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Efficient Water Management System for Urban Region

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Abstract*:* Enormous growth of residential areas has led to over demand of water to fulfill daily activities .Without water nothing happens in any type of environment .Importance of water is realized only when it is not available. People utilize water for many purposes and consume by different ways. But there are many issues which arise when they consume in high amount. That is termed as water theft. The water theft can be best monitored by the flow variation given by the flow sensor. It leads to water scarcity in some areas .To overcome those issues proposed system consist of flow monitoring system quality assurance system and automated supply system.

Keyword: Zigbee, flow sensor, pH sensor, arduino.

I. INTRODUCTION

Water is said to be another basic need for all living organisms. In residential areas water has be supplied properly at appropriate time without wasting it and with quality .Entities which examine the efficiency of water supplying networks are continuous supply ,water ,maintaining water quality ,controlling technological parameter , availability and storage capacity of water .The system comprises of water distribution unit which is an integrated component of main unit for distribution and home units for consuming .Automated water supply can be done by embedding the details into the microcontroller such as time and place to which water have to be supplied Sensors are employed in idea because they are capable of experiencing even small changes and act accordingly since they are task specific .Communication support for over consumption alert can be given by using zigbee. Network which consist of ZigBee has three main device, co–ordinator, router and end devices. Water quality can be assured by utilizing pH sensor which consist of measuring electrode and reference electrode .Water is said to be with perfect quality if its pH value is 7.

II. PROBLEM STATEMENT

As residential area grows, all the needs of people have to be satisfied for an issueless life especially in case of water. Water Distribution Network are said to be most interesting domain for research activities. It focuses on distributing water to all channels in particular areas. Every areas are provided with a centralized water distribution unit which distributed water to all home in particular areas. This unit contain overall amount of water provided to the particular areas. To assure perfect supply, connection to each home is made perfectly. Automated supply ensure that supplied water is not wasted. The Water supply systems are the part of the urban infrastructure which must ensure the continuity of water distribution and water quality control .Urban water is supplied to home with the help of some man power. This type of operation need man power and time consumption is high in this method .Also if operator does not work well in this proposed method then the output will not be good. Due do this men power irrespectiveness water scarcity may occur .This over consumption of water is termed as water theft. The theft will be avoided only by the usage and value of water .If they think about future in using water they can limit the usage of water.

III. INTENTION OF DEVELOPED IDEA

The disadvantage of existing system are overcome by certain technique .To avoid the wastage of water during supply of water distribution unit related areas, automated supply has been formulated. Water will be sent to particular area at particular time. Water supplying will be stopped automatically after reaching the fixed values. Over consumption can be intimated by measuring the flow of water to every connection in supplying network. This measurement is taken by using flow sensor at every channel on the basis of value measured. By comparing fixed value and measured value over consumption can be measured. Automated supply avoids the wastage of water and quality of water can be assured by utilizing the pH sensor.

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IV. System Architecture

To perform the following system design is formulated by utilizing components such as flow sensor, pH sensors, arduino and analog to digital converters. These task are meant to supply water to all areas properly also quality of supplied water is very much important to ensure that quality must be checked. In order to perform the pH sensor are also added to system to check the quality of supplied water.

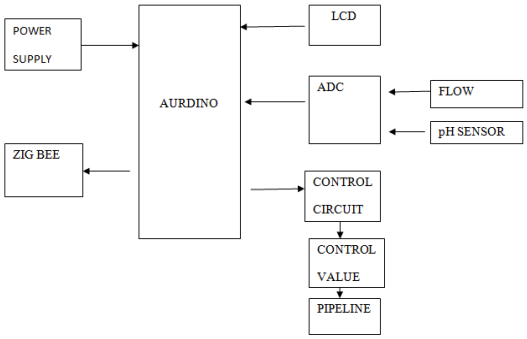

Figure 1.1 Block Diagram

V. Implementation

All the planned modules can be implemented by using arduino. Automated supply can be well executed by embedding the details such as time and quality to the arduino. AURDINO is used in the proposed system. Flow measurement can be done by using flow sensor. Water flow to all homes may not be equal .Some may consume water quality beyond the desired level which leads to scarcity of water among other homes.by using flow meter the home which consume over amount of water can be found and over consumption alert is given to the home. To check the quality of water pH sensor is used. It comprises of two electrode such as reference electrode and measuring electrode .Hydrogen ions play a vital role in measuring the quality of water .Water is said to with perfect quality if its value is 7. Communication support is provided by ZigBee .Finally the overall water distribution unit is bulit upon automated supply, proper flow measurement and over consumption alert along with assurance of quality.

VI. Conclusion

The growth of developing world need enormous amount of water .Automated water distribution and performance monitoring system focuses on various entities such as proper supply, over consumption alert and water quality assurance. These factors can be effectively monitored by employing flow sensors and pH sensors along with communication support provided by ZigBee protocol.

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