

AN INTELLIGENT CONTROLLED WATER SUPPLY SYSTEM FOR APARTMENT AND SOCIETY

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ABSTRACT -----Water is the most precious and valuable resource. With the increase in population, availability of clean water has become a problem. Today, water-supply department as well as common man is facing problems in real-time operations like water distribution and conservation efficiency. Therefore it is important to find a solution to address water wastage through efficient water monitoring and control system. In this paper, the problem is solved through autonomous water tank filling system using IoT where in embedded sensors are used to monitor the tank status along with some other key attributes like power supply, incoming water supply in real-time. Our intention of this research work was to establish a flexible, economical, easy configurable and most importantly, a portable system which can solve our water wastage problem along with saving the electrical energy. This enhances the efficiency of water distribution and reduces wastage.

Keywords—Water conservation, Real-time monitoring, Proper utilization of Water, IoT, Sensors, Cloud.

I. INTRODUCTION

Managing water in urban areas is an ever increasingly complex challenge. Technology enables sustainable urban water management and with integrated smart metering solutions, massive amounts of water consumption data from the end users can be collected. However, the possibility of generating data from the end user holds no value in itself. It is with the use of data analysis the vast amount of the collected data can provide more insightful information creating potential benefits. It is recognized that a deeper understanding of the end user could potentially provide benefits for operational managers as well as for the end users. A single case study of a data set containing high frequency end user water consumption data from rental apartments has been conducted, where the data set was analyzed in order to see what possible information that could be extracted and interpreted based on an exploratory data analysis (EDA). Furthermore, an interview with the operational manager of the buildings under study as well as a literature review have been carried out in order to understand how the gathered data is used today and to which contexts it could be extrapolated to provide potential benefits at a building level. Smart water meter is a device that measures the amount of water consumed by householders who have the device fitted within their premises. Water conservation is a big issue in many apartments. A common meter is fitted and cumulative

consumption amount is shared among households where they are being charged more than what is to be paid. There are several idea to overcome this issue. In this paper we have proposed a solution to this issue in which a device used to calculate the flow rate and quantity of water consumed by the householders and send it to the cloud to monitor the consumption of water.

II. RELATED WORK

This work focuses on a solution for ‘Water management’ in urban areas with the help of IoT. Water is precious and the supply needs to be regulated. Water demand is exponentially growing high with the increase in population of the urban areas. To maintain the supply demand ration proper, it is important to have systems to prevent any water loss & hence we have designed an IoT system with we can plan usage of water according to the availability.

III. PROBLEM STATEMENT

Some of the automated water level monitoring systems are already present, but most of the methods have so far some shortcomings in practice. I tried to overcome these problems and implemented an intelligent controlled water supply system for apartment and society . I’m focusing mainly on the following problems of existing system.

[1] what happens if there is no network coverage in the installation area?

[2] we can calculate only the level of water in the tank. No signs of discussion about the incoming source of water.

[3] what happens if the water level in the tank is low and there is no power to turn on motor.

IV. PROPOSED SYSTEM

The major components used in this project are all the components of the system is connected Arduino Uno Board. The block diagram of the system and work flow is as follows.

Table 1 List of Components used

Arduino	Water motor	Flow sensor
Relay	Level sensor	OLED
WI-FI MAC	5V Power supply	Node Microcontroller ESP8266
2.4GHz Transistor	2.4GHz Receiver	Clock Generator

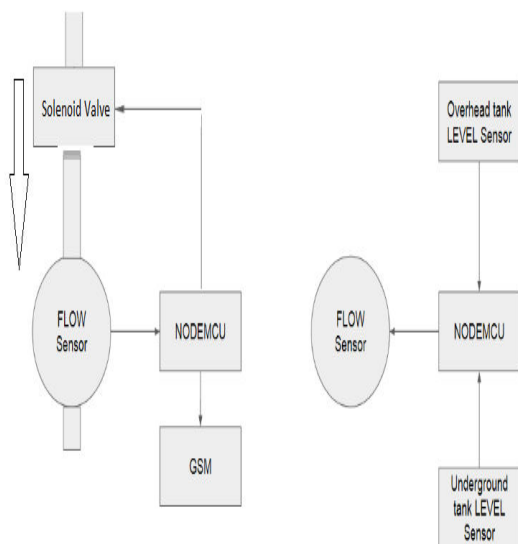


Figure 1

Block Diagram of the Proposed System

V. IMPLEMENTATION

IoT-connected applications typically support data acquisition, aggregation, analysis, and visualization. The IoT architecture includes latest technologies such as computers, intelligent devices, wired and wireless communication and cloud computing. Previously Bluetooth and RF (Radio Frequency) technologies were used to control and monitor the many applications but were limited to short distance. The operator had to be in the range of the Bluetooth

connectivity or in the Radio Frequency area. Solution to the short distance communication is the IoT based water supply. Here we can have controlling as well as monitoring from anywhere in the world.

VI. RESULTS AND DISCUSSION

Proposed system giving the best result in saving water and energy. At present this was implemented and tested at various overhead tank filling points in apartments of urban areas in and around Rajahmundry. This reduced the need to waking up early in the morning and fill water tank. If the power not there, one have to wait till power comes, wasting of time. It made life easy and comfort. With the data collected in cloud we are also able to analyze the water consumption in various areas and can take necessary actions for preserving the water for future use.

VII. CONCLUSIONSAND FUTURE WORK :

As mineral deposit is one of the consistent basic needs of career and with tremendous increase of population, water administration has acquire a key component on all matters of human lives and either scenarios such as cities, natural areas cultivation etc. To enable information reuse(goal of the PSI directive), easier accomplishment of procedure rules and resource monitoring. In our expected system, mutually the manage of android academic work, raw material freely bouncecel be monitored from anywhere. Motor gave a pink slip be subdued automatically, entire smart machinery is achieved. It is a fit as a fiddle system and close to the ground in size. This appliance gave a pink slip be am a source of into hast a weakness for at bi pedal level. It gave a pink slip be implemented as a choice in a bungalow or at technological level. In a bungalow it boot be secondhand as in the means described behind and at transaction it gave a pink slip be hand me down to violence water held a candle to of contrasting tanks consisting of march to a different drummer types of liquids. According to the level of liquids, notifications prospective sent to the statutory person. At capital and labor we boot evaluate ultrasonic sensors which give preferably undeniable and calibrated information. The one more application about is to act with regard to it in hail of a mind areas to astute the clan by transportation watch it to the tribe nearby. This can be achieved by implementing this apparatus at the banks of the banks of the rivers which are prone to floods. so, if water candidly rises after a determined freely, notification will be generated on app and astute can furthermore be secondhand in dams in evocative fashion.

VIII. REFERENCES

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