IOT Based Switching and Control of Electric Equipment's

Priyanka Gaurkhede[1], Ankita Tupte[2], Rani vaidya[3], Tushar Nawkar[4], Akshay Ashtankar[5] ,Kiran wadekar[6]

[1]Professor, Department of Electrical Engineering.,
Suryoday College of Engg. & Technology, Nagpur, India
[1]priyankagaurkhede123@gmail.com

[23456]UG Student, Department of Electrical Engineering.
Suryoday College of Engg. & Technology, Nagpur, India
ankitatupte19@gmail.com
vaidyarani8@gmail.com
tusharnawkar007@gmail.com
akshayashtankar786@gmail.com
kiranwadekar05@gmail.com

Abstract

We are existing in the fourth industrial revolution. Our life is flattering more relaxed and smoother with the help of fast upgrade of technology. Internet of things (IoT) is playing a huge role in this. One of the major sides of IoT is a smart home. As we are in the era of never-ending growth of the internet and its application, smart home system or home automation system is highly increasing to provide comfort in life and improving the quality of life. In this paper, we present an IoT based low-cost smart electrical equipment system. This system is based on a web portal which controlled by an ESP32 Wi-Fi module. Also, a custom-made private web server is developed for maintaining the current states of electrical appliances.

Keywords*— IOT, WI-FI, ESP32, web server,Home automation system*

I.Introduction

We are touching towards to world of Internet. Where every physical object will be measured and communicated with the internet. A research displays that, Internet of Things (IoT) linked devices installed base worldwide from 2015 to 2025 will be 75.44 billons. With the advent of vocal recognition software, such as Amazon Alexa, there is huge demand electrical equipment automation. Our main goal is to grow a way to efficiently and inexpensively transform **pre-existing** home electrical equipment into a smart electrical home equipment's. In this paper we planned a low cost, less power ingestion IoT based system. By using this system, the registered person can control his/her home appliances from anywhere anytime. Also, the listed person can screen his/her home electrical appliances. We shaped a custom-made private server for observing and controlling the system. The server is interconnected with the ESP32 Wi-Fi module. By assessing the server, the registered person can turn on/off his home appliances. And as it is a private home server it is also secreted. The server is created based on OSI model of network architecture. As the world home automation system market is predictable to produce from USD 32.11 Billion in 2015 to USD 78.27 Billion by 2022, at a CAGR of 12.46 between 2016 and 2022 using IoT system [3].So, it important to feel the change of upcoming era and make the changes. That's why in this paper we proposed a system where user can use a cost-effective smart electrical equipment's automation system.

II. Benefits of Home automation systems:

In current years, wireless systems similar Wi-Fi have become more and more common in home interacting. Also in home and structure automation systems, the use of wireless skills provides several rewards that could not be achieved by a wired network only.

1) Cheap installation costs: First and foremost, connection costs are meaningfully condensed since no cabling is necessary. Wired solutions need cabling, where material as well as the professional placing of cables (e.g. into walls) is expensive.

2) System scalability and easy allowance: Organizing a wireless network is particularly advantageous when, due to new or altered requirements, allowance of the network is necessary. In difference to wired installations, in which cabling extension is tedious. This makes wireless installations a seminal deal.

3) Aesthetical assistances: Separately from shell a larger area, this aspect helps to filled aesthetical requirements as well. Samples include illustrative buildings with all-glass architecture and historical buildings where design or conservatoire reasons do not allow laying of cables.

