

WATER RESOURCE MANAGEMENT

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Abstract: •This water resource management project aims to solve the problem by calculating rate of water and also by checking the quantity of water consumed by various flats or apartments. So that we can monitor and set a limit per user.

•To develop the system which in which the how much water is consumed and send the information of water uses through SMS and APP to the consumer.

The prototype being made is based on IoT.

We will collect a data from the sensors which is used for better solutions of water .

After that with the help of wifi module ESP 8266 the data is uploaded on cloud server.

This gives results in real time and hence we can solve the water crisis in less amount of time.

I INTRODUCTION

Water management problem usually appears in apartments.

In today’s times shared meter which is a major problem for the payment collection in the apartment.

Here our device is an IoT device so it communicates via internet by sharing data with the cloud.

In India, mostly a common meter is installed in housing societies. This makes the bill of every household complex and unfair as it never tells which user has consumed what amount of water.

So here we have proposed an idea to overcome this problem, so as to check and monitor every user as per their consumption and update them timely and in turn saving water being wasted because,

“Every Drop Counts In Today’s World !”

Our IoT device mainly consists of Node MCU and various types of sensors. The data collected is sent to a server over cloud using a wifi module.

When the water in the tank reaches a threshold level , it’s flow can be adjusted by the microcontroller as it turns the motor ON/OFF. And hence the further analysis and action can be done over the data.

II.PROBLEM STATEMENT

The IOT based smart water system avoids over use of water.

The system can be a solution to labor shortage problem in housing societies.

III.OBJECTIVES

To design the water management system to monitor the consumption of the water use in the apartment or the society. SMS will send to the consumer if the limit exceed .

IV.PROPOSED WORK

•BLOCK DIAGRAM

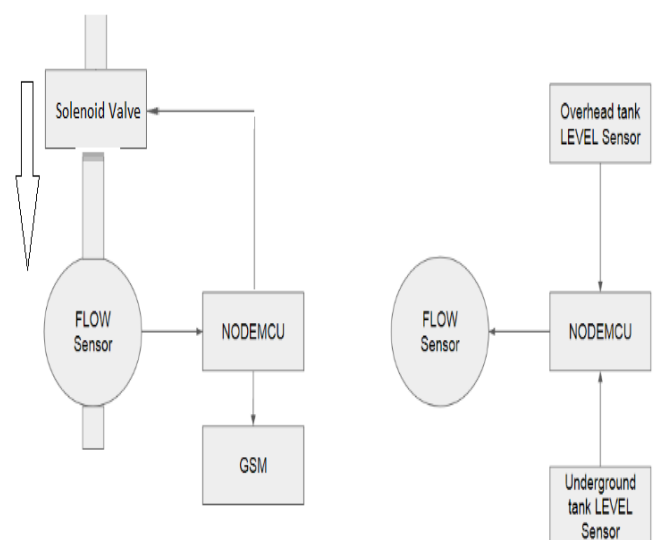


Fig 4.1 Block Diagram

Relay

5V DC

10A/24VDC

12A/120VAC

Wt. 9gm

GSM

Product SIM800L GSM / GPRS Module

Dimn. 25mm x 23mm

PCB color red

Water Pump

Operating Voltage 3 ~ 6

Operating Current 130 ~ 220m

Flow Rate 80 ~ 120 L/H

Level Sensor

Voltage(v)= 5V

Current(i) < 20mA

Analog interface

Temperature reqd. For working 10°C~30°C

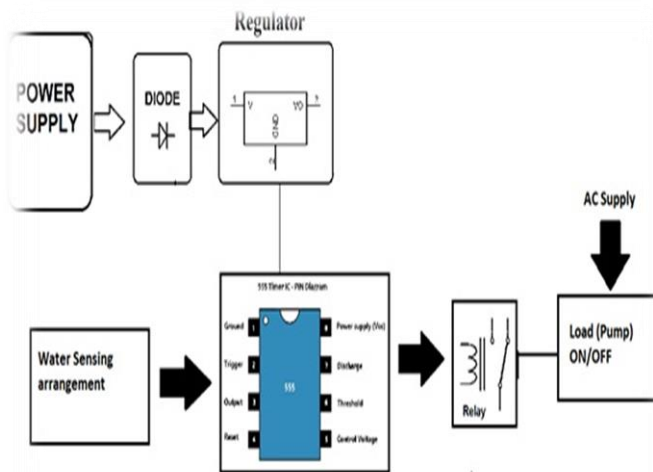
Transistor

Volt.(v)= 40V

Current(i)=0.8A

Type=NPN

• **HARDWARE DESIGN:-**



•**SOFTWARE DESIGN**

ARDUINO(IDE)

Arduino is a completely open source software which makes it simpler to code, execute and upload.

The software can run on various OS like Windows , Linux , Mac etc.

Cloud server for data storing daily consumption of water per apartment

Language : Embedded C for Arduino

•A chip serial to USB programming doesn't come with drivers of Windows and Mac.

•Further , download & install the drivers from site which is under wemos licence

<https://www.wemos.cc/product/d1-mini.html>

• Install driver and search in Device Manager that COM port is detected after connecting NodeMCU.

