

Article

Water Level Indicator and Controller

Shubham J Sonawane¹, Rohit B Shirsath², Sudhir M Shinde³

^{1,2,3}Student for MCOERC, Nashik.

I N F O

Corresponding Author:

Shubham J Sonawane, Student for MCOERC, Nashik.

E-mail Id:

sonawaneshubham890@gmail.com

How to cite this article:

Sonawane SJ, Shirsath RB, Shinde SM. Water Level Indicator and Controller. *J Adv Res Image Proc Appl* 2019; 2(2): 16-18.

Date of Submission: 2019-12-21

Date of Acceptance: 2020-01-10

A B S T R A C T

This paper shows design of water level indicator and controller with PIC microcontroller. This applicable for saving the excess water into the tank and for predicting the future importance of water. It can indicate the amount of water in the tank. So the PIC microcontroller for programming flexible. It has ultrasonic sensor for that transmitter and receiver it identify the position send the signal it to the microcontroller and display it to a LCD. As soon as water reached to nearest to a some threshold (100%) the buzzer will keep accordingly.

Keywords: PIC 16f877A, Buzzer, Pump, 16*2 LCD, Ultrasonic Sensor (SRFO4)

Introduction

Now a days, the importance of water is very serious issue. The nations have understood. Many cases people have been ignoring the wasted water especially for summer season the lack of water emerges over the country. That's why need for water level indicator during such situations. In this design we use the PIC microcontroller, ultrasonic sensor, 16*2 LCD.

The researcher group describing and building a system capable of controlling the water level in an overhead or underground tank using a controller by ensuring water does not start overflowing from the tank before the pump machine is deactivated.²

This design is not only used for water level indication and control but also is useful for industrial purpose where chemicals which may be hazardous and costly cannot be controlled manually so this design is very useful where quantity matters a lot. Also this system is applicable to small scale use such as house, schools, hospitals and other such domestic purposes.

Related Work

The researcher group has designed Water Level Indicator with Alarms Using PIC Microcontroller which was applicable for both reservoir and main tank in home or industries. PIC 18F452 used in this design.²

The second researcher group has designed Radio frequency based water level monitor and controller for residential application it uses two transceivers along with a controller each installed at the overhead tank and the sump. Radio Frequency transceiver It is completely automated with the help of a PIC 16F877A micro controller which receives signals from the status transmitter interprets and effectively communicates the status of the water overhead tank and water pump mode to the user or operator via an integrated LCD display.³

Proposed System

Table 1. Ultrasonic distance sensor module-HC-SRF04⁽⁴⁾

Sr. No.	Parameter	Description
1.	Output of sensor	digital
2.	Voltage	5V DC
3.	Detection distance	2cm-400cm (0.02m-4.0m)
4.	Static current	< 2Ma
5.	Level output	High- 5V
6.	High precision	Up to 0.3 cm

