

WATER LEVEL MONITORING SYSTEM FOR DAM

Monika M. Bhasme¹, Prof. P. R. Indurkar²

Department of Electronics & Telecommunication

¹ PG Scholar, BapuraoDeshmukh College of Engineering, Sewagram,(M.S) India

² Associate Professor, BapuraoDeshmukh College of Engineering, Sewagram,(M.S) India

Abstract- Authentic time dam and weather parameters monitoring are today's need. Nowadays dam authority is facing many problems related to the dam and weather parameter monitoring. Common people, mainly farmers are unaware about these parameters like rainfall, Dam water level and gate status. They are also facing many problems like uncertainty about water for crops, sudden rise of backwater and sometimes flood. In this paper, we are discussing about minimizing these problems faced by Dam authority, researchers as well as common people (farmers) using monitoring system. The concept of this system is to develop a web portal which will monitor and give authentic time parameters related to Dam and weather conditions like water level, rain fall, gate position, temperature, humidity etc. The proposed project is used to monitor the water level in dam using the concept of IOT employing ATMEGA328P microcontroller. The proposed system can also be used to sense the earthquake vibrations by using piezoelectric sensor. Ultrasonic sensor is placed near to the dam for measuring the water level in the reservoirs. Also in this project, we can check the status of dam door such as closing and opening of dam door or gate by using DC motor. In this project we can monitor the real time parameters and update the status through internet and will be available using Android application. Thus saving lots of lives by alarming the unpleasant scenarios.

Keywords- Dam water level, earthquake detection, Gate status, weather parameters, Rainfall detection, IOT.

I. INTRODUCTION

Water being an important basic requirement for living needs to be conserved and preserved. Therefore its distribution and usage is of almost consideration. As population increase day by day the requirement of water resources has been added on to our issue. A dam is barricade constructed across the flow of water to control, direct and to hold and raise the level of water. The aim of this project is to alert citizens and save the life of people by providing the real time parameters like water level, gate opening and closing, amount of rainfall. Many people die in the water reservoirs because of unavailability of water level indication and opening and closing of a gate. The current incident which was published in Lokmat newspaper on

2nd July, four student died into Mahakali dam as they enter into deep level of water. And there is no alarming system which can detect the unforeseen scenario. Such incident occurs in many dam in India which can affect the life of people. Similarly, in India most of the dams are monitored manually. The data recording/sending is also done with traditional modes which lacks the specific information. Dam researchers require dam parameters data for their research. Common people are also not aware about dam parameters i.e dam Water level, gate status, raindrop detection. Thus they have face the various problems such as sudden effect of floods, earthquake vibration, heavy rainfall. So considering above problems here we proposed project is very useful which can also be used by general people for observing there all time dam data parameter.

II. LITERATURE REVIEW

The number of researchers had been working on monitoring system to monitor dam parameters. The research papers are reviewed which are related to the monitoring of parameters of dam.

1. Water Level Monitoring System in Water Dispensers using IOT by Mohita Parashar¹, Roopa Patil², Siddharth Singh³, Vipul Ved Mohan⁴, K. S. Rekha⁵ in International Research Journal of Engineering and Technology (IRJET) Apr-2018

This paper proposes a prototype system design, implementation and description of required tools and technologies to develop Internet of Things (IOT) based water level monitoring system which can be implemented in offices, colleges or buildings where many number of water dispensers are present. The smart water dispenser sends a notification when the level of water becomes low in the dispenser through an application to the authorized person. This study presented the design phase of Water Level Monitoring System in Water Dispensers using Arduino and ultrasonic sensors. From the above analysis we can conclude that the entire system can be built with low cost, reliable instruments there by providing an efficient Water Level Monitoring System in Water Dispensers

2. IOT Based Water Supply Monitoring And Soil Moisture Detection System by Divya C , Nikhil Gowda, Suhas Shastri, www.ijsart.com

Yashwanth J, AchyuthaPreksha A . in International Journal of Computer &Mathematical Sciences IJCMS May 2017

Water monitoring process is very much essential in order to protect water from becoming scarce. Raspberry pi is used as controller. Sensors are deployed in every water flowing outlet to track the usage of water and also within the soil to send a notification to the user about the level of moisture content. Cloud is used as a repository for sensor data. In this paper we have proposed a system that monitors both the flow of water for daily usage for the residents and also that checks the soil moisture in the field of agriculture. The proposed system consists of Raspberry pi as core controller and several other sensors to monitor the water flow and soil moisture. The monitoring of water flow can be updated to the water board so that it helps them in turn to monitor the efficient supply of water for daily usage.

