



e-ISSN:2582-7219



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

Volume 5, Issue 7, July 2022



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 7.54



6381 907 438



6381 907 438



ijmrset@gmail.com



www.ijmrset.com



Smart Home Automation using IOT

¹E. Jyothy, ²G. Santosh, ³G.Surendar, ⁴N. Arun Kumar

¹Assistant Professor, Department of Electronics and Communication Engineering, St. Peter's Engineering College, Hyderabad, Telangana, India

^{2,3,4}UG Student, Department of Electronics and Communication Engineering, St. Peter's Engineering College, Hyderabad, Telangana, India

ABSTRACT: The Concept of this Project i.e., Smart Home Automation using IOT is to automate our home appliances through IOT. IOT stands for Internet Of Things where all Physical devices such as T.V, fans, bulbs are connected in a physical network with the help of any wireless medium. In earlier days people use to operate home appliances manually for switch ON/OFF. Electricity is wasted abundantly as we use them regularly even though when we don't find useful. We do forget the things easily due to busy schedule, as a result electricity bills will increase gradually, to overcome this problem we developed Smart Home Automation using IOT, which make use of MCU to control and process the actions that we posses to do and a 4 channel Relay module which is used for tuning power and making ON/OFF operations to devices. Here, we use Node MCU also known as ESP8266 as controller unit because it is easily affordable and reliable and have a special feature as wi-fi integrated on Node MCU chip this finds very useful for the projectas functioning for IOT appliances.

KEYWORDS: Node MCU, Internet of Things, Relay.

I. INTRODUCTION

Internet of things plays a vital role in present day life as we don't have in our past. We do have many natural resources one of the product available is electricity. Electricity is widely used in our daily life for all activities. It's our primary responsibility to save electricity as it is a non-renewable source[1].



Figure 1. Internet of Things architecture

Everything in our world is automated and using less manual intervention With the help of present day growing technology and help of IOT automation becomes easy. One of such Automation of things is Smart Home automation using IOT.To save electricity ,time and to make things easy we make automation for home appliances with the helpof IOT[2] .IOT stands for internet of things where devices connected physically through the internet.

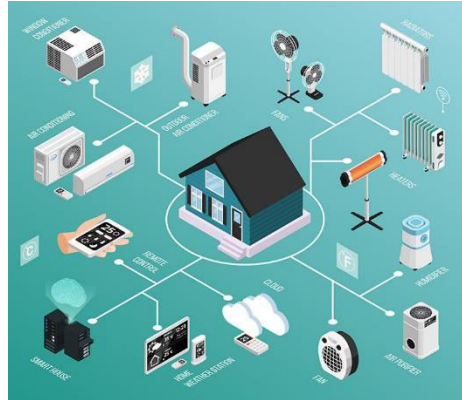


Figure 2. Smart Home Automation

A smart home automation using IOT is a cost affordable, secure and reliable application of IOT. In this project we make use node MCU as controller unit, 4-channel relay module and third-party application (Blynk)[3]. The main function of Blynk application is to operate devices automatically instead of manually. To set up Blynk application, install it and set up it by providing our email address and giving our name who belongs to that home [4]. We do get an authentication token from Blynk team which should be copied and pasted in Blynk library file. Node MCU is configured with Blynk application with the help of Wi-Fi as wireless medium once the code is dumped into node MCU by Arduino IDE. We give power supply to node MCU and relay module to make the whole process to be activate [5]. Home appliances are connected to respective 4-channel relay module and with the help of Blynk application we can control those appliances when Blynk is configured to node MCU properly. In this way our home appliances can be operated automatically with the help of IOT [6].

II. LITERATURE SURVEY

1. ANUJA SHINDE, KANADE SHOBA, JUGALE NAMRATHA, GURAV ABHIJEET, A. VATTI RAM-BABU AND M. M. PATWARDHAN Smart home automation system using IR bluetooth GSM and android is a smart home automation system where devices in home are operated automatically with the help of IR remote sensor and Bluetooth medium and GSM module through android application, it works only in Bluetooth range. GSM module is very much important for message alerts.

2. G. Mahalakshmi M. Vigneshwaran, IOT Based Home Automation using Arduino is another application of smart Home Automation where Arduino is a Micro controller unit acts as controlling of devices with the help of Wi-Fi as medium, Arduino has less processing power of 32kb and it needs extra Wi-Fi setup.

3. GOURAV VARADKAR, HITESH RAMINA, VINAY MAITHRY, TEJASVI ANSURKAR, ASHA RAVATH, PARTH DAS Automatic Room Light Controller using Visitor is Smart Home Automation where home appliances are automatically turn off/on based on visiting of a person. If a person enters the room all the appliances turn ON and if the person leaves then the appliances get turned OFF. It works properly only for IR visible radius range. It doesn't work properly when two or more persons enter into the room.

4. HASAN SHEHAB, MD LIZUR RAHMAN, MD. HASIBUL HASAN, MD. IFTEKHAR UDDIN, SYED ABRAB MAHMOOD

Home automation using Voice recognition is home automation based on voice controlling for paralyzed people works through voice commands system. It uses modern technology but it needs perfect manual intervention for setup the whole procedure.

5. Majid Al-Kuwari, Abdulrhman Ramadan, Yousef Ismael, Laith Al-Sughair, Adel Gastli, Mohieddine Benammar is a smart-home automation using IoT-based sensing and monitoring platform. This paper is purely about monitoring and controlling home based appliances such as temperature, and visual colors by implementing collection of data. This system uses EmonCmos for monitoring and controlling the collected data and make



householders or people in the home to operate the appliances remotely .It make uses Node MCU as controller unit as it process data and sensing of data makes easy as it as integrated Wi-Fi setup.

