

IOT Based Water Management System

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Abstract- This paper determines an IOT device which helps to manage and plan the usage of water. This system can perform water quality monitoring and Regulated water supply operation, consider, by one block of house in a flat system, where at the partition of pipeline from where the water gets diverted to various part of a block. The water flow meter in the system can monitor the water level in real time. This information will be updated in the web page for checking the water level and water consumption of every tenant and the user may able to analyse the amount of water.

Keywords- IOT, Android App, Web Site

I. INTRODUCTION

Water is one of the most important basic needs for all living beings, but unfortunately, a huge amount of water is being wasted because of uncontrolled use and exploitation of water resource. One of the main reasons for the shortage is poor management of water. Water management is defined as the activity of planning, developing, distributing and managing the optimum use of water resources. This impacts on several key matters of human lives, such as food production, water consumption, sewage treatment, irrigation, purification, energy generation and utilization, etc. it impacts on several key matters of human lives and several scenarios, such as cities, natural areas, agriculture Many people depend on secondary water tank to store water. But problem arises in how to measure whether the overhead tank is completely filled or what? To avoid algae growth tanks are made up of non-transparent material and also in order to protect water from mosquito's tanks are always closed. Due to this it is difficult to see water level in the tank from outside. Also, every building admin must provide water system to the tenants of the building. Along with this, the admin must also keep track every tenants water usage and get payment for it. To overcome these problems, the "Water Management System" is developed.

II. LITERATURE SURVEY

This project develops an IoT device which helps to manage/monitor and plan the usage of water by observing the level of water in the tank. By using The Internet of Things

(IoT), we can regulate the usage of water. The device uses sensors to record the level of water in the tank at any instant and sends the necessary data. The information gathered can be read by users using their smartphone connected to the internet. The device also controls the automatic functioning of water motor by turning it on when the water level lies between the low level and the high level (the specified range) and by turning it off when the water level falls below the low level or rises above the high level.

[1] Design of a Water Environment Monitoring System Based on Wireless Sensor Networks: This paper is devoted to the explanation and illustration of our new design of water environment monitoring system, based on a wireless sensor network. The system generally includes three parts: hardware and software of data monitoring nodes, hardware and software of the data base station, and software for the remote monitoring centre. The system's measurement capacity ranges from 0 to 80 C on water temperature, with an accuracy of 0.5C; and from 0 to 14 on pH value, with an accuracy of 0.05. Sensors, applicable to different water quality, could be installed at the node to meet the monitoring demands in different water environments and to obtain different parameters.

[2] Smart Water Monitoring System Using Wireless Sensor Network at Home/Office: This paper is about developing an efficient wireless sensor network (WSN) based on water monitoring system. There are two different ways to monitor the water: water level monitoring and water pipeline leakage monitoring. Finally, this is water monitoring system of smart homes/office research concept will be completed by using wireless sensor technology. By using the monitoring system, we can find a more optimal way to preserve the water, hence saving it for the present and the future generations.

[3] Water Quality Monitoring System Using Zigbee Based Wireless Sensor Network: Here, the proposed implementation of high power Zigbee based WSN for water quality monitoring system offering low power consumption with high reliability is presented. An important fact of this system is the easy installation of the system, where the base station can be placed at the local residence, close to the target area. And the

monitoring task can be done by any person with minimal training at the beginning of the system installation.

[4] Smart Water Management using IoT Environment: This project helps to regulate the proper maintenance of water tank information to monitoring section with proper updating of records. problem affects various processes in water management, such as water consumption, distribution, Water dust formed in the water tank. This problem can overcome by implementing proper monitoring system and information update system. Set of sensors like Turbidity, Salt sensor, pH sensor and Water flow sensors were used. This sensor informs about the water level tank and communicate to the monitor section. To maintain the tank without bacteria and microbes the Chlorine powder is sprayed if there is any changes in the phvalue is found. If the water level reaches minimum position the motor automatically starts and when it reaches the maximum the motor stops automatically. A wireless sensor network is formed by connecting two and more water tanks using RF radio channel transceiver with monitoring section.

III. PROPOSED SYSTEM

In accordance with the literature survey, we made a smart system for controlling the wastage of water by using a sensor to sense the level of water in tank. Customers who are registered in this system get a username and password. They can access their water usage through this application. Using android application, they can turn on and off the system from remote place. If the water tank is full or up to the maximum level the sensor will sense it and stop the system automatically. If the water tank is at the minimum level set by user, the sensor will sense it, activate the motor pump and stop at the maximum level. We can control this whole process using IOT.

The price of water is according with the amount of water they used only. Admin can fix an amount of water allotted for each family for a month. If they exceeded the limit relay switch get automatically turned off. Hence Admin can add more water to the family with an additional charge for it. By this strict monitoring of water usage, we can avoid water scarcity and store water for next generation.

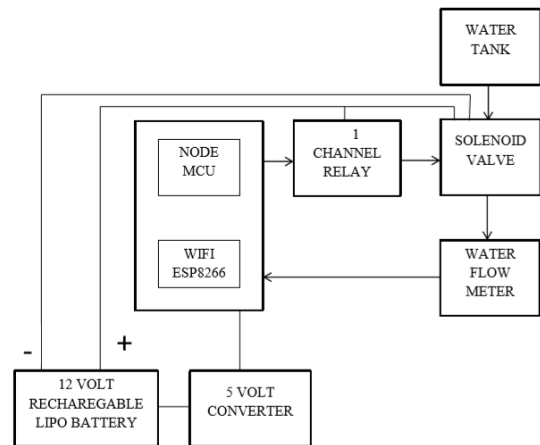


Fig 1: Block diagram for Water Management System

IV. RESULTS

Our proposed system for water level monitoring comes under the field of Internet of Things (IoT). Our main objective was to design a smart system for approximating the water level in the tank and prevent overflow or analyse the water usage. This system helps to monitor the usage of water and people can use water in an efficient way. Members will be able to monitor their per flat water usage and price on the Android app. Water wastage can be avoided using the Android app by cutting off the water supply of the particular flat. Like whenever the member exceeded their water limit using Relay Switch water supply will be reduced. This all automation helps to reduce human efforts and helps to manage water carefully and will also reduce the problem of water scarcity.

V. CONCLUSION

Internet of things is used nowadays for various manually tasks into automatic systems by using and defining apps, devices and how people interact and connect for solutions in various fields. IOT makes use of new tools using integrated devices and network.

The “Water Management System” will provide the users with an easy to use system. The users need to have only transforming one basic knowledge and workings of the system. Here, the user i.e. the admin can check the water level of overhead tank and the water usage of every tenants. The users can control the valve from any location and also make online payments. This solves and reduces the inaccuracy in data i.e. reading incorrect water level, no proper water usage tracking and payment problems.

Though IOT is revolutionized, increase in security must be improved for the data sharing in this system. The

“Water Management System” still requires further work to make it more efficient and improve user satisfaction.

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