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# Smart Water Meter

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***Abstract:*** ***These Currently, water management has become one of the most controversial issues in the world due to limitationsin natural resources. Measuring water consumption has been considered a serious matter in order to control and manage theresources of water and revenue as well. Therefore, there are many methods used for water meter reading, such as Ultrasonic, Electromagnetic, and Mechanical methods. However, there have been a lot of drawbacks in them such as providing the powersupply for the meter, the cost of implementation etc .This paper uses an approach automation using flow sensor, float sensor and existing GSM network for measurement of water consumption.***
***Keywords: PIC controller, GSM Module, Flow Sensor, Float Sensor***

## I. INTRODUCTION

Water loss during distribution is considered a major waste. It has been observed that a large amount of water loss happens close to the source of purified water, even before the distribution network. Measurements of per capita water availability indicate that India is currently water stressed; future projections indicate that India may have water scarcity by year 2050. In this scenario the water distribution system can have a huge impact on the water availability. Water flow conservation encompasses the policies, strategies and activities to manage fresh water as a sustainable resource, to protect the water environment, and to meet current and future human demand. It also deals with digitally "noting" the energy meter reading(s). This process eliminates the traditional **"paper and pen"** and the errors associated with manual reading/recording/processing of the meter data. AMR came into existence since energy meters turned intelligent which dates back to the deployment of microcontrollers in energy meters. Automatic Meter Reading also makes the data recording fast and saves on time and hence complies with the definition of automation.
From the study it has been concluded that a Smart Water Meter is required from customer's and provider's point of view.

### *A. Customer's View*

*1)* No Printed Bills.
*2)* Water level indicator
*3)* All you have to pay is the first pre-payment.
*4)* Easy Monitoring
*5)* Customer can Easily monitor their use and spend as much as they can afford

### *B. Provider's View*

*1)* To eliminate bill debit problems.
*2)* Improved Cash flow.
*3)* No Credit and Arrears Collection costs.
*4)* All customers are paying.
*5)* No need to send monthly usage bill.

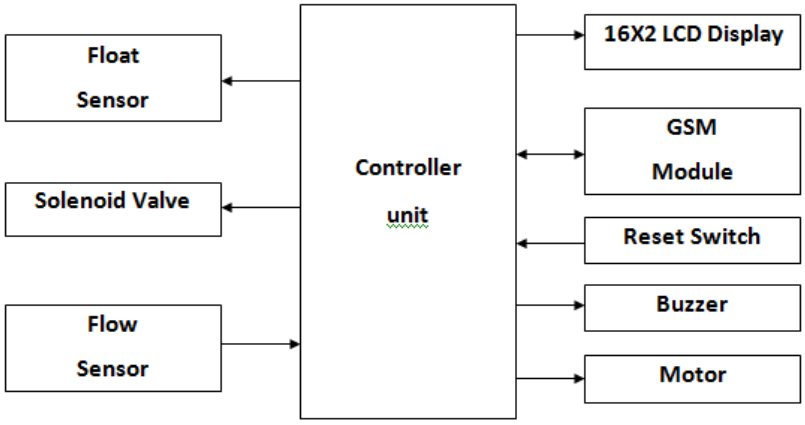
## II. LITERATURE REVIEW

This model has designed and implemented wireless network for measuring utilities such as electricity and water. Because of disadvantages of traditional meter reading such as errors in reading, inaccuracy, external conditions affecting readings, delayed work we have implemented meter reading system based on GSM. This system performs tasks such as taking meter reading, distribution of bills, sending notice, cutting and reconnection of flow automatically.
An automatic remote meter-reading system based on GSM is presented in this project. This project is useful to obtain meter reading when desired so meter readers don't need to visit each customer for the consumed data collection and to distribute the bill slips. PIC controller can be used to monitor and record the meter readings. In case of a customer defaulter, no need to send a person of utility to cut-off the customer connection. Utility can cut off and reconnect the customer connection by short message service (SMS). Furthermore, the customer can check the status of consumption just by sending a simple SMS request. In this system water meter readings are being transferred by making use of GSM.

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Water utility customers also have an important role in wastage control. It is essential that this resource can be captured– not only because it is an increasing scarce supply but also because of its embedded energy and the greenhouse gas footprint it represents. Although in many parts of the country water might be considered the cheapest utility commodity, water loss is still very costly to customers and water utilities.

## III.METHODOLOGY




The block diagram of GSM based automatic water meter reading system and water level controller. In which first quantity of water used is measured with the help of flow sensor, which will give square waves output proportional to quantity of the water flow. Sensor's output is given to the PIC controller. The PIC controller sends the data to the database at central water utility provider through GSM modem. This data is sent to the billing unit at the central end for calculating the bill. GSM modem then transmits data regarding quantity of water used in the form of SMS to the user. We send it via SMS. Hence no man power is required, reading collection work is done automatically by GSM.

At the second system is water level controller. this system is collaborated with the meter. When the water comes the valve is open and lower tank is filling up. When the lower tank is getting full that time the motor is turn ON automatically and filling the upper tank. When the upper tank is full the motor turn OFF. This all the condition the system sends messages of status of tanks to the user.

