REVIEW REPORT

ON

CANEL AND SUBCANEL WATER LEVEL SURVEILLANCE

Pranoti A.Bhatele , Sheeja S. Suresh

PG student Mtech (VLSI), GHRIETW, Nagpur, Maharashtra , India

Prof. Dept of Electronics and Telecommunication, GHRIETW   Nagpur, Maharashtra , India

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Abstract - *This paper represents the method to check and control water level for irrigation system. The water is a one of the important natural resource and it is an important assets to save the water on the earth. This paper describes the automatic system to monitor and control water level with the help of water level sensors and wireless network system. The need of this paper is to cut water wastage occur in canel and subcanel, and the WSN system reduces the human efforts.*

Key Words: WSN, water level sensors, etc…

1. INTRODUCTION

water is one of the important natural resource in the world ,which is used for different purposes like for irrigation, for drinking, in hydro plant, etc. so it is necessary to save wastage of water in field, in nuclear plant and hydro plant also. Thus this project introduce a simple wireless monitoring and control of water surveillance system which uses water level sensors. The WSN is one of the technologies which has advantages of low-cost, low power consumption and self forming. This proposed project "canel and subcanael water level surveillance "will be designed to monitor and control level of water and save wastage of water in irrigation system.

2 LITERATURE REVIEW

 N.Zachos at all [1] in their research paper has implemented remote measuring station in present of wireless system for monitoring of water level. They have achieved an ultrasonic distance measuring system. In this the remote stations are considered as simple measuring units with a communication interface so that they may be operating under the control of base station. the advantages of their paper are no mechanical parts required, remarkable accuracy and resolution. The disadvantage of their paper the water level monitoring is developed slowly   and   it   required temperature compension.

Zhou Yiming at all [2] in their research paper has implemented the Wireless system for monitor and control of water level in greenhouse. They had used ZigBee network and several sensors nodes. The advantage is low cost and high network capacity.

Zulhani rasin at all [3] in their paper elaborate the ZigBee network for water irrigation control monitoring system. They had used a various sensor node to detect the water level in the reservoir and it is based on the signal from the sensors, and a simple electronic circuit either open or close the gate controlling the flow of water. In their paper it is important to mentioned here, the circuit present in their project is on a conceptual scale and not yet in the form than can be directly applied to the available water irrigation controlling gate. The disadvantage of this paper that the battery needed in this project is operated only for 12 hours and require more human effort.

Nuno Brito at all [4] in their paper has implemented control of water level in two tank without interaction. They had performed in a remote collaborative method. In this paper the system includes two tanks made in acrylic, a pump to circulate the water from the lower part of tank to the upper tank, two ultrasonic sensors was used for measuring both tank levels, and electronic valve to stop the flow of water between the upper level tank and the lower level tank and a manual valve for security purposes.

The disadvantage of this system ,it is not available with local or remote control configuration for demo purposes.

Zhang Zhi at all [5] in their research paper elaborate the control and monitoring of water level in nuclear power plant. In this paper the Steam generator was used for water level control system which was the most important components of the nuclear power plant. In this paper it develop the performance assessment method for a class of SG level of water control systems, two PI controller system. A major contribution of this paper was to take the performance assessment technology into an industrial area, SG water level control in NPPs, where not much work has been done before.

P. Komeswarakul at all [6] in their paper has proposed automatic water monitoring system using microcontroller for dam.

In this paper [6], the remote terminal unit (RTU) based on DSPIC30F4011 microcontroller was mainly designed to precisely measure, store and send instruments output to the computer server including real-time communication for dam behavior monitoring system. This system also provides the real-time information via reliable fiber-optic communication. The sensors installed into structure of dam and in reservoir to measure physical quantities of interests such as seepage flow, water level, deformation, pressure and temperature parameters.

The aim of this paper [6] presents the RTU that operates in the dam monitor system. The RTU based on DSPIC30F4011 microcontroller is mainly designed to precisely measure, store the analog value of instrument sensor devices related to dam behaviour. It is used to directly exchange data between computer and RTU via RS232 serial communication. fig.1 Remote Terminal Unit Hardware Diagram. fig.2 Communication mechanism.
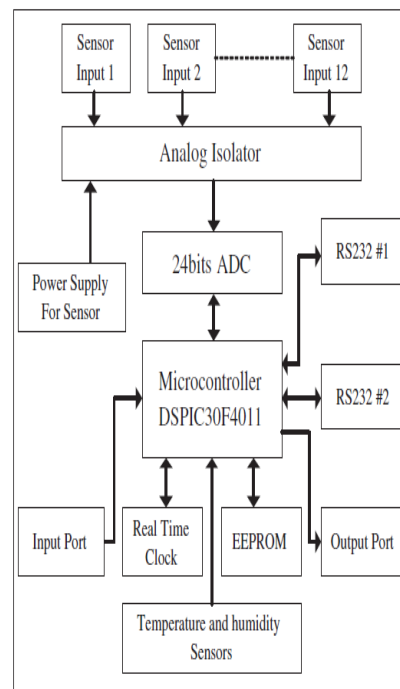

