



A WEB BASED HOME AUTOMATION SYSTEM OF IOT USING WIRELESS ENERGY METER

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Abstract: In the present reality Automatic structures are being preferred over manual system. With the snappy augmentation in the amount of customers of web over the earlier decade has made Internet an indispensable piece of life, and IoT is the latest and rising web development. Power is one of the basic necessities of individuals, which is usually utilized for homegrown, mechanical and agrarian purposes. SEM is an electric gadget having energy meter chip for estimating the electric energy devoured and a remote convention for information correspondence. This undertaking presents a brilliant energy meter for a programmed metering and charging framework. In this energy meter the force used the comparing sum will be ship off both the clients and power board utilizing android application and web application separately and conveyed to the controlling base station. An extra strategy measures and recommendations are incorporated to help providers in exploring, distinguishing and forestalling burglary. The whole framework is valuable for anticipation of burglaries and worldwide associated medium to picture the meter perusing to its clients adequately.

Keywords: IOT Module, Webpage Energy Meter, 4-channel Relay Module, Cloud.

I. INTRODUCTION

Power is one of the indispensable prerequisites for sustainment of solaces of life. In this manner we are attempting to introduce a thought towards the minimization of specialized blunders and to lessen human reliance simultaneously. With the assistance of this under taking we are intending to get the month to month energy utilization from a distant area straightforwardly to a unified office. In this manner we can decrease human endeavors expected to record the meter readings which are till now recorded by visiting each home independently. It constantly records the readings and the live meter perusing can be shipped off the Electricity office on demand. This framework additionally can be utilized to detach the force supply to the house in the event of non-installment of power bills.

II. PROPOSED SYSTEM

This paper proposes a Home Automation framework that utilizes the incorporation of multi-contact cell phones, cloud organizing, remote correspondence, and electrical cable correspondence to give the client controller of different lights and apparatuses inside their home. This framework utilizes a combination of a cell phone application, handheld remote far off, and PC based program to give a methods for UI to the customer, which the card is embedded, goes about as web worker. Computerization System can be gotten to from the internet browser of any neighborhood PC in a similar LAN utilizing worker IP, or distantly from any PC or versatile handheld gadget associated with the web with proper internet browser through worker genuine IP (web IP). Wi-Fi innovation is chosen to be the organization framework that associates worker and the sensors. Wi-Fi is picked to improve framework security (by utilizing secure Wi-Fi association), and to expand framework versatility and adaptability. IOT or web of things is an impending innovation that utilizes web to control/screen electronic/mechanical gadgets, autos and other actual gadgets associated with the web. IOT enables client to control more than advanced things effectively through an agreeable GUI over the web.

WORKING PRINCIPLE

We are giving an input power supply to the Arduino. Using of regulator which converts an input power supply from 12V to 5V. IOT module (Node MCU) which is used for connecting wireless devices and it enables the interaction between the sender and receiver at a long distance range. Arduino to switch on the relay module, they are used to control a circuit by a separate low-power signal or to control several circuits with one signal. The status of the electrical appliances weather its ON or OFF is displayed on the lcd. We are creating a webpage for operating home appliances. Webpage is not only used for operating the appliances and also monitoring the appliances, how much amount of power

consumed by each load. Every month the data is transmitted to the cloud through IOT network, it helps in the creation of electricity billing purpose.

