# Dam Water Level Monitoring For Flash Flood Warnings

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***Abstract-*** *To develop a real-time solution for flash Flood monitoring by using the IoT with Sensor and send an early alert to the Government body to protect people and valuable assets. In this, we are going to develop a web application that calculates the speed of the water, if the threshold value is crossed, then the system will generate the alert of occurrence of flood. There are some places that are more prone to flooding than other places, the implementation of a flood alert system near any major water area or body of water provides critical information that can protect property and save lives. Of course, the most effective flood warning methods are very costly and requires high maintenance and also requires the highly qualified employee to operate it. Nowadays, there is no idea about when a flood will occur so there is a need for pre-war people who are near the flooded area. For that purpose, we are going to use some sensors which will help to give information about the flood.*

***Keywords***- Internet of Things (IOT), Ultrasonic Sensor, Remote Monitoring, Arduino

## I. INTRODUCTION

The Dam Level Monitoring for Flash Flood Warning is the combination of Internet of Things(IoT) and the Website which is used to monitor the Level of water in the Dam. This system is designed in such a way that it will send the alert when the water level crosses its Threshold value to the government body.

This system updates the data related to the Dam such as water level and display it on the screen, and it checks the Water level on daily bases.

This system is given only to the single user, by providing the login credentials the user can login to the system and can check the current status of the Dam.

This Website can also show the previous records of the Dam which are maintained in the Database.

In this system the Manual page is also provided where the Dam manager can add the parameters related to dam by calculating manually.

**Problem Definition**

To design a system that can:

- Monitor the Water Level in the Dam.
- Calculates the Threshold Value.
- Generates the alert if the water level crosses the Threshold value.
- Working Admin and Dam Operator.

**OBJECTIVE**

The main objective of the proposed system is to monitor water level of the dam and send the alert signal to the concern authority to identify chance of occurrence of the flood in future and to rescue the people. Our aim is to develop the web application which calculates the level of the water, if it crosses the threshold value then the system will generate the alert sound for occurrence of flood.

**METHODOLOGY**

- Using sensors like WA600 and ultrasonic sensors for achieving of our objective for calculating the water level of dam of our project.
- As sensors reads the water level accurately it provides correct water level and provides valid inputs to the software.
- Also we are using the web development technologies for this project to create the website and interact with the client, and also we create the easy user interface.

## II. LITERATURE REVIEW

- The current system is manually based as we have observed that there is a pillar on which the numbers are

marked which indicate the flood of water and depth of water.
- These numbers are then noted in a register.
- This type of work is done manually where the meter scale shows the data of the water and the dam.

## III. FUNCTIONAL REQUIREMENT

- Remote configuration: Through this requirement it is possible to configure some parameters of the stations remotely, namely the frequency sampling of each sensor
- Event Notification: This feature is considered a very important requirement, because it allows notification in real-time if disruptive events occur in one station, e.g. if the water level of one tank gets down the set-point, the system sends an alert to the person in charge of the maintenance.
- Update Information: The system must allow inquiry into stations in order to attain current data. This will allow information of the status of any station and its sensors in real-time.
- Monitoring stations status: One efficient strategy to reduce the risk of problems in water supply is by better controlling aspects such as the level and quality of the water. Monitoring the stations brings two major benefits, namely real-time analysis of these parameters and using the data to produce statistical reports.

## IV. APPLICATION

- Used in water tanks to control water levels
- Used in factories, commercial complexes, apartments, home,
- Tsunami warning and sea level monitoring
- irrigation control
- Water level control

## ADVANTAGES

- Easy installation
- Minimal maintenance
- Sends an alert to let you know water is too high or too low
- Automatic operation saves you manual labor time
- Indicates water levels in any type of storage tank or body of liquid

## LIMITATIONS

- Electronics are usually built separately
- Water level controls need to be replaced after some period.
- No LED indicator lights
- No Warranty or Guarantee

## V. SYSTEM FLOW

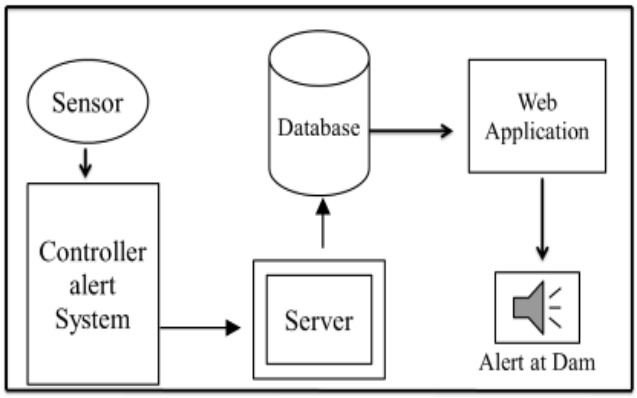


**Figure 11.1: Proposed System**

## VI. DEVELOPMENT SYSTEM REQUIREMENTS

Minimum Hardware Requirements:

- 7th gen INTEL
- 4GB RAM
- IOT devices
- Sensors
- Buzzer

Software Requirement

- PHP
- MYSQL

Coding Environment

- Notepad++
- Arduino

## VI. FUTURE WORK

- To predict the occurrence of flood on early bases.
- To implement this system in all over India.
- To make the Dams more Digital.

## VII. CONCLUSIONS

As India faced recent devastating flood in different states, there arise a need of efficient flood monitoring systems. The proposed system also ensures increased accessibility for assessment of emergency situations and enhances effectiveness and efficiency in responding. In summary, the

proposed system would be beneficial to the community for decision making and evacuation planning purposes.

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