## IV.RESULTS

*A. Step :1*

When the system starts first it is display the Welcome window




*B. Step :2*

*1)* When the lower tanks both sensors getting down that time display



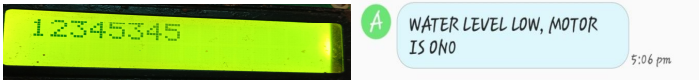

*2)* And when the water comes in the lower tank




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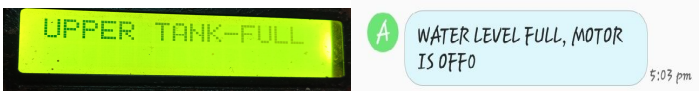
*C. Step: 3*

*1)* At the upper tank water level low that time system sends this message to the secrete number and the status of the motor




*D. Step: 4*

1) At the upper tank water level full that time system sends this message to the secrete number the status of the motor



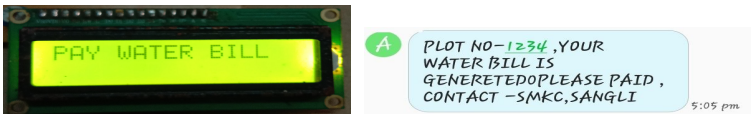

*E. Step: 5*

*1)* The flow sensor gives the output in counter.

*2)* Counter set 30 = 1 litter




*3)* After 30 Count the system display and also send the message



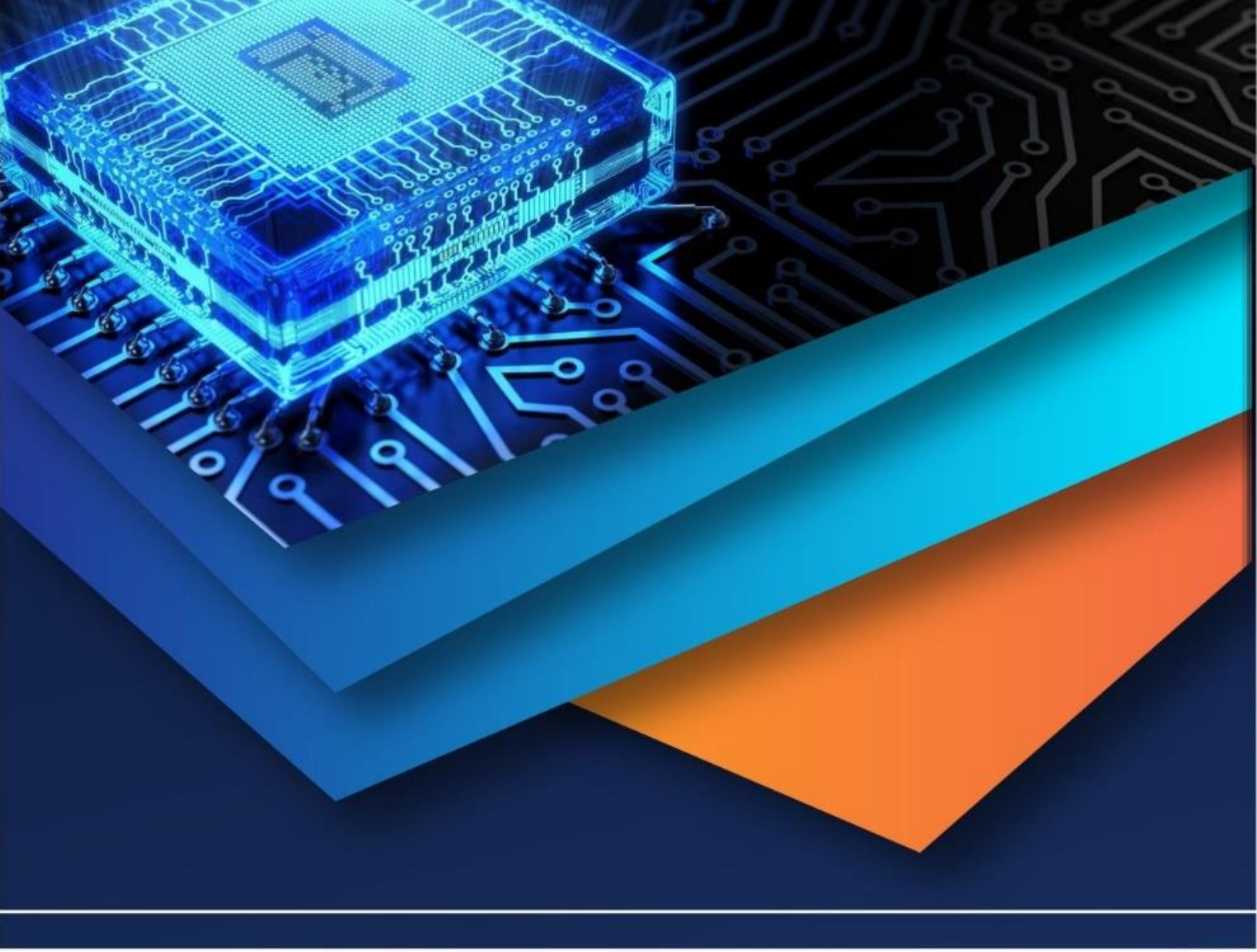

## V. CONCLUSION

The proposed system for automated water utility billing will overcome the difficulties in existing billing and wastage of water. The proposed system will provide accurate meter readings for billing thereby increases the efficiency of the system and water level controller is remove the problem of wastage water. The total costing of the meters is supposed to reduce so as the system will be economical along with power consumption reduction will be achieved by programming it as per requirement that is for monthly billing cycle it will be in active mode once in a month and rest of the time it will be sleep mode.

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