

Water level management system using IOT

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Abstract - Water resources are essential and an important factor for industry, agriculture, use and also a key to your lifestyle. It is important to monitor the water level in the water tank or water source. Its proposes a prototype system design, a description and implementation of the tools and technologies needed to develop an Internet of Things (IoT) based water level monitoring system so that you can use this technique now a days.

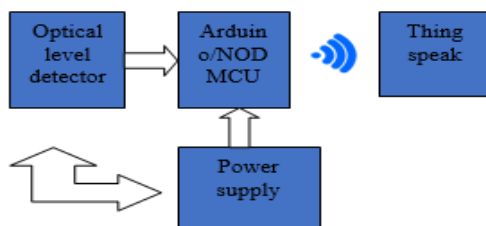
Index Terms - NOD MCU, Ultrasonic sensor, LCD Display, thingspeak.

I. INTRODUCTION

Water Level Managements System have a vast application in home processes. IOT based Water level Monitoring project is designed in a way that it can be used to remotely monitor the level of water indoors and out, like measuring tanks, wells, ponds, canals, and streams. In Home applications, IOT based water level Monitoring project can be used for leak detection, theft detection and also monitor the usage of the water.

IOT based Water level monitoring project enables the user in level detection of water and continuously monitor it – over the internet. Different types of level sensors like Ultrasonic Sensor, etc. can be used for water level monitoring. We have used ultrasonic sensors placed over the tank to determine the level of liquid.

II. BLOCK DIAGRAM



III. BLOCK DIAGRAM DESCRIPTION

It can be used for connecting objects like smart phones, Internet TVs, laptops, computers, sensors and actuators to the Internet where the devices are linked together to enable new forms of communication between things and people, and between things themselves. Building IoTs has improved significantly in the past few years. The number of devices connected to the internet is increasing day by day. The cost related with machine to machine communication over mobile networks is usually cheaper than fixed networks. Now people can have connectivity from anywhere and anytime for anything. The Internet of Things is being used in number of sectors, from automation, transportation, energy, healthcare, financial services, wearable devices, security, and agriculture to nanotechnology.

Arduino Uno

That will read the level from this sensor, and send it using IOT, over a webpage. This project is operated from a power supply can be used to power the circuit. The level of the water is displayed in percentage on an LCD display.

For Example. If the tank is of capacity 100 Liter and is completely filled, the System will display 100% If the container has 50 Liter water, then the system will display 50%.



Figure: Arduino Uno

SENSORS

Ultrasonic Sensor

An ultrasonic sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves and converts the reflected sound into an electrical signal. The ultrasonic sensor is a cheap sensor that can measure 2cm to 400cm of non-contact measurement.



Figure: Ultrasonic Sensor

LCD:

LCD means “Liquid Crystal Display”. Here LCD used is 16X2. 16X2 means LCD has 16 columns and 2 rows.

Each row is able to print 16 characters.

It operates at 4.7V to 5.3 V. Current consumption of it is 1mA without backlight. It is available in green and blue backlight.

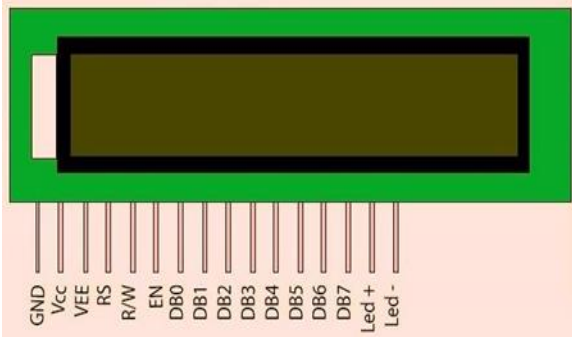


Figure: LCD

IV.SOFTWARE USED

a)Blynk:

This software is used to design the IOT. Using this software, we can control hardware remotely. Also, Blynk server can communicate between hardware and smartphone.



Figure: Blynk

Figure: Button Configuration on Blynk

b) Arduino IDE:

This software is used for programming. We can do the different code in this software and then we need to burn code in NodeMCU board.

IOT based Water level management system



Figure: Arduino IDE

c) Thing Speak:

Thing Speak is an IOT analytics platform. In which we allowed to monitor live data in cloud. We can send data to thing speak from our device. API key- There are two types of API key. Read API and Write API. Writes API Key –It is 16 digit codes that allows an application to write data to a channel. Read API Key – It is 16 digit code that allows an application to read the data stored in a channel.

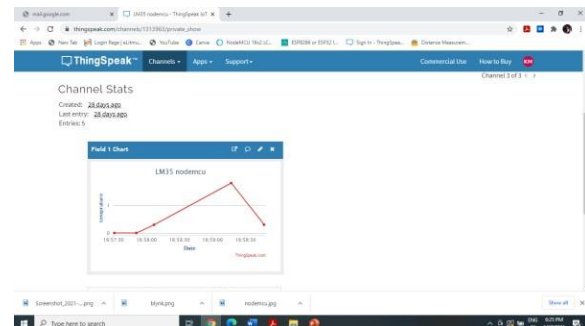
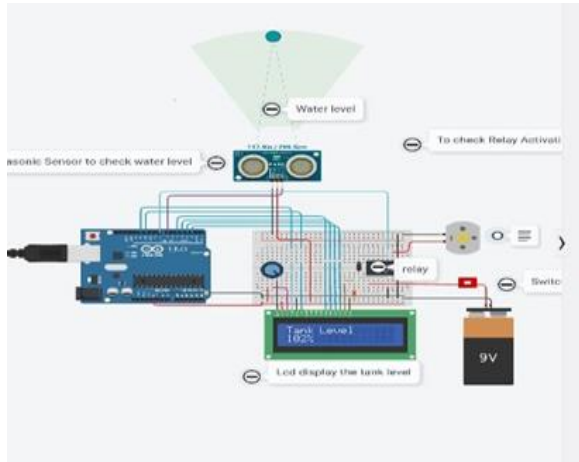


Figure: Thing speak

V.RESULT



VI.ACKNOWLEDGEMENT

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VII.CONCLUSION

The project proposes a simple water level measurement system with different levels indicated. It also signifies when the water level is below and above then the requirement. System design is as discussed, thus being a cost effective and simple strategy to monitor the water level system.

This concept has helps to improve the basic outline of water management techniques by keeping the user up to date by storing the information regularly, obtained using certain variables with the help of network sensors. The existing automated method of level detection is based on measure of minimum and maximum level of water in the tank which facilitates the water level management system. If minimum input water level value is reached, the measure the water level.

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