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AUTOMATED HOUSEHOLD WATER MONITORING AND BILLING SYSTEM

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Abstract - The aim behind of this project is to billed up a water meter for the household purpose. Through which its measure the amount of the water used daily which measured by the flow sensor accordingly to the water used the bill will be displayed on website.

This used to reduce the water utilization according to the need and the water consumption is necessary for the fulfillment of next generation. A website is designed where the user can come to know how much water is used and accordingly bill will be displayed.

If bill is not paid then admin can cut off the connection of water through this login which is source and only admin has password and IP address.

***Key Words*: Microcontroller, realy circuit, WI-FI module, flow sensor, DC pump**

1. INTRODUCTION

In now a day technology is changing day by day. The internet has been take a very important role in human day today life. IOT is collection of various think. So we can save the environment through using IOT.

In this project billing system is implementation for each house. The system is cost effective than the other system. In which the water used by one house can be to observed at website and accordingly to the water usage the bill will be displayed. If the bill is not played in time then the admin can disconnect the water supply.

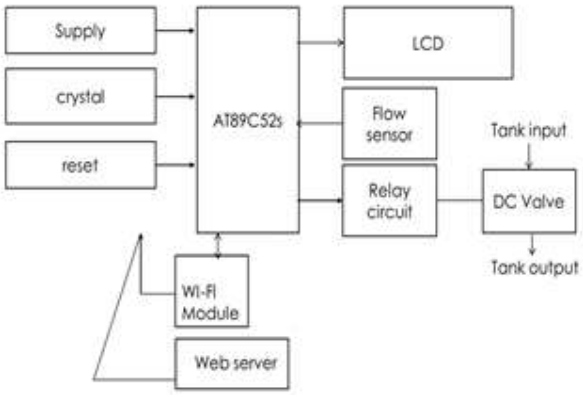
The main aim of the project is to consume less water or only consume the water accordingly to need. Through this billing system the user will try to save the water. If he use unnecessary then it can result in having more billed.

So it will be discomfort so each user will use the water carefully.

Overall the conservation of water will be done.

1.1. Methodology

This AWBS consists of a digital water flow rate sensor which is used to calculate amount of water consumed more accurately than the prevailing analog meters. Based on the amount of water consumed, bill is generated at the end of every month and an SMS is sent to the website of the consumer. At the same time, this bill details are updated on the Web Server.



1.2 WIFI Module

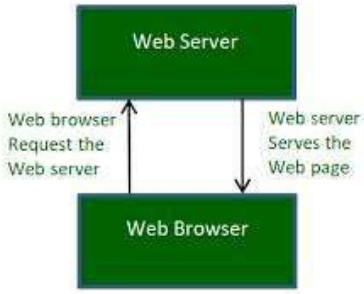
It employs a 32-bit RISC CPU based on the Tensilica Xtensa L106 running at 80 MHz (or over clocked to 160 MHz). It has a 64 KB boot ROM, 64 KB instruction RAM and 96 KB data RAM. External flash memory can be accessed through SPI.

ESP8266 module is low cost standalone wireless transceiver that can be used for end-point IoT developments. To communicate with the ESP8266 module, microcontroller needs to use set of AT commands. Microcontroller communicates with ESP8266-01 module using UART having specified Baud rate. The ESP8266 Wi- Fi Module is a self-contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your Wi-Fi network.

The ESP8266 is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor.

The quantity of milk taken by dealer and other details are transferred to web server using Wi-Fi. In our system Wi-Fi is provided by Wi-Fi module.

1.3 Web Server

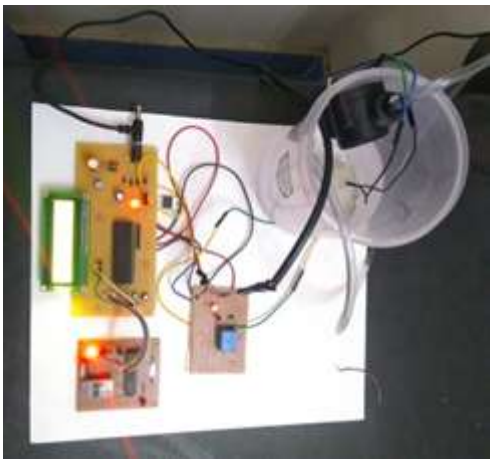


The primary function of a web server is to store, process and deliver web pages to clients.[2] The communication between client and server takes place using the Hypertext Transfer Protocol (HTTP). Pages delivered are most frequently HTML documents, which may include images, sheets and scripts in addition to the text content..

The details of customer or password are given to the admin. The admin information are save in webserver then give water to the customer then the calculate what type of amount water is used. Then display bill in webserver.

2. System Overview

Data from Flow Rate Sensor: The Falling edges on the Signal Pin of the Flow Rate Sensor are input to pin 2 of microcontroller board, which is configured to handle interrupts. 5-7pulses are generated in one sec if the Flow Rate is 1min. The computation Logic, uses a calibration factor to Convert the Pulses count into Flow Rate i.e. L/min. The computation of Flow Rate is done for each day. The data for each day is uploaded onto the Thing Speak Server .After 30days, bill is sent as on website and a Push notification through Wi-Fi. Thing Speak is an open-source IOT cloud platform to store and retrieve data using HTTP Protocol over internet. Pushing Box is a cloud that can send notifications based on server. From one request, you can send several notifications like to Admin to on the connection of supply when the bill is paid. The data for each day is uploaded onto the Thing Speak Server.



3. CONCLUSION

As discussed in this paper, plays an increasingly important role in water conservation. Thus, adopting water Conservation methods and technologies that support water preservation and management is an area of increased priority. By investing in such technologies and design and working of smart monitoring and represents how Smart Energy Meter can be used for Automatic Meter Reading. It is the most economical implementation to develop mankind in this era of technology. Detecting leaks helps saving water resources, cost and energysystems now, communities can significantly reduce consumption and ease the strain on our nation's water supplies. The paper describes the. More water is available to consumers and can be billed. Water Recontamination after centralized treatment is less likely to happen in the pipes. With the present enhancement in the use of technology to facilitate mankind, it is an efficient and practical utilization of present networks. The leakage control can be enhanced by incorporating sensors at the line connecting each and every house to detect the leakage. Provisions can be provided to the customers to send an alert message to the authority in case of any faults or damage occurs to the meter or the pipe can be reported to the utility providers by sending an alert message which will stop the water connection to that particular house.

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