3. Dam Parameters Monitoring System by Nikhil M. Dhandre, P.D Kamalasekaran, Pooja Pandey, IEEE 2016.

Common people, mainly farmers are unaware about these parameters like rainfall, Dam water level and gate status. They are also facing many problems like uncertainty about water for crops, sudden rise of backwater and sometimes flood. This project will help to reduce these problems faced by Dam authority, researchers as well as common people(farmers). The concept of this system is to develop a web portal which will monitor and give authentic time parameters related to Dam and weather conditions like water level, rain fall, gate position, temperature, humidity etc. The dumped data can be used for web-portal hosting and further decision making. This proposed scheme basically works on Internet of Things (IOT), so that data sharing can be possible utilizing web data base.It will help the Dam authority, Dam researchers and common people to easily monitor the dam and weather parameters by using the Web Portal.

4. Dam Gate Level Monitoring and Control over IoT by E. Nanda Kumar, S. Vimalraj. In Jour of Adv Research in Dynamical & Control Systems, August 2017

The main objective of the paper is to control the water level in dam which was implemented using IOT(Internet of Things). The desideratum of cogent water level control in a dam, to ward off flood-relevant complications, is piling up with every progressing day. The design implementation and control of the programmed monitoring system was developed by this project. The cradle of our project is based on methodology of IOT. An automated dam gate-level controller was brought to use, supplemented by the significance that it is not only automatic

but also IOT based. It is to be noticed that this control system can well replace the PC based system with a portable devices to signal the level of water in the dam. In other cases, they can be implemented for packing systems where there is a need for including.

5. DAM GATE LEVEL MONITORING AND CONTROLOVER IOT by Sakthi Krishnan V, Sindhu R, Swetha A, VivekMuthuKumaran G, and Sri Ragavi S inSSRG International Journal of Electrical and Electronics Engineering, March 2017

The desideratum of cogent water level controlling a dam, to ward off flood-relevant complications, is piling up with everyprogressing day. However, the customarystrategy to do so is physical control that featuresmore time and labour. The roots of our project lie on the methodology of IOT (Internet of Things). Forbest results, the principle operation of theautomatic gate control arrangement is subjectedto dry running under various possiblecircumstances, with Proteus as the platform forworking.It is to be noticedthat this control system can well replace the PCbasedsystem with a portable devices to signal thelevel of water in the dam. The micro-controller withprogram downloading facility,supervisorycontrolled and data acquisition. Thus, we aim to make the IOT- based dam-gate control fullysignificant through possible trends.

III. OVERALL ANALYSIS OF REPORTED WORK

In the above references, there are some parameters that are not yet monitored such as gate opening and closing, earthquake activity, flow of water. Researchers want observed data to be readily available for research purpose as well as monitor the authentic time changes in various parameters. There are some research papers which monitors one or two parameters in one system. But the proposed paper will be able to monitor all these parameters in one system. In this project we can check the status of dam door such as closing and opening of dam door or gate by using DC motor. In this project we can monitor the real time parameters and update the status through internet and will be available using Android application.