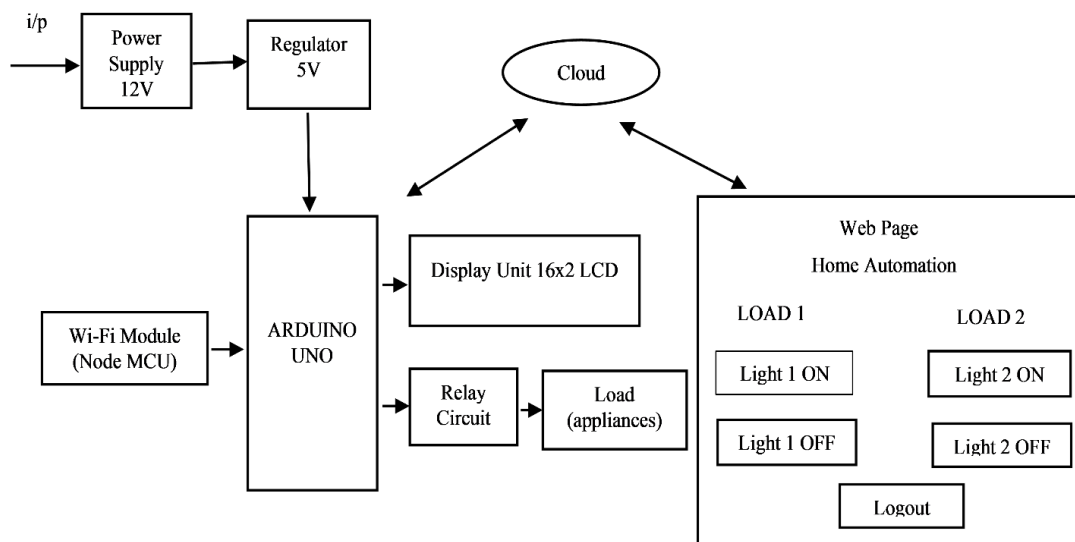


Fig. 1 Proposed System

III. MATERIALS AND METHODS

Materials used in this project are Arduino UNO, Node MCU, Regulator, Relay, LCD display and Load (appliances).

ARDUINO UNO

The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button.



Fig. 2 Arduino UNO

NODE MCU (WI-FI MODULE)

Node MCU is a minimal effort open source IOT stage. In the wake of setting up ESP8266 with Node-MCU firmware, we should see the IDE (Integrated Development Environment) needed for improvement of Node MCU. Lua contents are by and large used to code the Node MCU.



Fig. 3 Wi-Fi module

4 -CHANNEL RELAY MODULE

Relays are electrically operated switches. They are used to control a circuit by a separate low-power signal or to

control several circuits with one signal. The four-channel relay module contains four 5V relays and the associated switching and isolating components.



Fig. 4 Relay

IV. RESULT AND DISCUSSION

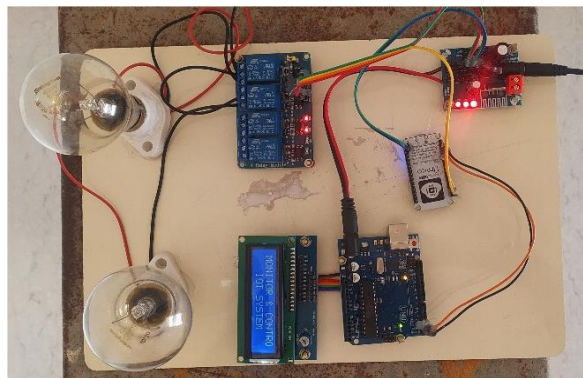


Fig. 5 Home automation using Arduino

In this system design and implementation phase of the proposed solution to the identified gaps in the review literature, both software and hardware tools were used. It is suited for achieving our desired goal of building a secure wireless home automation system. In our Home Automation System, we are creating a web page for operating and monitoring the home appliances. It also stores the data by using cloud server. we are operating the electrical appliances by using smart phone or personal computer at a long distance range. It acts as an wireless controller. It is connected wirelessly to the network directly over the internet to enable remote control of home appliances. we can monitor all the appliances, how much amount of power is consumed by each loads (appliances) that is stored in this web page. It helps in the process of creation of electric bills.

V. CONCLUSION

The home mechanization utilizing Internet of Things has been tentatively demonstrated to work attractively by uniting straightforward machines to it and the apparatuses were effectively controlled remotely through web. Era of smart city advancement this project is concentrated on the connectivity & networking factor of the IOT.

In this project, an energy consumption calculation based on the counting of calibration pulses is designed and implemented using ARDUINO UNO in embedded system domain. In the proposed work, IOT based meter reading system is designed to continuously monitor the meter reading. Service provider can disconnect the power source whenever the customer does not pay the monthly bill and also it eliminates the human involvement, delivers effective meter reading, prevent the billing mistake.

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