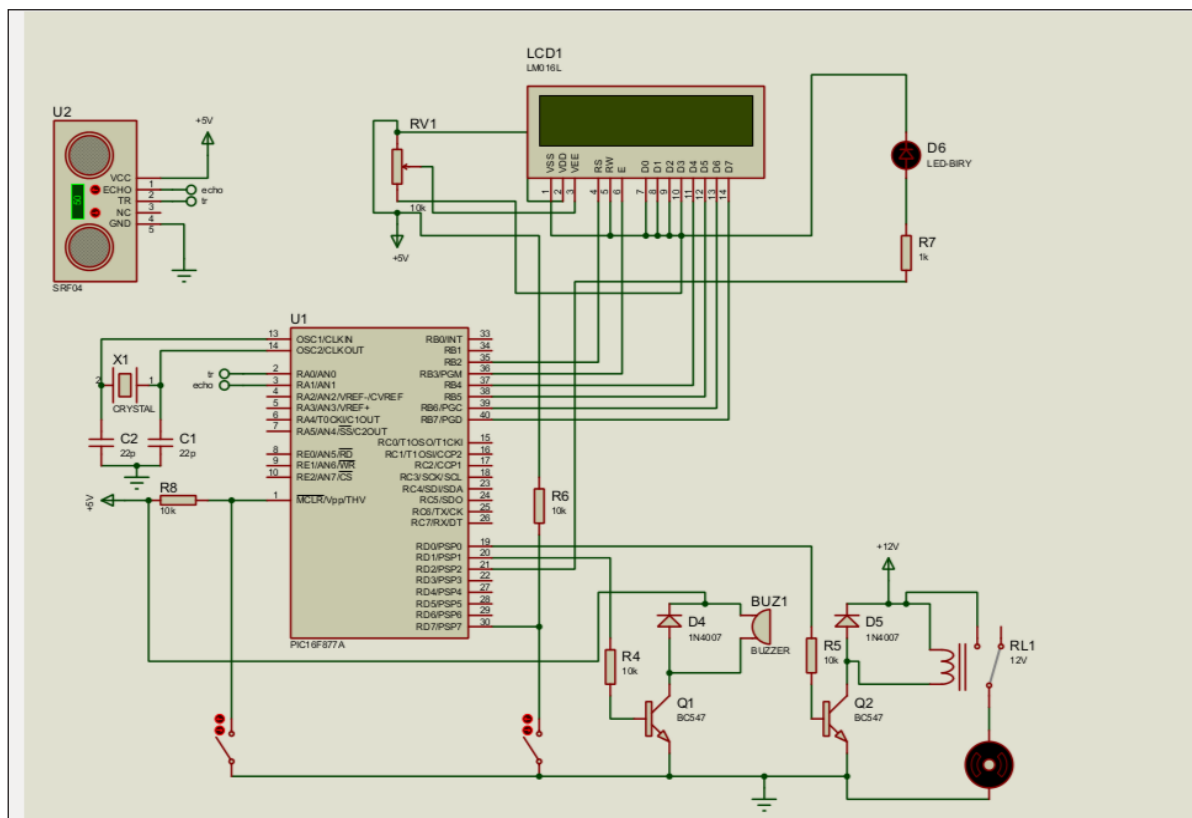


Figure I.Simulation design with Proteus Software

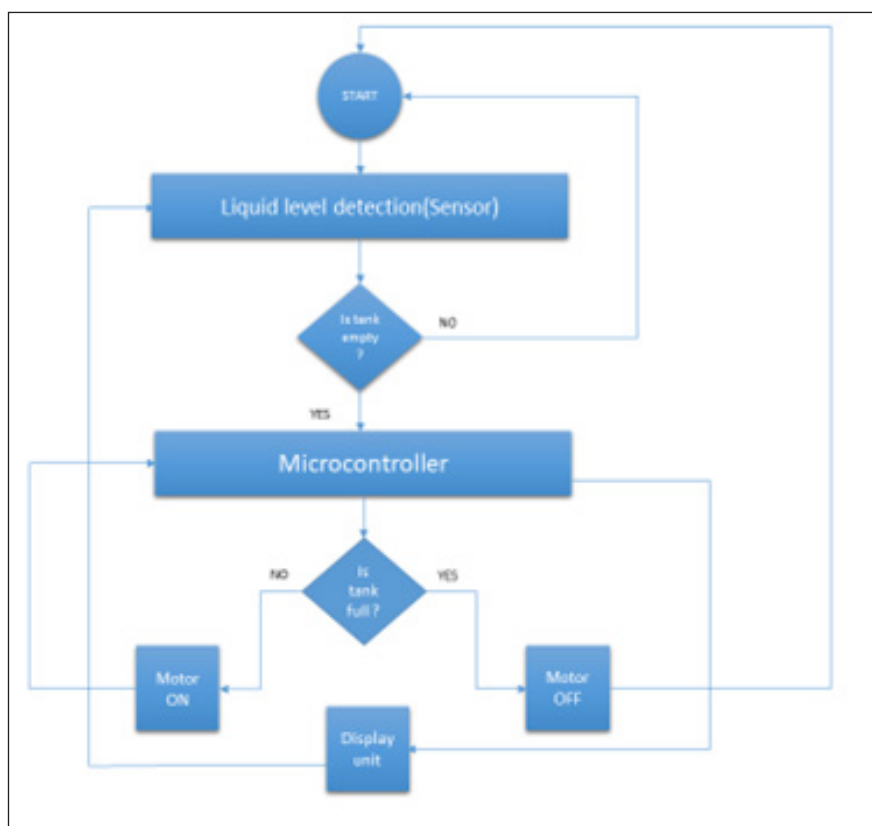


Figure 2.Flow Chart of System

Process of System Design

As this design is totally based on controller so there is use of PIC16F877A .microcontroller will drive LCD, pump, buzzer, ultrasonic sensor accordingly .The programming in such a way that

when the ultrasonic sensor detect the level of the water in the tank ,the data will gives to the microcontroller and it will compare to it with program data controller will control the motor and it display data accordingly on LCD .

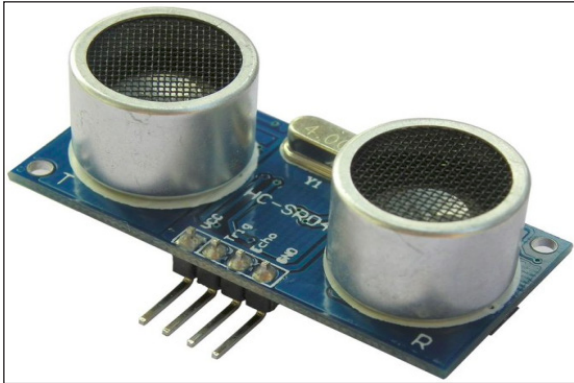


Figure 3

References

1. www.microchip.com/PIC16F877A
2. Irubor SC, Igimoh J. Design and Implementation of a GSM Based Tank Water Level Control System2017.
3. Nandi DB, Oti SE, Ezika PC. July Radio frequency based water level monitor controller for residential application, 2015.
4. Www.Electronics.com