

IOT Based Automatic Water Level Controlling System

¹Nikita B Jape, ²Ankita B Jape, ³Priya S Jape, ⁴Ishan N Ajmera, ⁵Dhiraj U Bhamare, ⁶Prof. Rahul M Dhokane

¹Student, ²Student, ³Student, ⁴Student, ⁵Student, ⁶Professor
Information Technology,
Sir Visvesvarya Institute of Technology, Nashik, India

Abstract: In today's life water is very necessary. Looking toward the need of water, liters of water is wasted in daily life. To stop the wastage of water we are developing IOT based automatic water level controlling system which will save liters of water from wastage by automatically controlling the level of the water in the tank and prevent it from overflowing. Water level controlling system solves this problem, it will give right information about water level and it will avoid wastage water in tank using Ultrasonic sensor which will sense the liquid level and compare it with the depth of the tank. The system also uses Arduino Uno, Buzzer, LCD screen to display the level of water in the tank and the state of motor.

Keywords: Arduino Uno, Ultrasonic Sensor, Liquid Crystal Display, Buzzer

I. INTRODUCTION

Water is very important as it is the basic need of every life on the earth. So water wastage need to be controlled for our environment and for living beings. Many times we switch on the motor and forget to turn off, because of this most of water is wasted unknowingly. This leads to water scarcity. This system is designed to monitor the water level at rural areas so that they help in detecting the wastage of water and precautions can be taken to avoid overflowing of water where monitoring is difficult. This system monitors the water level in the tank and automatically switches ON the motor pump when the tank is empty and motor pump is switched OFF as soon as the level of water reaches at defined level. The status of motor is displayed on Liquid Crystal Display and with sound of buzzer so that user can get the information. This system reduces the efforts of people for daily filling of the tank and checks for overflow. Hence, the level on water in a tank can be automatically controlled. This system can be used in Hotels, Industrial storage tank, Schools anywhere water levels need to be controlled.

1.1 MOTIVATION

Water is our daily need. At many places there is shortage of water in recent years, which is a big problem for environment and for living being. By implementing this automatic water level controlling system we can control the water overflow from the tank

1.2 NEED

Need to this system is to control the wastage of water from tank. People forget to off the motor when tank is full due to which water get wasted. To avoid this problem, the system automatically turn OFF the motor when tank is full and also reduce the human labor.

1.3 AIM/OBJECTIVE

1. To save water for living beings.
2. Using this system we can save electricity and water wastage.
3. Main objective of this system is to automatically turn ON/OFF motor i.e. when tank is empty, motor is automatically turned ON and when tank is full motor is turned OFF and status of motor is displayed on the LCD.
4. To fully automatize the system

II. WORKING

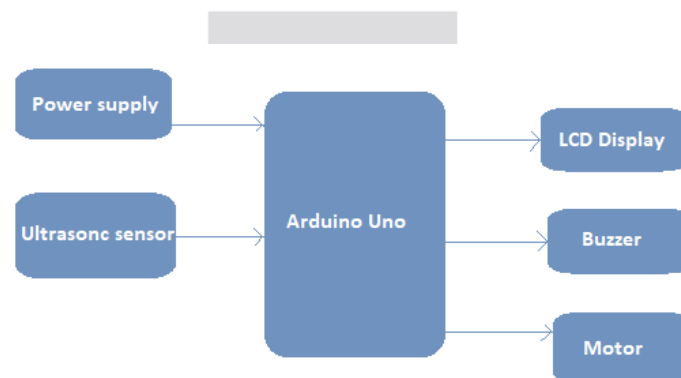


Figure 1- Block Diagram of water level controlling system

Working of this system is very simple, this system is designed to stop the unnecessary wastage of water in overhead tank and reduce the human effort. Sensor is placed at the top of the water tank, sensor calculate the distance of water level is low or high.

Sensor senses the presence of water level and gives control signal to microcontroller (The microcontroller takes input signal and decides according to given instruction). The microcontroller gives control signal to the motor pump.

If the level of water is low then motor is automatically turned ON to fill up the tank and motor is turned OFF when level of water is at predefined level. As soon as tank gets filled buzzer starts ringing and microcontroller enables LCD display and the status of tank i.e. 'WATER LEVEL IS LOW' / 'TANK IS FULL' is displayed.