IV. WATER LEVEL MONITORING SYSTEM

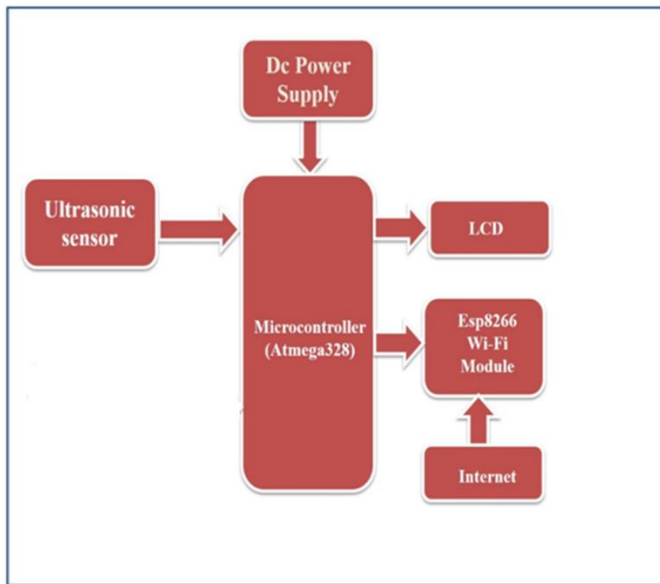
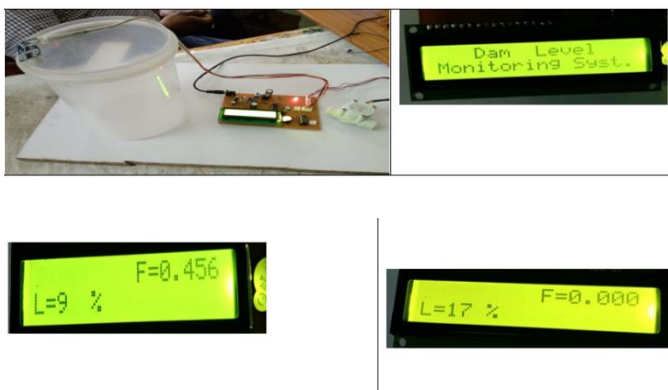


Fig:-Block Diagram Of Dam Water Level Monitoring System

In this block diagram, ultrasonic sensor use to sense various levels of dam water. Whenever the water level rises or decreases the ultrasonic sensor sense and send signal to microcontroller ATMEGA328P. It is the brain of the system. Ultrasonic sound is used to check the water level of DAM and is located above the DAM Bridge (About 250 meters before the bridge in the river side). Microcontroller is responsible for Enabling the transmission of the Ultrasonic signals, monitoring the reflected signals from the Water; calculation of distance.

V. RESULT



VI. DISCUSSION

The proposed project will help for easy monitoring of dam parameter to Dam authority and dam researchers by using Web portal. It will provide data collection system so that previous data will be useful to Dam authority as well as Dam researchers. In this project we are detecting the water level of the dam using

ultra sonic sensor. Also Dam Door control wirelessly by using web base and also it will sense the earthquake vibrations which give prior intimation about it. The main focus of this project is to monitor water level measurement, rainfall detection, earthquake detection also opening and closing dam door. This system is used to alert the people as well as save their life. from anywhere we can automatically operate this system by using web page and raspicam remote application.

VII. CONCLUSION

In this project, the dam door will automatically open when the water level increased above 60%.and the dam door automatically closed when the water level is below 60%. The earthquake will be detect by using the piezoelectric sensor and rainfall is detected by the raindrop sensor. This project is used for security purpose

REFERENCES

- [1] Water Level Monitoring System in Water Dispensers using IoTby Mohita Parashar1, Roopa Patil2, Siddharth Singh3, Vipul VedMohan4, K. S. Rekha5 in International Research Journal of Engineering and Technology (IRJET) Apr-2018
- [2] Post-earthquake Damage Detection Using Embedded Electromechanical Impedance Sensors for Concrete Dams by X. Feng, E.T. Dandjekpo& J. Zhou in Faculty of Infrastructure, Dalia University of Technology, China
- [3] IOT Based Water Supply Monitoring And Soil Moisture Detection System by Divya C , Nikhil Gowda, SuhasShastry, Yashwanth J, AchyuthaPreksha A . in International Journal of Computer & Mathematical Sciences IJCMS May 2017
- [4] Dam Parameters Monitoring System by Nikhil M. Dhandre, P.D Kamalasekaran, Pooja Pandey, IEEE 2016.
- [5] Dam Gate Level Monitoring and Control over IOTby E. Nanda Kumar, S. Vimalraj. In Jour of Adv Research in Dynamical & Control Systems, August 2017
- [6] DAM GATE LEVEL MONITORING AND CONTROL OVER IOT by Sakthi Krishnan V, Sindhu R, Swetha A, VivekMuthuKumaran G, and Sri Ragavi S in SSRG International Journal of Electrical and Electronics Engineering, March 2017