

# IoT BASED WATER DISTRIBUTION AND MONITORING SYSTEM

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## ABSTRACT

Water is the most precious and valuable because it's a basic need of all the human beings but, now a days water supply department are facing problem in real time operation this is because less amount of water in resources due to less rain fall. With increase in Population, urban residential areas have increased because of this reasons water has become a crucial problem which affects the problem of water distribution, interrupted water supply, water conservation, water consumption and also the water quality so, to overcome water supply related problems and make system efficient there is need of proper monitoring system. In this project, we are focusing on continuous and real time monitoring of water supply in IOT platform. Water supply with continuous monitoring makes a proper distribution so that, we can have a record of available amount of water in tanks, abnormality in distribution line. Internet of things is nothing but the network of physical objects embedded with electronics, sensors, software, and network connectivity. Monitoring can be done from anywhere as central office. Using Adafruit as free sever data continuously pushed on cloud so we can see data in real time operation. Using different sensors with controller and Arduino can monitor data from cloud with efficient client server communication

**Keywords:**Atmega 328controller, IoT, GSM module, Automatic distribution of water, web monitoring.

## I. INTRODUCTION

According to recent survey, water has become a big issue because of less rain fall, increase in population many cities are facing this problem people have to suffer from this problem they don't have sufficient amount for their daily needs. Due to lack of monitoring water can't be supplied properly, some areas in city get water while other some areas can't so, there is a need of continuous monitoring, water supply scheduling and proper distribution another problems are excessive consumption, leakage in pipeline ,interrupted water supply. Water is a basic need of every human being everyone has to save the water many a times with lack of monitoring, overflow of these overhead tanks can occur because of this lots of water get wasted, another thing because of overflow in the pipelines with more pressure there is possibility of pipeline damage, leakage detection is one more problem all these problems are because of lack of monitoring, manual work, less man power, Before implementing this project I have taken a survey of Pune city and field survey to understand water supply distribution and related

problems with the system, after taking a survey I observe that all the work is manual and need a better technology to make proper distribution. By focusing on problems in traditional methods our system design and develop a low cost embedded system device for real time monitoring of water distribution system in Internet of things (IOT) platform. IOT is a world where billions of objects can sense, communicate and share information, all interconnected over public or private Internet Protocol (IP) networks. These interconnected objects have data regularly collected, analysed and used to initiate action, providing a wealth of intelligence for planning, management and decision making. As all the cities are working on a smart city concept, our system focus on, Internet of things which is new scenario to make city as a smart city with different application. Main objective to implement this project is to design and develop a low cost reliable and efficient technique to make proper water distribution by continuous monitoring and also controlling it from a central server so that we can solve water related problems. Proposed system consist of Arduino Uno different sensors such as water level sensor. This system solves problem of Overflow, over consumption, Quality of water and makes a proper distribution. Continuous monitoring and controlling from a central server is possible using this system.

## II. EXISTING SYSTEM USED

Currently, the methods used are:

- i. Manually wall on and off:
  - More time is required.
  - More human efforts.
- ii. No monitoring.

## III. PURPOSE

- i. For distributing water regularly at low cost and high efficient.
- ii. To reduce the human effort and cost .

