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Water Level Indicator System Using IOT

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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. A beep sound is generated when the level in the sump tank is low or if there is any fault with the sensors

KEYWORDS: wemos d1 r2 mini,ultrasonic sensor,cables,esp8266

I. 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 16×2 LCD display. The circuit also monitoring the level of water in the sump tank (source tank).

II. METHODOLOGY

The operation of this project is very simple and can be understood easily. In our project

"water level indicator"

there are three main conditions:So let us discuss on the about these 3 conditions

CONDITION 1: Water not available

when water in not in tank means tank is empty then ultrasonic sensor sense the distance of tank top to bottom and send that sensing reading to wemos d1 r2 mini for showing as ouput.

CONDITION 2: Intermediate levels

when tank is start to fill by water then reading are changes .that reading is sense and display.

CONDITION 3: Water full

when water is full then that time water level indicator project shows that water tank is fill to the user.

III. MODELING AND ANALYSIS

connection are shown in block diagram in below fig:

steps:

1. firstly connect ultrasonic sensor to wemos d1 r2 mini by using cables.
2. then connect wemos d1 r2 mini to computer by using usb cable.
3. after that install the arduino plateform and then select board name and port name if

board is not available in plateform then follow the procesure which is written in software   componants. paste user program into platform compile and send to wemos d1 r2 mini.easy procedure it .
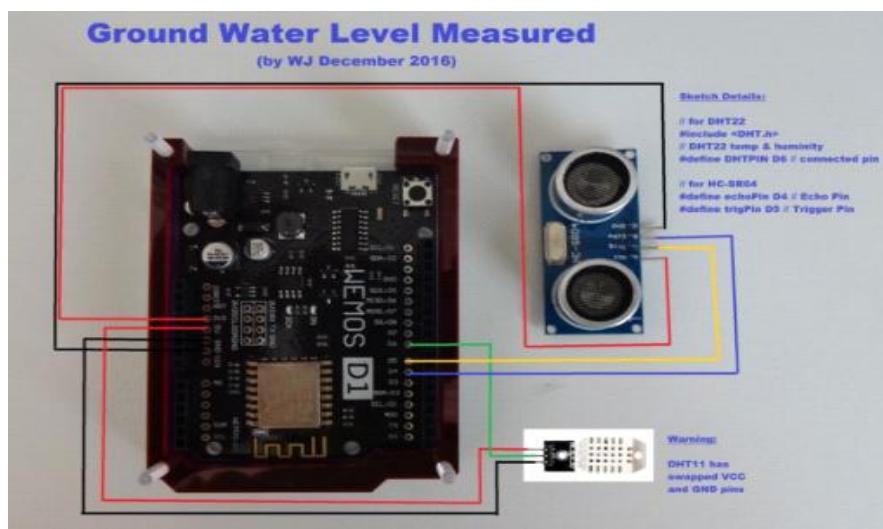

Fig 1: Connection of circuits

IV. RESULTS AND DISCUSSION

An ultrasonic sensor based water level indicator was developed and constructed using available components and materials and it is successfully tested. The electronic circuitry was 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 the developed system. The non contact ultrasonic sensor is strategically positioned on the peak of the vessel thereby solving the problems of frequent replacement of contact and submersible sensor which characterize existing commercial and expensive water indicator.

The module detected, controlled and maintained the level of water. The level of the water in the vessel is indicated in % of the volume holding capacity of the tank which is displayed on the Liquid Crystal Display .Testing Reading are as follows:

Table 1. System Testing

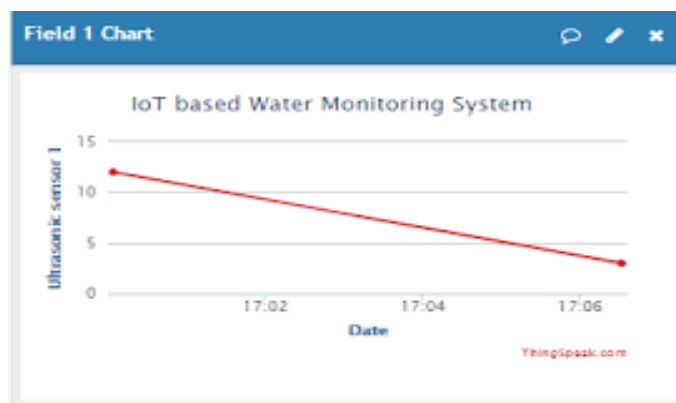| Sr. No.	Expected Reading	Actual Reading	Status
1.	0.5	0.5	Pass
2.	1	1	Pass
3.	1.5	1.5	Pass
4.	2	2	Pass
5.	2.5	2.5	Pass
6.	3	3	Pass
7.	3.5	3.5	Pass
8.	4	4	Pass
9.	4.5	4.5	Pass
10.	5	5	Pass

Fig 2: IOT Based Water Level Monitoring System

V. 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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