

WATER LEVEL INDICATOR

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ABSTRACT

Water scarcity is one of the major problems facing major cities of the world and wastage during transmission has been identified as a major culprit, this is one of the motivations for this research, to deploy computing techniques in creating a barrier to wastage in order to not only provide more financial gains and energy saving, but also help the environment and water cycle which in turn ensures that we save water for our future. In our system used arduino to automate the process of water pumping in a tank and has the ability to detect the level of water in a tank, switch on or off the pump accordingly and display the status on an LCD screen. The system also monitoring the level of water in the sump tank (source tank). If the level inside the sump tank is low, the pump will not be switched ON and this protects the motor from dry running

Keywords: A Wemos d1,r1.mini,ultrasonic,sensor,cables,esp8266

1. INTRODUCTION

In everyday life, there must be some physical elements that need to be controlled in order for them to perform their expected behaviors. A control system therefore can be defined as a device, or set of devices, that manages commands, directs or regulates the behavior of other device or system. Consequently, automatic controlling involves designing a control system to function with minimal or no human interference. Intelligent systems are being used in a wide range of fields including from medical sciences to financial sciences, education, law, and so on. The monitoring of the water level in a reservoir is important in the applications related to agriculture, flood prevention, and industry, etc. Almost all aspects of human life have undergone rapid development. This development is supported by the advance of electronics and information technology. The job can be performed on schedule precisely and efficiently by adopting this advance technology. An achievement in computer technology is used not only in business and industry but has also covers almost all fields, including control system where a computer system can be used to control the hardware in a flexible way. Therefore, computer based control system is become more common in recent development of control system. Computer-based control system also can be implemented for optimizing water flow management to minimize flood caused by water overflow. Management can be performed based on elevation of water level on the river as an input data and control the sluices along the river stream based on that data. Automatic water level controller is a series of functions to control the Automatic Water Pump Controller Circuit in a reservoir or water storage. The water level sensor is made with a metal plate mounted on the reservoir or water tank, with a sensor in the short to create the top level and a detection sensor for detecting long again made for the lower level and ground lines connected to the bottom of reservoirs or reservoir. the project is automatic water level controller through the use of different technologies in its design, development, and implementation. In this project we will use arduino Uno to automate the process of water pumping in over-head tank storage system and has the ability to detect the level of water in a tank, switch on/off the pump accordingly .The water level and other important data are displayed on a 16x2 LCD display. The circuit also monitoring the level of water in the sump tank.

2. METHODOLOGY

Method. In our project "water level indicator" there are 3 main conditions:

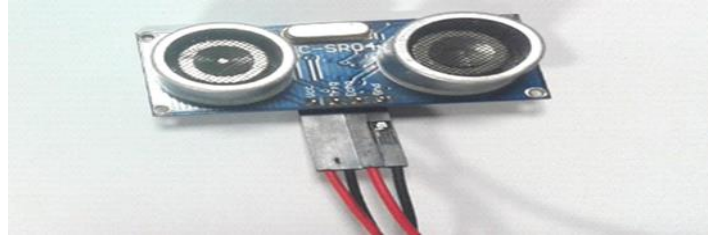
1. There is no water available in the source tank.
2. Intermediate level i.e. either of 3rd to 7th level.
3. There is ample amount of water available in the source tank.

3. MODELING AND ANALYSIS

Software/Hardware componants:

1. Ultrasonic Sensor (HC-SR04) :

It is basically a distance sensor and is used for detecting the distance using SONAR method. It has two ultrasonic transmitters namely the receiver and the control circuit. The transmitter emits a high frequency ultrasonic sound wave which bounces off from any solid object and receiver receives it as an echo.



2: ESP8266

ESP8266 is Wi-Fi enabled system on chip (SoC) module developed by Espressif system. It is mostly used for development IoT (Internet of Things) embedded applications ESP8266 Features: Manufacturer - Espressif System, Type 32 bit



3: WeMos- D1 R1 WiFi ESP8266

Development Board is programmable via Arduino IDE. This is an ESP8266 based WiFi enabled microprocessor unit on a Arduino-UNO footprint. That means the board looks and works (in most cases) like an UNO. the Arduino platform will work on the WeMos-D1R1 with the added advantage of builtin WiFi. .

SOFTWARE:

provides very good tool for IoT based projects for Arduino. By using ThingSpeak site, we can monitor our data over the Internet from anywhere, and we can also control our system over the Internet, using the Channels and webpages provided by ThingSpeak. ThingSpeak 'Collects' the data from the sensors, 'Analyze and Visualize' the data and 'Acts' by triggering a reaction. Here we are explaining about How to send Data to ThingSpeak server by using ESP8266 WIFI Module

4. RESULTS AND DISCUSSION

Applications: Automatic Water level Controller can be used in Hotels, Factories, Homes Apartments, Commercial Complexes,

Limitations: As it consists servo and dc motor so it requires high power supply. If the water level is not constant then it might not show exact water level in tank.

5. RESULT

Sr.no	Expected reading	Actual reading
1	1	1
2	1.5	1.5
3	2	2.5

An ultrasonic sensor based water level indicator was developed and constructed using available components and materials and it is successfully tested. The electronic circuitry water realized, especially by replacing the factory based, commercial and fragile Arduino UNO with cost effective and electronically rugged assemblage. A transparent cylinder vessel was used as a water tank model to test.

6. FUTURE SCOPE

The automatic water level controller has a great future scope. By adding a Wi-Fi module through which it can be controlled through mobile application by doing so it can be used in big building, offices, malls. It also has a bright future in Agricultural sector.

7. CONCLUSION

This project has achieved the main objectives. Moreover, this project involved designing and development of automatic water level control system had exposed to the better way of software and hardware architecture that blends together for the interfacing purposes. The system employs the use of advance sensing technology to detect the water level.

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8. REFERENCES

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