WIFI BASED SMART ELECTRIC METER USING IOT

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Abstract - With the coming of the Internet and computational period, not just the chance to send and get information between people, yet in addition among the gadgets without human command over it. This is known as the Internet of Things (iot) idea which can be connected for comprehending the developing issue of intensity/vitality the executives. An answer is shabby and simple to execute and deal with a vitality observing framework for our day by day utilization of electric-control. So as to defeat the human blunders, physical work also, cost decreasing in vitality utilization with more productivity for the power the executives framework, in this paper, we center for the most part around iot's vitality checking. The proposed plan is to execute a exceptionally minimal effort remote sensor system and convention for shrewd vitality and web application able to do consequently perusing the unit and sending the information naturally for the power clients to see their present vitality meter perusing. By utilizing this framework, the clients will know about the power utilization in his/her home to diminish the power wastage and cost of utilization. The framework comprises of a computerized vitality meter, ESP8266 wifi module and web applications for the administration framework. The ESP8266 wifi module will be inserted into the meter and actualize the TCP/IP convention for the interchanges between the meter and web application. The test results demonstrate that the proposed framework works great with very low cost-build automatic energy meter reading.

Keywords—Smart Meter; Power Monitoring; Internet of Things; WIFI ESP8266; Arduino; MQTT Dashboard; Web Portal;

I. INTRODUCTION

The new period of an Internet of Things (IoT) which was alluded to remarkably recognizable articles and speak to in an "internet like" the structure has assumed a significant job of our day by day life in wording of insight and robotization as comfort ways. By making network, IoT, as an insightful framework, associate things like the all-inclusive worldwide nonpartisan system, thus a process, there is an immense volume of information are being created which need to the executives and control. As innovation is propelling, the IoT's computerization the board

framework is connected in numerous essential foundations, for example, power, gas, what's more, water the executives' frameworks so as to make it more helpful for individual and associations [1]. In this manner, the framework can beat the issues of human mistake and power misfortune as far as controlling and the board. Also, it can likewise illuminate the manual control and a unit recording activity without human blunder. To accomplish this refined framework, the correspondence, and systems administration are the significant job to follow all sort of availability among the individual gadgets. The test is to fabricate the system framework with hearty, at a similar time low power utilization just as reasonable. The fundamental target of our proposed framework is to actualize also, grow minimal effort WiFi-based single stage advanced vitality meter with IoTs ideas. By utilizing ease ESP8266 Wi-Fi module, the framework can give information correspondence between computerized vitality meters and web server door, so that it can screen for the vitality the executives' framework. By utilizing this framework, the charging of the power clients can be founded on real utilization as opposed to appraise based on the past utilization. This paper is sorted out as pursues. In segment 2, writing overview and related works will be portrayed. In segment 3, the clarification of the entire framework design will appear. In segment 4, the framework execution of the proposed framework inspected. The last two sections are the exploratory outcomes and end.

II. LITERATURE SURVEY

Lately, a lot of papers had proposed the structure and execution of the IoT door for keen home with wire, remote and incorporated both wire and remote. With wired home mechanization framework, a few scientists proposed a framework with a remote framework for controlling water temperature through transmission control convention and Internet convention (TCP/IP) convention with lower equipment cost [2]. Be that as it may, so as to utilize this framework, the client needs to introduce unique programming which represents a burden and the framework incorporates various sensors in the meantime is confounded. Evidently, the wired base framework experiences a few challenges, for example, the sending of correspondence lines among

gadgets and the establishment of back-end frameworks. It can expand the assemble cost and upkeep cost, in order to diminish the enthusiasm of clients to manage the cost of a home mechanization framework [3]. So as to decrease the fabricate cost, with remote framework, a few specialists planned a home door for ZigBee and Ethernet systems for ecological inviting green framework for air poison observing and homecare applications [4]. In any case, the planned ZigBee/Ethernet portal did not bolster the functionalities of customary passageway. The entryway can just trade detecting information and directions between two gadgets through Internet or Intranet. In expansion of mix of individual remote neighborhood also, web home mechanization framework [5], there is an investigation with different correspondence frameworks including web, GSM, remote radio recurrence, anyway the current framework design required extremely high gear cost and low enthusiasm of clients [6]. Contrasted and the current framework, our propose framework isn't just fit for lessening the usage and upkeep cost, yet in addition equipment costs furthermore, underpins the idea of the Internet of Things (IoT) by the utilization of minimal effort vitality meter with ESP8266 WiFi module implanted to speak with the electronic entryway framework with existing server and equipped for perusing the information from vitality meter consequently progressively and update it for the client to see the vitality utilization and lessen the expense of intensity utilization.