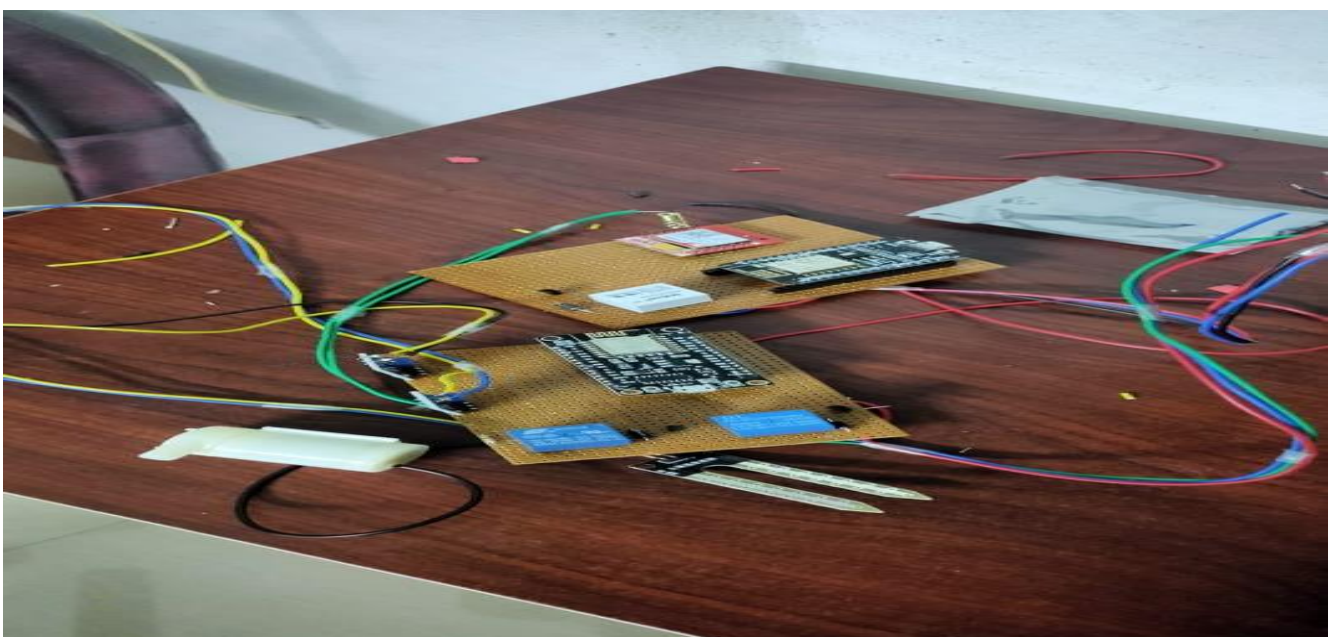
• Install the NodeMCU ESP8266 board.

•For installing , board in IDE of Arduino we have to follow mentioned steps :

1) Open preferences window in the Arduino IDE by going File > Preferences

2) Visit http://arduino.esp8266.com/stable/package_esp8266com_index.json and open "Additional Board Manager URLs" field .

Next ,press the OK option.



Data from the Water Resources Management

Mr. Mahesh

Time & Date	Used Water
2021-02-02 06:44:03	146
2021-02-02 06:44:23	55
2021-02-02 06:46:18	56
2021-02-03 03:48:49	339
2021-02-03 03:49:18	94
2021-02-03 04:12:20	1
2021-02-03 04:12:42	487
2021-02-03 04:14:15	11
2021-02-03 04:14:56	231
2021-02-03 04:16:15	459
2021-02-03 04:16:42	464
2021-02-03 04:17:02	771
2021-02-03 04:20:04	1
2021-02-03 04:21:48	4
2021-02-03 04:22:15	5
2021-02-03 04:58:33	22
2021-02-03 05:00:45	94
2021-02-03 05:22:06	2
2021-02-03 05:22:23	187
2021-02-03 05:22:45	255
2021-02-03 05:23:07	256
2021-02-03 05:24:02	257
2021-02-03 05:24:20	324
2021-02-03 05:24:44	1094
2021-02-03 05:25:32	1
2021-02-03 05:29:11	236
2021-02-03 05:29:33	263
2021-02-03 05:31:37	351
2021-02-03 05:31:55	413
2021-02-03 05:32:13	431
2021-02-03 05:32:35	436
2021-02-03 05:32:55	0
2021-02-03 05:33:44	12
2021-02-03 05:34:02	13
2021-02-03 05:34:22	14
2021-02-03 05:34:41	24
2021-02-03 05:35:11	25
2021-02-03 05:35:28	27
2021-02-03 05:35:55	29
2021-02-03 05:36:13	33
2021-02-03 05:36:54	139
2021-02-03 05:37:57	192
2021-02-03 05:38:14	206
2021-02-03 05:38:32	371
2021-02-03 05:39:05	27
2021-02-03 05:39:46	76

Data from the Water Resources Management

Shubham

Time & Date	Used Water
2021-02-02 06:40:10	96
2021-02-02 06:51:45	0
2021-02-02 06:52:31	17
2021-02-02 06:52:49	0
2021-02-02 06:57:49	32
2021-02-02 06:58:09	59
2021-02-03 04:06:59	2
2021-02-03 04:07:12	67
2021-02-03 04:07:42	165
2021-02-03 04:08:39	356
2021-02-03 05:11:54	10
2021-02-03 05:14:10	112
2021-02-03 05:15:50	122

V.EXPECTED RESULTS

1. This project will increase the variability the availability distribution of water resource.
2. The water will be stored and will be filled in suitable tanks by itself at a set level.

VI.CONCLUSION

The main motto of this project is to save the water.

This project are increase the variability the availability distribution of water resource.

REFERENCES

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