2.1 HARDWARE COMPONENTS

Arduino Uno



Ultrasonic sensor



Liquid Crystal Display



Motor



Connecting wire



Buzzer



2.2 ALGORITHM

1. Start
2. Ultrasonic sensor sense the water in tank
3. Microcontroller calculate if the water is low or high
4. If water in tank goes down then controller gives instruction to start the motor and enable display as "motor is on"
5. If water level is at adequate level, controller will turn off the motor automatically

III. FEATURES

- This system is fully automatic, save human effort
- It is easy to install and low maintenance
- Easy to operate
- This system can be used for commercial complex, home, factories, place where water level need to be controlled
- Also used for any type of liquid like petrol, oil, etc.
- Saves electricity and water wastage.
- This can also be used to detect the level of water in dams.

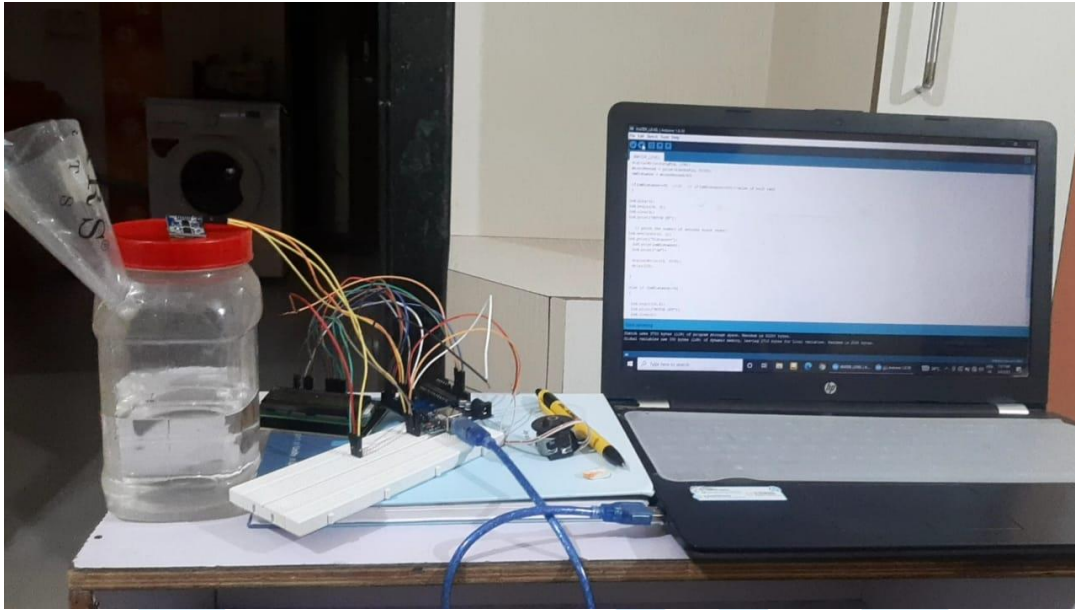
3.1 DRAWBACK OF EXISTING SYSTEM

- System does not have Guarantee or Warranty

IV. CONCLUSION & FUTURE SCOPE

Water is important for living being and for our environment. Recently there is water shortage in past years. As this system is low cost and designed simple. This system operates automatically and is designed to stop water wastage. People forget to off the motor when tank is full due to which water get wasted. To avoid this problem this system can be used to save water as this system automatically turn OFF the motor when tank is full and also reduce the human labor. Hence, the system is fully automatic. This system can be also used in industries, home, schools, etc and used for any liquid in huge containers in the factories like milk, water, oil and many more.

V. RESULT



REFERENCES

- [1] A. A. M. Eltaieb and Z. J. Min, "Automatic Water Level Control System", *Int. J. Sci. Res.*, vol. 4, no.12, pp. 1505-1509, 2014
- [2] Hani, T.M., & Myaing, O.M. (2011). Design and Construction of Microcontroller based Water Flow Control System. *Proceeding of International Conference on Circuits, System and Simulation*. Bangkok, Thailand.
- [3] Pandey et.al(2004), *Agriculture Economist, Research Review* Vol. 24 January-June 2011 pp 109-108
- [4] **Olabimpe**, A. I. (2010). *Design and Construction of Water Pump Control with Level Indicator Project*.
- [5] Omolola, R. A. (2010). *Design and Construction of Water Detector with Pump Control*. Project, Department of Electrical and Computer Engineering, Federal University of Technology, Minna.
- [6] Muhd Asran Bin Abdullah(2008), water level in tank using sensor and PID controller, btech. Thesis, University Malasia Saraswak,Saraswak,123p
- [7] <https://www.arduino.cc>

IJRTI