

Automated Water Supply Management System using IoT

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Abstract— Water level data is vital issues in residence and home. Continuously, water utilization isn't estimated or imagined in water Tanks. In these zones water level estimation was done physically. It isn't possible because of Human mistake. In this venture, programmed water level estimation framework have been made and actualized progressively. Water protection issue is intense issues and the water stream is estimated utilizing Water stream Sensor. An Arduino board is utilized and combined utilization sum is shown in LCD show. There are a few plans to beat those issue. In our venture we have proposed an answer for this issue so we plan a constant water stream checking and asset the executives. The smart water-meter utilizing Wi-Fi module ESP8266 organizing configuration to cloud capacity is utilized. The far-off information transmission is helped out by the concentrator through this Wi-Fi module. The issue in the advanced meter is naturally identified. Information will be put away and investigated on the cloud, it contains the client details and water utilization details. These details are proposed to executed in portable application with client verification. It is extraordinary model for apartment and home to examination water level and stream estimation.

Index Terms— First term, second term, third term, fourth term, fifth term and sixth term.

I. INTRODUCTION

In this modern world, the mobile application has brought many benefits to individuals, organizations and industries. With the help of the internet it is also possible to make a better water monitoring system for monitoring water pump, making water surface organize to take action for any type of problem, solve and disturbing water easily and even for billing. The automatic use of water can be called water automation which is a process to ensure the proper use of water and reduce the human effort. Arduino is used for automation and regulate the required quantity of Water. Water automation is all about controlling, monitoring and even billing of water usage in different places like hotel, house, irrigation land and industry. The researchers done water automation based on different purposes using different types of hardware and technologies. This paper develops Automated Water Management System (WMS) which can monitor water tank by measuring the water flow and water level. All of the things are connected through an android application that is much more efficient and easier to control the whole process. All the details will be updated on Cloud through IoT (Wi-Fi ESP8266). A wide scope of Industrial and homegrown IoT applications have been created and deployed in later a long time like monitoring, control, the executives, and also keep Maintenance. A wide range of physical objects are associated over the web, giving them the capacity to think and impart without requiring human to human or human to machine interaction. In coming years, water, the need of life, is potentially to present most noteworthy challenge

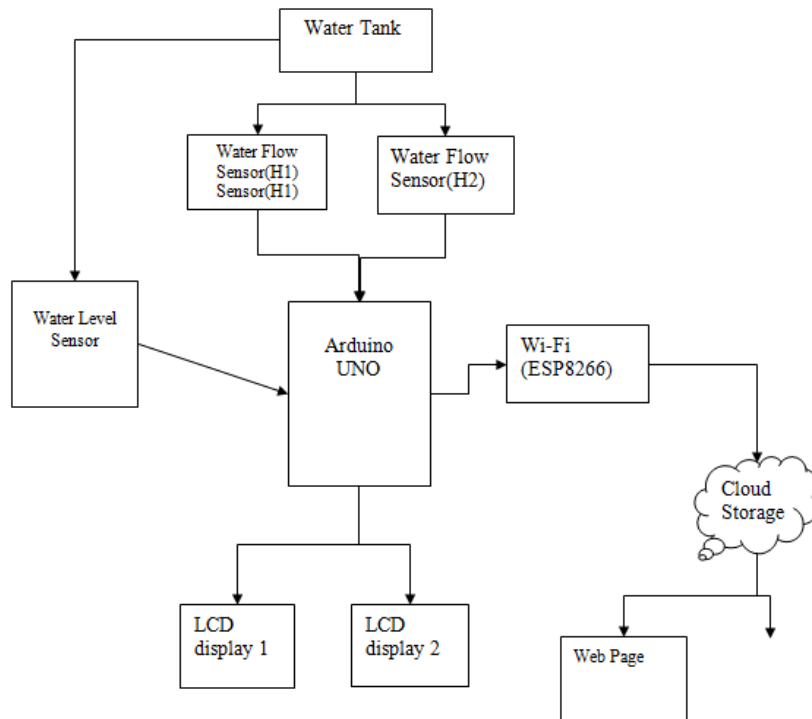
of its expanded use with population rise, modern turn of events, and diminishing supplies because of contamination and over exploitation. India is assessed to move into the class of water stressed on country by 2025. smart water metering framework will make client mindful of their water utilization and assist them with decreasing their water use. A tremendous scope of water meters are accessible for various modern and Domestic applications which measure various substances like water flow rate, temperature and leakage Detection. The aim of this project is to propose an overall solution for gathering and managing water utilization information.

II. LITERATURE SURVEY

In the executed framework different features has been working together like uniform water distribution, observation of water level accessible in a tank, user consumption details. Using existing IoT (versatile network) those Information could be sent to the cloud for estimating utilization details from each house. Control and real time monitoring has been focused in this paper, by electronic flow rate sensors. We propose a conventional representation for the analysis and displaying of water utilization information. Water level indicating sensors were utilized to decide the level of the water in the master tank. All these process having wireless transmission capabilities that enable them to connect directly to the internet via an IoT gateway .Our System was designed to collect data from water pipe, of any length, that data would be pushed to the cloud.

III. SYSTEM IMPLEMENTATION

The project has been divided in three different modules, first module is monitoring of water level in real time. Second module will work for uniform distribution of water in every block. Third module is working for distribution of water and view water consumption details, in mobile application. The initial phase in execution of observing the water level of principle tank by utilizing ultrasonic sensor, which will give the accurate water level available. This level can be changed over into volume for distribution purpose. The water usage details will be refreshed time to time continuously. All these details will be uploaded on cloud for storage purpose.



A. Arduino UNO

Arduino is a PC equipment and programming organization task, and produces microcontroller packs for building advanced gadgets and intelligent items that can detect and control objects in the actual world. Arduino IDE is utilized for the programming reason this is very easy to use. From this product it is conceivable to transfer the code into Arduino and gathering and readings are done to eliminate the errors.



Figure 1. Arduino

B. Water Flow Sensor

Water Flow meter is utilized to quantify the stream of water which went through it. Inside the meter there is turbines structure available, when water is gone into the line the turbines are rotated and the flow meter give the pulse accordingly. This get estimated dependent on the volume of water streaming.



Figure 2. Water Flow Sensor

C. Wi-Fi (ESP8266)

Wi-Fi module is used to transfer all the information from the Arduino to the cloud and it will screen the information. The Wi-Fi module works away at 2.4GHz frequency and it will additionally utilize various conventions like MQTT, HTTP, HTTPS. It also works at 3.3v to 3.6v and it likewise have broadly useful in and yield terminals.



Figure 3. ESP8266 Wi-Fi

D. Ultrasonic Sensor

Ultrasonic sensor is used to measure level of the water in the primary tank. By utilizing this water level, we can easily consume how a lot volume of water is available in the tank.



Figure 4. Ultrasonic Sensor

E. Process Module Specification

1. Measuring and Monitoring water level
2. Wi-Fi module for data updating
3. Mobile Application -User Authentication process
4. Updating data in Mobile Application

IV. CONCLUSIONS

Our Smart meter has low infrastructural cost, as the water flow sensor was used in visualizing and get data from water flow streams. In this project, we proposed a reliable server architecture, which is recorded in cloud. Cloud computing is ease way to analyze the data from anywhere and at any time. As real time water monitoring, we can easily find the consumption level by the households. Each and every component are discussed in this paper. Our work guarantees that, the system performs effectively and reliably.

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