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Survey Report on Automated Water Meter Reading System

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Abstract - The Internet of things (IoT) is the inter-networking of bodily gadgets, vehicles (additionally called linked gadgets and clever gadgets), buildings, and different objects embedded with electronics, software, sensors, actuators, and community connectivity which allow those gadgets to accumulate and alternate data. It turned into important to take gain of to be had technology to serve human. Water is one of the primary elements of the lifestyles for the human; it need to be explanation of intake. Automatic meter studying facilitates within side the explanation and distribution of water intake for person every in step with his need. The proposed gadget may be very correct within side the extraction and calculation of bills. It permits the water enterprise to far flung manage for the water meter in patron premises. The gadget makes use of WiFi community to attach water meter with Water Company. An arduino micro-controller makes use of as manage basis, its issued suitable command in step with the enter readings.

1. INTRODUCTION

Automatic water meter studying is the generation of mechanically gathering intake, diagnostic, and standing information from water meter gadgets and shifting that information to a imperative database for billing and analyzing. This generation specifically saves software companies the cost of periodic journeys to every bodily area to examine a meter. Another benefit is that billing may be primarily based totally on close to real-time intake in place of on estimates primarily based totally on beyond or anticipated intake. these well-timed facts coupled with evaluation can assist each software companies and customer's higher manage the use and manufacturing of water intake.

2. Literatures Survey

Title: A Low-Cost Water Consumption Meter System Based on GSM Technology.

Author: MWANGI PETER NGUGI

Description: In the water distribution industry, meter studying is an critical pastime as supply of sales to the water application corporation and on the equal time it is supposed to make certain correct recording of intake. Manual water meter studying remains being achieved in many nations withinside the global wherein personnel of water groups take the readings from residential and commercial enterprise premises. Water payments are then organized primarily based totally in this data. This system is inefficient and costly in phrases of man-hours, in particular with the growth in residential houses in most of city regions. The personnel of water groups additionally face a few problems in gaining access to a few premises in particular within side the slum regions and as a result the meter readings in such regions are estimated. The system of guide meter studying is each bulky and inaccurate. Different researchers have used one of a kind technology in an effort to auto-mate meter studying however little or no has been achieved the use of the GSM technology. In addition to this, the sooner designs had been expensive. In these studies a prototype of an automated water meter studying device has been designed, fabricated and tested. It consists of G1/2 float sensor, PIC18F4550 micro-controller and its interfacing board, SIM 900 GSM module, solenoid manage valve. G1/2 float sensor has been used for water float detection, the solenoid manage valve has been used to connector disconnect the water deliver and the GSM module has three been used for sending brief messages on water extent intake whilst the complete device is managed with the aid of using PIC18F4550 micro-controller. In this layout as water flows via float sensor, the rotor blades rotate producing pulses. The pulses are counted and transformed to a volumetric float the use of the PIC18F550 micro-controller. The extent of water intake is displayed on an LCD. The water meter studying is despatched mechanically to the Water Company as a brief message for billing functions after a detailed period. The designed device has been located to be approximately ninety-eight correct and is value effective. It has the capability to automate water meter studying and as a result growth efficiency.

Title: Automated Water Billing with Detection and Control of Water Leakage using Flow Conservation.

Author: Megha M Raykar, Parijata vinod

Description: In this paper, leak detection performs an more and more vital position in water conservation. Thus,

adopting water conservation techniques and technology that aid water protection and control is a place of multiplied priority. By making an investment in such technology and structures now, groups can substantially lessen intake and simplicity the pressure on our nation's water supplies. The paper describes the layout and operating of Smart Energy Meter and represents how Smart Energy Meter may be used for Automatic Meter Reading. It is the maximum reasonably-priced implementation to expand mankind in this period of generation. Detecting leaks facilitates saving water resources, price and energy. More water is to be had to purchasers and may be billed. Water recontamination after centralized remedy is much less in all likelihood to occur withinside the pipes. With the prevailing enhancement withinside the use of generation to facilitate mankind, it's far an green and realistic usage of gift networks. This paper additionally suggests that how purchaser can manipulate the burden with the aid of using the use of Smart Energy Meter. It offers ease in taking the meter readings, accuracy, and detection of defective readings. The leakage manage may be better with the aid of using incorporating sensors at the road connecting every and each residence to come across the leakage. Provisions may be supplied to the clients to ship an alert message to the authority in case of any faults or harm happens to the meter or the pipe may be suggested to the software vendors with the aid of using sending an alert message on the way to forestall the water connection to that specific residence.