## IV. LITERATURE SURVEY

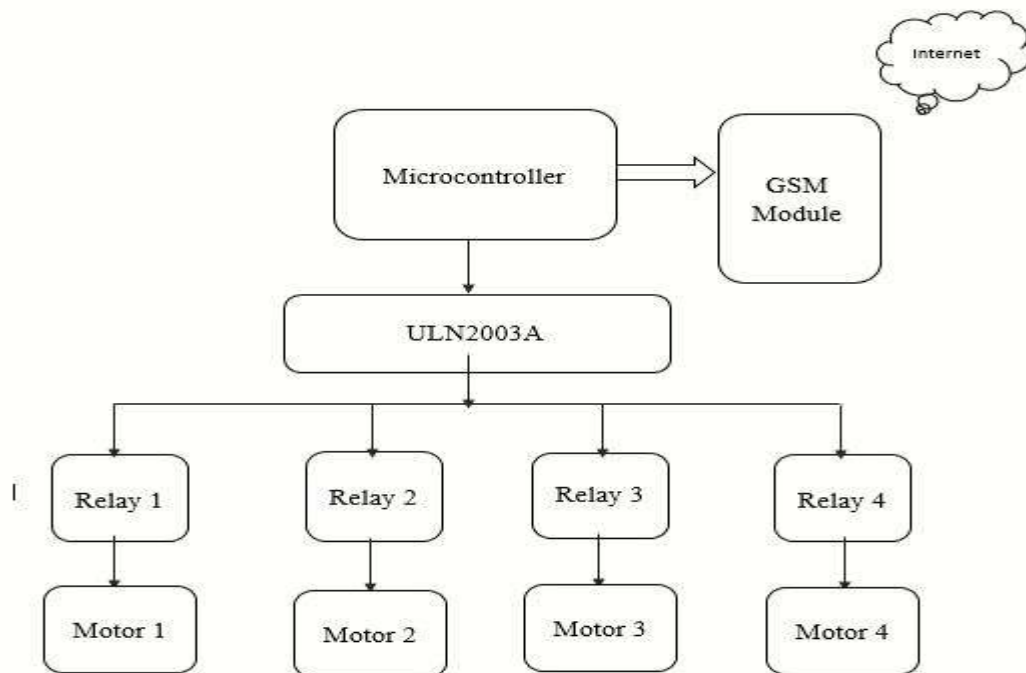
### STUDY OF SEVERAL REASERCH PAPER

**Pranita Vijaykumar Kulkarni, Mrs. M. S. Joshi**<sup>2</sup>(An ISO 3297: 2007 Certified Organization):Before explaining the proposed system let us give how water flows into the taps in houses. Cities usually source water from rivers, lakes, and ground water reservoirs. From these water sources, the water is pumped from pump houses into treatment plants through pipes. Water is cleaned at the treatment plant and from there it is piped into reservoirs. The reservoir is the storehouse for the treated water. Water is pumped from these reservoirs to the overhead tanks spread across the city. The water then gets distributed to houses and factories through a network of pipes working on gravitational force. In some cases, the water is directly supplied from the reservoirs to the houses. As all the cities are working on a smart city concept, our system focus on, Internet of things which is new scenario to make city as a smart city with different application. Main objective to implement this project is to design and develop a low cost reliable and efficient technique to make proper water distribution by

continuous monitoring so that we can solve water related problems. Proposed system consist of a ATmega328 used as brain of system. This system makes a proper distribution. Continuous monitoring from a central server is possible using this system..[1]

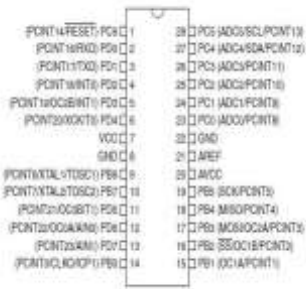
Yogendra P Joshi, M. B. Tadwalkar V.This paper deals with the automatic water distribution using GSM. This system is fully automated from the source of the water each customers. An operator fills the tank automatically from water resources by using AC pump Three level sensors are placed inside the water tank in 20%,50%,and 90% of water respectively. If the level of the water is below 20%, the motor will automatically switch ON. If the level of the water is above 90%,the motor will automatically switched OFF. Here three Solenoidal valves are passing into different areas. The user in the first area send first valve open message, corresponding valve will open and this valve will close for first valve close message and similar operation can be done in second and third Solenoidal valves. The status of the message is done through GSM modules. Flow sensors are placed in the pipe, it sense the flow rate and it gives value to GSM and it notifies the microcontroller the it varies the rpm of the motor. This result efficient water distribution to different areas.[2].