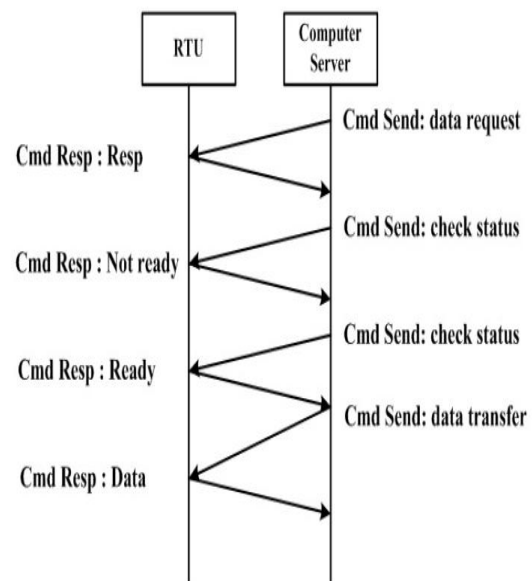fig.1   Remote Terminal Unit Hardware Diagram.

fig.2   Communication mechanism.

Ms.Aparna M. at all [7] in their research paper has implemented a system for water environment monitoring water using GSM system. The control mechanism of the dam gates were done manually and using PLC. But there were lots of errors in manual method Also the PLC based system was huge and hence suitable for major dams due to its cost. For medium and small dams like irrigation dams does not need such huge PLC systems. So to cut these

problems a mechanical control system was proposed in their project.

This project [7] is an AT89rdv51 microcontroller based dam gate control system which helps in keeping an eye on the frequent usage of water resources from dam for purposes of irrigation and efficient operation of dam gate according to the level of water and helps in indicating about flood to people living in the surrounding. This proposed mechanism of gate control reduces the wastage of water and usage of available water is ensured. The level of water is detected based on the feedback from the mechanism used. In the case of major dams, nearly real-time structural monitoring of the dams can reduce the loss of human lives and in case of irrigation purpose dams, real-time monitoring can help in reducing the damage caused to the crops by giving an indication.

In this project[7] they had used microcontroller (AT89V51), GSM modem, Xbeemodule, power supply, stepper motor, water sensor, temperature sensor, pH sensor, turbidity sensor and ADC0808 water level in the dam exceeds a certain threshold and depending on the water level of the dam, gates can be controlled. The output of the water sensor is digital output. Hence the output of this sensor goes directly to the microcontroller. Whereas the output of the other sensors was in the form of analog system. Therefore they converted the analog values into digital values before connecting to the microcontroller. ADC0808 is used for that purpose. This is one of the disadvantage of this project and another that it only used to control the gates of dam and not for irrigation system
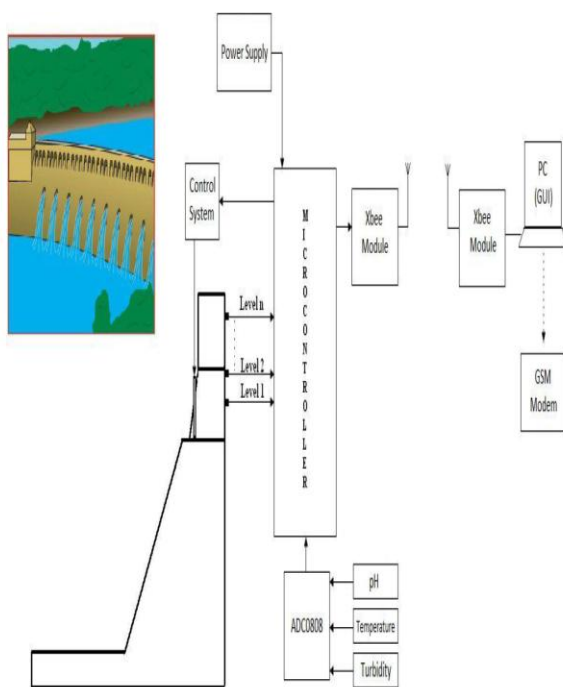

fig.3 System Block Diagram

S.A.M. Matiur Rahman at all [8] in their paper has implemented automatic system to control tap water. They had discussed the procedure of the water level sensing system to control the misuse of water in tap. It consists of automatic system of a solenoid valve, relay, floatless level controller and electrodes.

This paper [8] implemented and tested with bucket water and tap, it shows that a floatless water level switch connected with a solenoid valve via relay, where the solenoid valve converts the electrical energy into motion, and which start and stop the water flow.

This paper[8] has three sensors,1st was upper level sensor,2nd lower level sensor, and 3rd one was a common sensor, these sensors was made up of copper wire which act like electrodes and help to conducting path. The advantage of this paper that it is low power consumption, and the disadvantage that it is not used for the WSN network.

3. SUMMARY AND CONCLUSION

It can be concluded that in the field of water level monitoring and controlling different techniques are widely used for prevent the wastage of water. the water level can be controlled and monitored in various field where large amount water is misused. The system proposed here is an effective way to overcome the water wastage in irrigation system and other applications. It is expected to give the exact output of water level controlling and save the water in canel and subcanel ,which reduces the water overflow in canel and subcanel .

5.REFERENCES

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