Title: Design and Development Of Automatic Water Flow Meter
Author:
Description: Effective irrigation water control starts with timing and regulating irrigation water application in a manner as a way to fulfill the want of the crop without losing water, soil and crop nutrients. This entails offering water in line with the crop requirement, amount that could be held via way of means of the soil and is to be had to the crop at fees tolerated in line with the soil characteristics. So measuring water in fields may be very crucial step in irrigation control systems. There are many water glide size strategies in addition to one-of-a-kind forms of water glide meters used in irrigation to degree the extent of water glide in pipelines however those all are too costly. This paper describes layout and improvement of low fee automated water glide meter which resources best required quantity of water to the vegetation saving water in addition to energy. G1/2 Hall Effect water glide sensor is used as a sensing unit with a turbine rotor inner it whose pace of rotation adjustments with the one of a kind charge of glide of water. The Hall Effect sensor outputs the corresponding pulse educate for frequency enter to the micro-controller. The entire machine comprises of AT89S52 micro-controller, G1/2 Hall Effect water glide sensor, relay, optocoupler, a water pump, 5V supply, LCD, keypad and a few passive components. The AT89S52 micro-controller is programmed in Keil improvement Tool.

Title Overview of Automatic Meter Reading for the Water Industry
Author: Allan Readdy
Description: In this paper, Many water meters may be examine visually with little difficulty. However, there are situations, each city and rural, wherein it's miles very hard to get entry to meters, which makes meter studying time eating and on activities down proper dangerous. For such locations, a few form of far flung computerized meter studying (AMR) device is each handy and fee effective. The paper defines AMR and descriptions the strengths and weaknesses of the diverse communication techniques which are presently available. 5 Significant homes of radio waves are considered. A short clarification of the famous low electricity wi-fi structures is likewise presented. One of the standards of a a success AMR device is seamless integration into an current meter-studying device. Hence implementation is addressed withinside the very last level of the presentation.

3. Project Overview

The proposed paintings on this paper ambitions at the layout and implementation version of water billing and control component in India. It to assist the water carrier carriers to display the meter readings from the location. A excessive percent of water is misplaced because of incorrect control. The incorrect utilization of water ought to be solved via way of means of digital means, with none human interplay in an effort to paintings with transparency and prevent. The reason of this paintings is to offer an implementation method for water intake and controlling which lets in consumer to be detected at a far off location .This layout integrates powerful answers for issues confronted via way of means of India's water distribution device along with incorrect water intake pipe line fault leakage. It consists of micro-controller primarily based totally embedded era and wi-fi conversation technique to discover the water intake. Moreover, accumulating the meter readings for billing techniques from all customers is a tough and time ingesting venture which calls for a exquisite wide variety of labors.

4. CONCLUSIONS

Water on a daily basis it will become extra scarce because of weather and growing temperature, and use it unwisely, billing machine the usage of Automatic water Meter studying assist to preserved and explanation intake it. Automatic water Meter studying is one approach studying and processing information routinely with laptop and

communication. The improvement of computerized water meter studying machine applied wi-fi era the usage of WiFi module machine for information transmission become proven. In the prevailing paintings wi-fi meter studying machine is designed to degree the quantity of water used and to close down the energy deliver remotely each time the patron did now no longer renew the acquisition of water. The deployment of the proposed machine makes use of the present WiFi network, in which the water meter machine can ship its readings without delay to a server software the usage of a WiFi the method of tracking water glide rate, transmitting the usage, calculating the invoice etc. is thru pre-programmed Arduino controller. Automatic water Meter studying avoids the human intervention, presents green meter studying, keep away from the billing mistakes and decrease the preservation cost.

5. REFERENCES

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