## V. BLOCK DIAGRAM



VI. COMPONENT

ATmega 328 controller IC



Relay



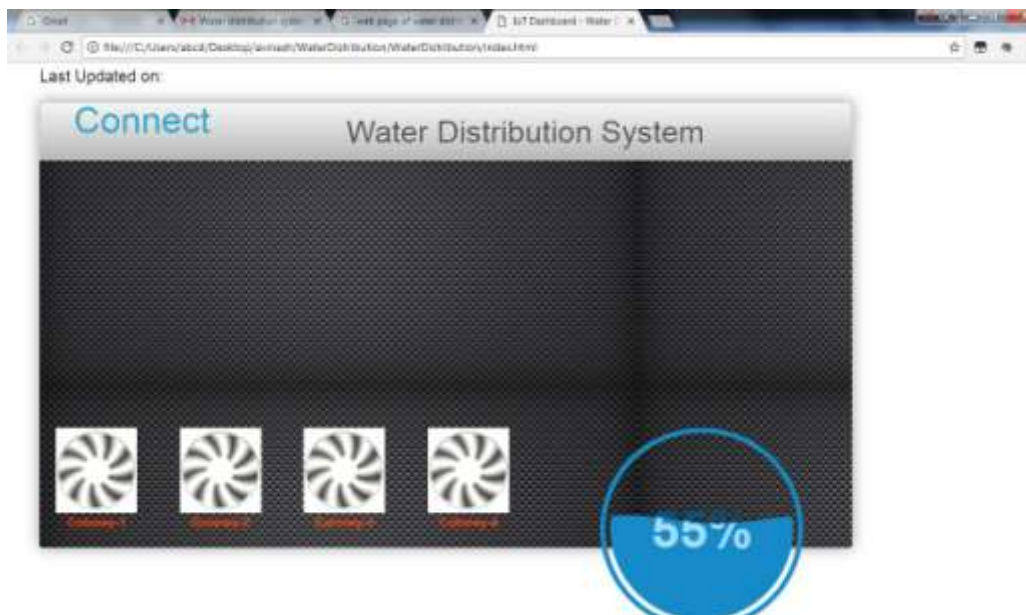
GSM Module



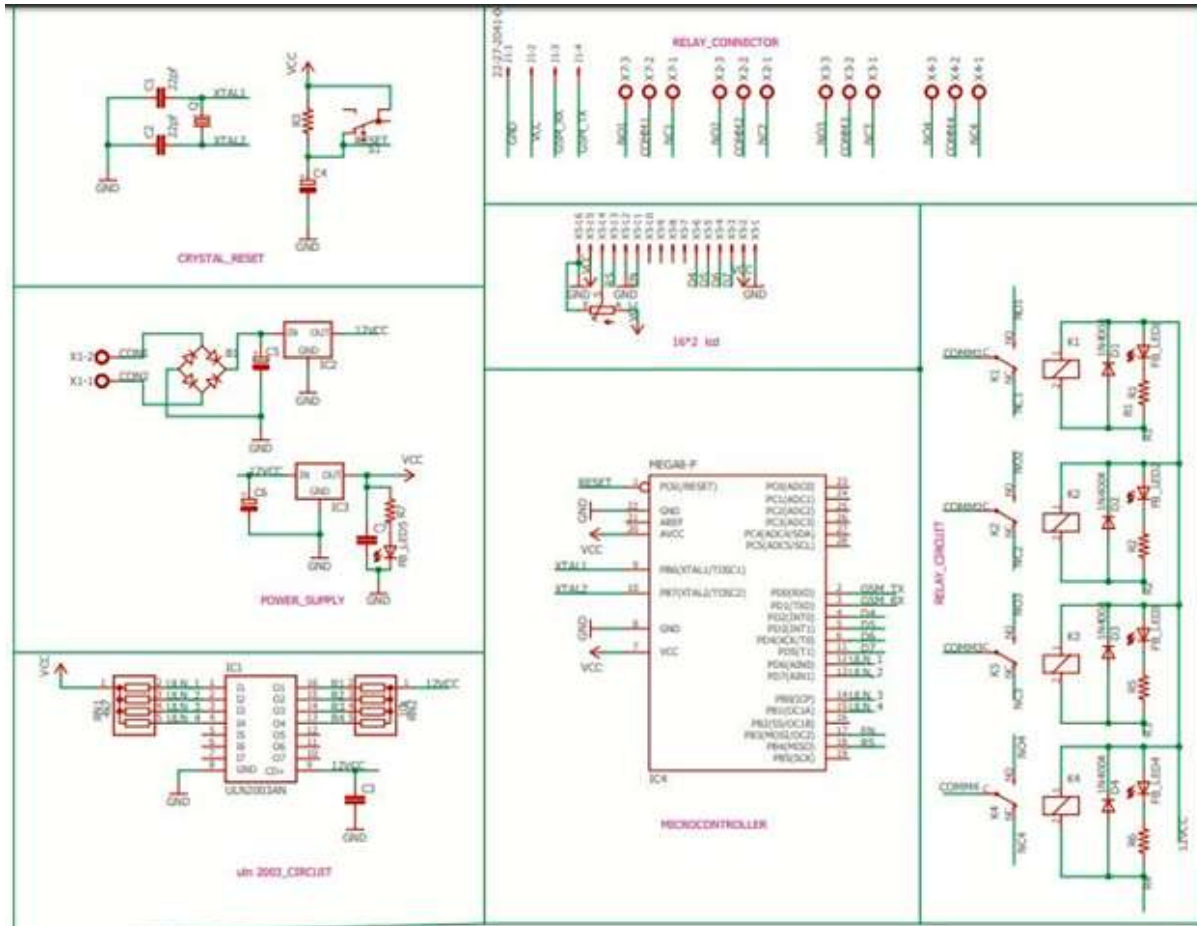
DC Motor



Web page



VII. CIRCUIT DIAGRAM



VIII. SYSTEM WORKING

- i. Using power supply circuit we generate 12VDC and 5Vdc power supply for.
- ii. Microcontroller ATmega328 IC required 5 V DC supply and motors require 12 V DC supply.
- iii. Motors on and off with the help of relays.
- iv. The signal for on and off the motors is coming from microcontroller.
- v. Using this motors we are on and off the valve of water pipe.
- vi. Microcontroller gives the signal to ULN2003A IC for switching the relay.
- vii. As per relay switches the motors will on and off the valve .
- viii. And also the data is goes to web page through GSM module..
- ix. Using web page we can easily monitor the hole system.

## IX. APPLICATIONS

1. It is used in various cities, area for water distribution.
2. It can be used in farms.
3. Industries where water distribution require.

## X. FUTURE SCOPE

- i. Using some water flow sensors we can detect the water leakage.
- ii. Using web page we can control the motors for on and off the valve.

## XI. CONCLUSION

- i. Thus, we have successfully distributed water automatically and real time monitoring system.
- ii. This system is completely operator free.
- iii. All operation of water distribution system is fully automatic and Status updates on web page through GSM module.
- iv. The valve open or close data is send from controller and the corresponding solenoid valve is opened or closed.
- v. This result efficient water distribution to different areas.
- vi. Here human work and time are saved.

## ACKNOWLEDGMENT

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