4) Incorporation of mobile strategies: With wireless networks, connecting mobile devices such as PDAs and Smartphones with the automation system becomes probable everywhere and at any time, as a device's exact physical location is no longer vital for a connection (as long as the device is in reach of the network). For all these reasons, wireless technology is not only an smart choice in face-lift and renovation, but also for new connections.
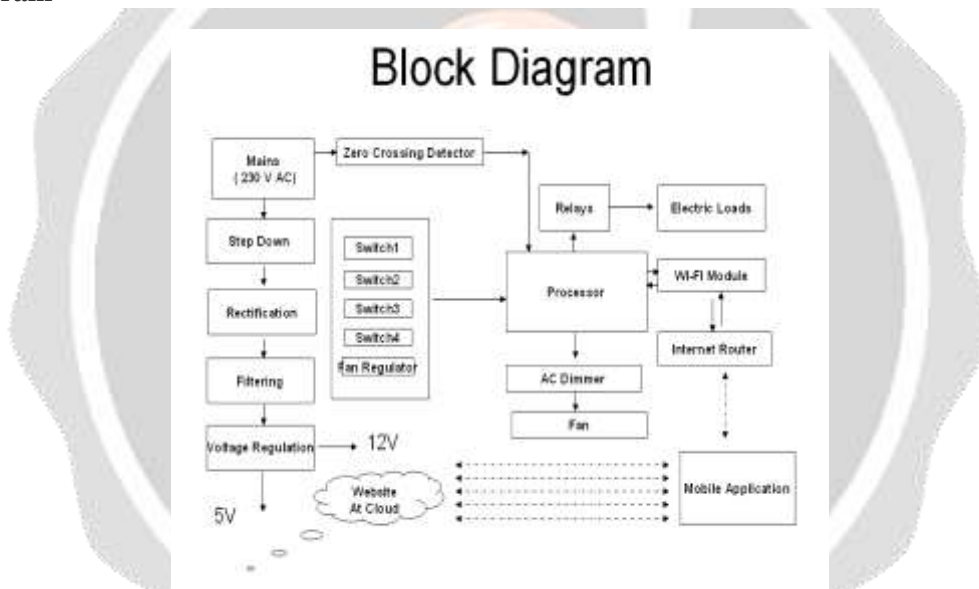
III. Block Diagram

Figure 4.1.1: Block Diagram of Home automation system

The Microcontroller ATMEGA328P will be interface with electrical equipment's and will be switch the electrical signal done Pulse Width Modulation. The processor is the core of the system. The processor is the crucial unit for controlling all the things trendy in the system. The Processor will read the values upcoming from the electric board and consequently will control the electrical devices. Processor also can read the values coming from the android application through WI-FI and will control the electrical devices. Processor also will read the values from the internet also and will process accordingly. The system will be online as well as offline system also. The Pulse width Modulation will be in play to the control the speed of the fan.

IV. Planned System Feature

The future system is a circulated home automation system, contains of server, sensors. Server panels and monitors the some sensors, and can be easily arranged to handle more hardware boundary module (sensors). The Microcontroller ATMEGA328P with built in WiFi card port to which the card is inserted, acts as web server. Mechanization System can be retrieved from the web browser of any local PC in the same LAN using server IP, or tenuously from any PC or mobile handheld device associated to the internet with appropriate web browser through server real IP (internet IP). WiFi technology is designated to be the network infrastructure that connects server and the sensors. WiFi is select to recover system security (by using secure WiFi assembly), and to upsurge system flexibility and scalability.

A.Proposed Home Automation System:
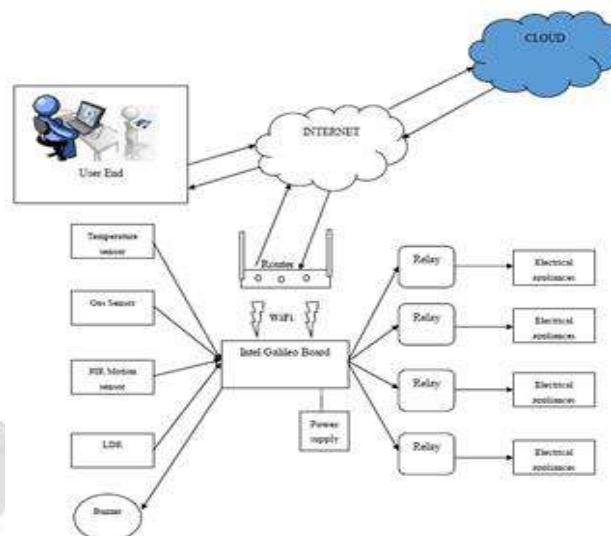
Figure 4.1.1: Proposed model of Home automation system

V.Conclusion

The home automation by Internet of Things has been experimentally confirmed to work acceptably by linking artless appliances to it and the appliances were positively measured remotely through internet. The considered system not only displays the sensor data, like temperature, gas, light, motion sensors, but also activates a procedure allowing to the requirement, for case changing on the bright when it becomes dark. It also supplies the sensor parameters in the cloud (Gmail) in a opportune manner. This will assistance the user to examine the illness of various parameters in the home anytime anywhere.

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