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# AUTOMATIC WATER TANK FILLING & CONTROLLING SYSTEM

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## Abstract-

In this Paperwe designed to give a output on the display of water level in a tank and control a water pump motor as required. The reading given in the scale of 16*2 display. A priority encoder is interfaced to a decoder to get the display of water level on 16x2 display. It is built around priority encoder, BCD-to- decoder, display and a few discrete components. Due to high input impedance, priority encoder senses water in the container from its nine input terminals. In this Arduino based automatic water level indicator and controller paper we are going to measure the water level by using ultrasonic sensors. Basic needs of using ultrasonic sensor to distance measurement is based on ECHO. When sound waves are transmitted in environment or in the water tank surface then they return back to the origin as ECHO after striking on any obstacle or (water) in the tank. So we have to only calculate its traveling time of both sounds means outgoing time and returning time to origin after striking on any obstacle. And after some calculation we can get a result that is the distance in the water tank thats the way we use in our water controller system. where the water motor pump is automatically turned on when water level in the tank becomes low means empty.KEYS: Relay, Ultrasonic sensor, Arduino, Bridge Rectifier, 16 X 2 LCD, water pump,Capacitor, Resistor,Transistor

## 1 INTRODUCTION

In accordance with the current framework, a lot of water is wasted every day from residential areas, offices and hospitals. Water is essential in various ways and such a huge amount of water wastage can take place on the future. Nowadays everybody's water tank in their residence.Our Objective is used to measure and display the level of water in a container and avoid overflow of water.so that the water wastage put a stop.

This types of technology is generally used tothe people that their can do their day to day life activities easily. Consequently, the cultural change is usually triggered by the technological transformation. In today's world automation technology is one of the best technology to perform some important day to day task many people can do their work thought automation technology so that they can save time to them to perform another activities as they needed. Some advanced automation materials are been used to get the task automatically are Arduino UNO it is used to control the electrical circuits as per the instructuction through the program (c++)The main component of the Arduino UNO is EEPROM it is a electrically erased read only memory which can be program easily by c++ language. At first the Arduino read the input and then process the program and gives the output logically.

There are so many Arduino boards are available on the store we can select the board as per our needs of task

**(a) NEED FOR ARDUINO**

Why is there a need to use Arduino in specific? or What makes it different from others? Massimo Banzi, a Co-founder of Arduino mentions some very important reasons for this question.

1) User Community: A group of people using a similar product can hold posted message conversations and share their experiences or solve the problems of the other users in the communities with their own experiences [1].

2)Arduino build :Arduino is developed to provide an economical and bother free for students and teachers to build their interactive devices as per their needed using sensors and other devices. This makes it perfect for newcomers to get started quickly [1].

3) Inexpensive Hardware: Since Arduino is an open source platform. The software is not needed to buy but the cost of buying the board only or its parts is incurred, so that it becomes so cheap. On the official website of Arduino the hardware design is available for free of cost [1].

4) Arduino Board Program: Arduino board is easy to program and also available all over the world and it also comes with USB cable to directly program from the pc (IDE) and power up so easily.

5) Multi-platform Environment: The Arduino is not a platform dependent .it can be able to run any operating system present in the world such as Microsoft Windows, Apple macOS, Linux etc [1].

**(b) TYPE OF ARDUINO BOARDS**

Arduino boards which are available with different types of built-in modules.Boards like Arduino BT comes with a Bluetooth module which already builted for the communication like wireless connectivity.These built-in modules which also can be available separately and after that it can be interfaced to it

It allows the Arduino boards connect to the Ethernet library with the help of using the internet connectivity and to read and write as card using the SD library.it allows your Arduino board to communicate wirelessly with the help of using zigbeea prototype of water tank filling theArduino microcontroller will be developed automatically

. • Arduino Motor Driver Shield: It allows your Arduino boards to interface with driver of a motor etc.

In this project, we will propose a novel utilization of ArduinoTM based sensor for the automatic water tank filling. A prototype of automatic water tank filling employing the ArduinoTM microcontroller will be developed

## 2.Result and Discussion

Water pump is the source or we can say the perfect tool which pumps the ground level water to fill up the water tank. The various water pump modules that are currently used. As the first model is about turning on and off the machine manually. The other model in which the water pump acted with the help of a floating ball to equip as a physical tap to see the tank water fulfilled. However some weaknesses can occur for both the models.The manual operate water pump is not so efficient because of the water pump that cannot turn on and off automatically. Sometimes the condition may arise the water spill if someone forgot to turn off the pumping machine.it may affect to the wasteful electrical consumption and it can also destruct the wall because of the midst, humid and mossy

Now similarly when the tank reaches to level 2 it will make sure that pin2 of IC1 is low and 11 which is already low but 74147 is a priority encoder. That is the reason of output from pin 7 is receiving and again the low signals are converted into high output with the help of transistor T3 and we will get numeric which is number2.. After few calculations the distance result is obtained .The concept we are using in our water controller system is that where the water motor pump is automatically turned on when the water level in the tank becomes low. The idea can be direct used to a certain control level of the water in overhead tanks to prevent wastage. In this project the Arduino based water level indication and the controller level is being measured by using ultrasonic sensor. At first we consider that the tank is empty, when we switch on the power supply all the input of ic1 is high. From truth table IC1 you can see that if the input is high then it will give the high output pin as well. Now when the water tank reaches its level which is level 1 then it will make sure that the pin11 of ic1 is low and remaining pin will be high as we get the result

## 3. CONCLUSION

In today's world we are going to face scarcity of drinking water or underground water around all over the world . Energy production is laborious and cannot be misused. The water tank overflows as the height of water in the tank cannot be randomly guessed. People also need to wait and stop doing their other activities until the tank is full. Hence, here is an idea which senses and indicates the water level so that the pump can be switched off on appropriate time and save water, electricity and time as well.

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