sensors are utilized essentially as closeness sensors. They can be found in auto self-stopping innovation and against crash wellbeing frameworks. Ultrasonic sensors are likewise utilized in mechanical hindrance location frameworks, as well as assembling innovation.

5. Water level sensor : If you have ever had a water heater explode or ever tried to make submersible electronics, then you know how important it is to detect when water is around.

6. DHT11 Sensor: DHT11 Temperature & Humidity Sensor features a temperature & humidity sensor complex with a calibrated digital signal output. By using the exclusive digital-signal-acquisition technique and temperature & humidity sensing technology, it ensures high reliability and excellent long-term stability.



V. CONCLUSION

Disaster, as the name recommends, bring great destruction on lives and property aimlessly across the globe. Emerging nations, be that as it may, experience a lot of more terrible obliteration than the created ones and are as well as less outfitted to manage the delayed consequences of these disasters. Premonition of the catastrophe could consequently help all, particularly the agricultural nations by giving opportunity to get property and empty. Growing early admonition frameworks might be convoluted, with numerous aspects to the framework prerequisites and numerous extra complexities, when inside an emerging nation.

International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 7.39 ⁜ Vol. 11, Issue 5, May 2022

DOI: 10.17148/IJARCCE.2022.11530

This paper has attempted to propose a potential and financial answer for the issue of floods. Floods can't be anticipated effectively; however, we are attempting to foster a framework which attempts to distinguish flood and give early hint to local individuals. The IoT based flood identification and ready framework might demonstrate to save the existences of individuals by lessening the human speedy out during crisis circumstances. Improvement of a remote sensor network has been effectively done, with contemplations on area of sending and proficiency. Up to this point, we have fabricated a miniature model through a model; the sensors used were principal in acquiring the expected information essential for observing and recognizing flood occasions, and a live feed has additionally been realized for end clients. The proposed framework can later be utilized to give answers for genuine difficulties, consequently carrying alleviation to individuals in networks attacked by relentless flood events.

REFERENCES

[1]. D. A. Bagade, "Real time decision support system: Maharashtra." Unpublished.
[2]. D. Pandit, G. Jorgensen, A. Klinting, and F. Hansen, "Real time streamflow forecasting and reservoir operation system for krishna and bhima river basins in maharashtra (rtsf and ros)," Hydrology Project II 63800247, Government of Maharashtra Water Resources Department, 2013.
[3]. B. Kang, S. Park, T. Lee, and S. Park, "Iot-based monitoring system using tri-level context making model for smart home services," in Consumer Electronics (ICCE), 2015 IEEE International Conference on, pp. 198–199, Jan 2015.
[4]. M. Wang, G. Zhang, C. Zhang, J. Zhang, and C. Li, "An iot-based appliance control system for smart homes," in Intelligent Control and Information Processing (ICICIP), 2013 Fourth International Conference on, pp. 744–747, June 2013. [5] H. Li and X. Xing, "Internet of things service architecture and method for realizing internet of things service," Mar. 6 2013. EP Patent App. EP20,110,774,309.
[5]. K. Ashton, "That 'internet of things' thing," RFID Journal, no. 4986, 2009
[6]. https://irejournals.com/formatedpaper/1702350.pdf