III. EXISTING SYSTEM

- In the existing system, the electric meter reading is done manually by a electricity board employee. During this process we encounter scenarios such as the meter reading may not be accurate, extra cost on bills will be generated even though we are even out of station. Sometimes electricity board employees may not be able to take proper meter readings due to locked gate, dogs in the house etc.
- In this system the connection and disconnection of electricity is done manually, at such situations people in the house will take the electricity connection theft which is loss to the electricity board. In this system, there is no proper information on usage and percentage of electricity used. This is very time consuming, manual and ineffective process.

IV. PROPOSED SYSTEM

- In this project, we develop smart electricity billing system. This will allow the enduser to know on which appliance how much amount of electricity is being consumed daily. Maintenance, refinement and processing of data

is done in the network server that maintains the user information in the required data storage.
- Advanced Metering Infrastructure (AMI) utilizes the smart grid communication infrastructure to transfer metering data as well as customer consumption-related information. Machine learning used here is Supervised learning technique , which is implemented using C# language.
- The datas are fetched from those sockets working on IOT and stored in MySQL server.
- The data stored in server are used as inputs for other sockets and the prediction process is carried out. This process predicts the high electricity consuming appliance and alerts the user.

V. SYSTEM ARCHITECTURE

The purpose of the design phase is to plan a solution of the problem specified by the requirements document. This phase is the first step in moving from the problem domain to the solution domain. In other words, starting with what is needed; design takes us toward how to satisfy the needs. The design of a system is perhaps the most critical factor affecting the quality of the software; it has a major impact on the later phases particularly testing and maintenance.

The design activity often results in three separate outputs –

- Architecture design.
- High level design.
- Detailed design.

Architecture Design

Architecture focuses on looking at a system as a combination of many different components, and how they interact with each other to produce the desired result. The focus is on identifying components or subsystems and how they connect. In other words, the focus is on what major components are needed.

High Level Design

In high level design identifies the modules that should be built for developing the system and the specifications of these modules. At the end of system design all major data structures, file format, output formats, etc., are also fixed. The focus is on identifying the modules. In other words, the attention is on what modules are needed.

Detailed Design

In the detailed design the internal logic of each of the modules is specified. The focus is on designing the logic for each of the modules. In other words how modules can be implemented in software is the issue.

A design methodology is a systematic approach to creating a design by application of a set of techniques and guidelines. Most methodologies focus on high level design.

Architecture Design

System architecture is a conceptual model that defines the structure, behavior and more views of the system.
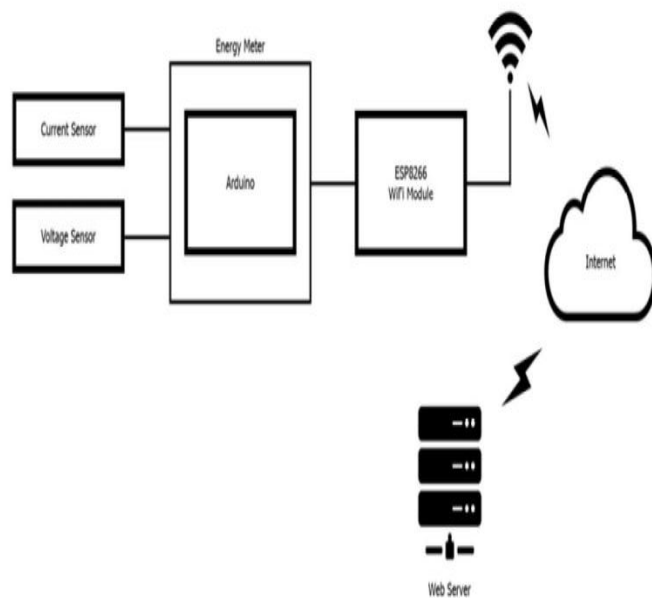
VI.   CONCLUSION

In the current framework, the electric meter perusing is done physically by a power board worker. Amid this procedure we experience situations, for example, the meter perusing may not be precise, additional expense on bills will be created despite the fact that we are even out of station. Now and again power board workers will most likely be unable to take legitimate meter readings because of the bolted door, hounds in the house and so on.

In this framework the association and disengagement of power are done physically, at such circumstances individuals in the house will take the power association thefts which is a misfortune to the power board. In this framework, there is no legitimate data on utilization and percentage of power utilized. This is a very tedious, manual and insufficient procedure.

VII.   REFERENCES

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