WEB BASED WATER LEVEL MONITORING OF NATURAL RESOURCES OF WATER

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Abstract— In this paper we introduce the water level monitoring using centralized web enable system i.e. with the help of internet we can check water level of natural resources like well, dam, lake etc. More specifically, we are building a interfacing card which is connected to the central processing unit through the LPT port which help us to measure the water level. This approach will reduce the extra effort as well as time in going at actual site and checking water level at each time. As we just have to connect/build an interfacing card at desired location and also attach one CPU (acts as server) to that interfacing card through which we can collect the reading/marking of water level and these readings can be accessed by the client server at any place and time. we are checking the water level in three stages low level, middle level , high level . we also provided the messaging system at high level and low level by using these readings we can declare drought or flood for particular area.

Keywords—Client, Server, Central processing unit, Administrator

I. INTRODUCTION

It is generally believed that the measurement of water level is simple task, which requires no special training. But it’s not true in actual specially in ground water level. There are various techniques to check the water level of natural resources like air lined method, weighted steel tape, electric cables, etc. But, in almost all systems we have to go at actual place to check the water level of particular source. To avoid this extra effort we developed a system through which we can check the water level with help of internet and without going to actual place.

In our system we are measuring the water level of any natural resource in three levels i.e low, medium, high. Low water level is used to declare the drought. High water level is used to declare the flood. When water level goes beyond the limit or above the limit then sensor gives indication and message will be sent to administrator and required action is taken by administrator. It is less time consuming process and based on real time application. User can login to web page and can check the water level of well at any time and place using the internet only. The admin person can have authority to make any changes in data provided to the client. This system is also useful for water tanks used at different places like at home, in hotels, etc. By planting this system in there water tank they can know how much water is available in tank and if the tank is full of water then off the motor so that overflow of water is avoided and water is saved. Also, we can use this system to declare the drought and flood situations. Sometimes it’s not possible for government employee to go at actual place and check that particular area has sufficient amount of water or not in such case lower post employee may show more places get suffered from drought or flood condition i.e. corruption may occurs in such situation. Thus, using this system we can avoid corruption in some sort. The implementation of this system also easy and cheap.

II. QUALITY OF WATER LEVEL

While checking the water level for any resource the structure of particular area and quality of water should be considered. The garbage present or floating on the water resource may lead incorrect information about water levels, so, we must consider quality of water while fixing the reference point. There are some factors that decide the quality of water for well as follows:

1. Check whether observation wells have any construction defects if present, that will affect the accuracy of water level measurement.
2. Any aquatic organisms should not be affected by systems.
3. Carry out periodic inspection of the structure to maintain system accuracy.
4. Corrosion, silting or bacterial growth does not affect the response of sensors.

That means we have to consider all the conditions so, that we get the correct measurement of water level.

III. MEASURING POINT

The shapes of different natural water resources are different depending on geographical conditions so, we have to consider structure of the source and depending on that we have to fix the reference point for that water resource in three levels as stated above. If there is no fixed reference point we will not get the accurate measurement of water level. Thus, we have to fix the reference point to get accurate measurement of water level.

IV. IMPLEMENTATION

In the water resources we passing very negligible amount of electricity which is not harmful to any
living organisms. There are four main conditions to mark the water level regarding our system:
1. No water available
2. Medium level
3. High level

**No water available:** When there is no water in dam, lake, well or any other water resource i.e. empty then there is no conductive path so the transistor base emitter region will not have sufficient biasing voltage hence, it remains in cut off region and the output across its collector will be Vc.

**Medium level:** In this level the output will be Vce approximately given by PCB (printed circuit board) which acts as an interfacing card. It is programmed as a priority encoder which detects the highest priority input and display corresponding water level using LED.

**High level:** When the source is full of water, the top level probe gets the conductive path through water and corresponding transistor gets into conduction whose output given to microcontroller with this input microcontroller not only displays the level but also send a message to authorized person so authorized person know that water resource is full and take desired action.

![Circuit Implementation](image)

In the above circuit we have used general purpose registers of 1kohm, transistor which acts as current controlled device of BC547, LED’s, copper wires, etc. we have passed very little amount of current in the water resource i.e. 0.5mohm.LPT port is also attached to this circuit, we collect the marking of water level through this LPT port on the CPU as one end of LPT port is connected to the CPU. Thus, we can see the updates on the web page.

V. **SYSTEM ARCHITECTURE**

This paper tells how to collect all real time data regarding any water resources from centralized system and receive and control water level distribution process remotely with help of internet. It is next step towards achieving accurate measurement of water level. If there will be any changes in water level message will be sent via server. All the data will stored backend database server. Database contain the information about natural resources where we have planted the interfacing card. MYSQL server is at backend and VB.NET at the front end. we have used here VB.NET because it is more secure as compare to other languages and easy to understand. In VB.NET It displays the dynamic web pages so that any one can only see the output page. Thus, no one can modify the data expect the authorized person.

**Working Phases**

**Data collection:** Information about different natural resources of water and the water level is collected through sensor circuit.

**Interface card:** It contain analog to digital converter that will convert analog data into digital data and send to computer. Hence, it will act as interface between computer and circuit.

**Data storage and display:** Database is used for storing all data which is collected from interface cards. It will show water level through website and also manage the information of user.

**System control:** Only Authorized person can modify the database and have all the rights to make any changes in the system.

VI. **APPLICATIONS**

1. It can be used in hotels, factories, home apartments etc.
2. It can be useful for three phase motor, bore well and sump.
3. In vehicle it can be used as fuel level indicator.
4. It will be used as liquid level indicator in huge containers in the companies.
5. It is also used to declare the drought and flood conditions.

**CONCLUSION**
Web enabled centralised system for water level measurement is easy and less time consuming. This system helps to calculate the accurate water level. This system will generate results in desired formats. This system will also useful in declaring draught and flood situations. It will provide remote access.

REFERENCES