6.Bilal Mustafa, Muhammad Waseem Iqbal, Mohsin Saeed, Abdul RehmanShafqat, Hasnain Sajjad, Muhammad Raza Naqvi.IOT Based Low-Cost Smart Home Automation System is a smart home automation which is designed by using cost affordable things such as Arduino controller and sensors for sensing the objects and these appliances once detected can be controlled using own mobile phones and tablets remotely this system works with the help of Arduino and this system is reliable and easily configurable.

7.Bhargavi Siddineni, RayapatiNanditha, Tammina Jayanth Satyanarayana, Venkata Sai Rama Krishna Sighakolli Enhanced Smart Home Automation System based on Internet of Things this project is about how IOT plays a vital role in evolving human life and progressing the all necessary things .In this system it is mainly focused on automation of smart homes and configuring of IOT to surveillance cameras, Temperature range detection and controlling it. For this Node MCU is used as controller unit.

III. PROPOSED SYSTEM

Now a days everything is automated with the grace of evolving technology. We Proposed this Project Smart Home Automation using IOT to make home appliances operated remotely through automation without any Manual intervention [7]. The key reason to develop thisproject is to save electricity and to save time in this project we use Micro controller Unit, 4 channel relay modules and 4 devices for knowing its working status.We can Switch ON/OFF home appliances remotely using blynk application [8].Which is a mobile application which is configured to Node MCU and controller is connected to 4 channel relay module and further it is connected to devices we need to control.

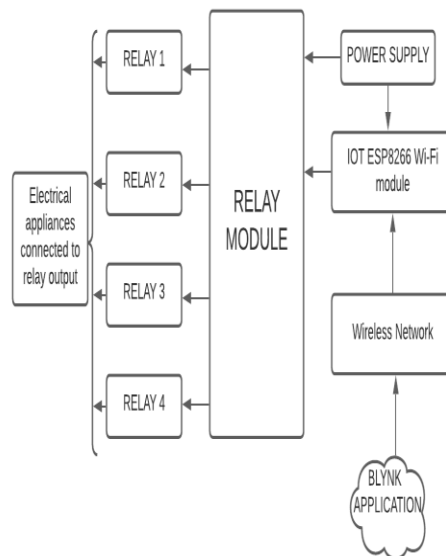


Figure 3 BLOCKDIAGRAM

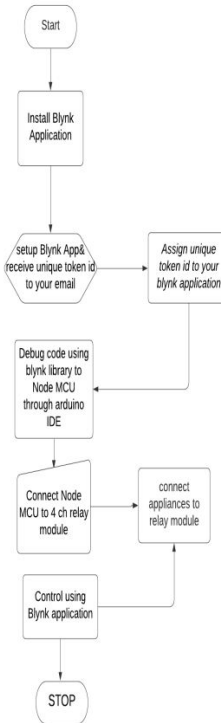
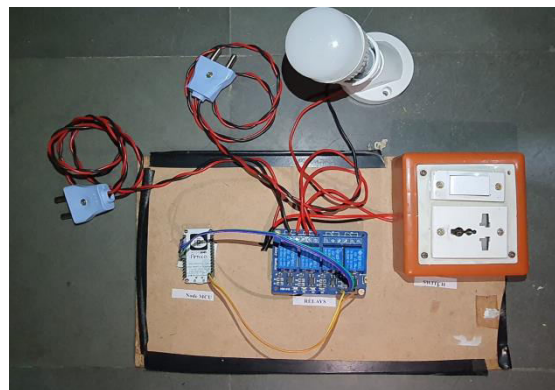


Figure 4FLOWCHART

Node MCU can be activated once the code is dumped from Arduino IDE by adding authentication token which is sent by Blynk team to the owner of the house who downloaded that application[9]. Once the Node MCU gets activated it indicates a blinking light when the power supply is connected so that Blynk application can be easily connected and we can operate it [10]. It can be a secured system because authentication token is mandatory for connecting to Blynk application and also once manual switches are used it is if any unknown tries to ON/OFF appliances we can know the status in Blynk application and we can take necessary actions required[11].

IV. RESULT

The result of the project Smart Home Automation using IOT is successfully obtained by making successful connections with node MCU and 4-channel relay module and then connecting appliances to relay module and can be operated by using Blynk application[12].



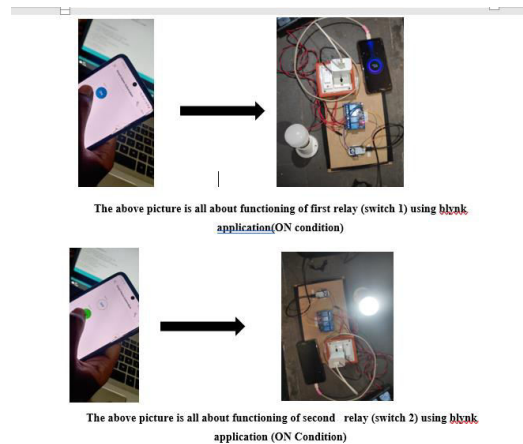


Fig 5 Result/Output

The above picture shows the output of Smart Home Automation using IOT, here we can see turning ON of devices by using Blynk Application where a socket is connected to second relay and a charger is connected to first relay module[13].

V. CONCLUSION

The proposed paper “Smart Home Automation using IOT” is an IOT application which is useful for automation of Home appliances with the help of Blynk application using Node MCU as controller unit this proposed system entitles to save electricity and to save time and to secure home through it’s secure mechanism [14].The Proposed project is reliable and cost affordable and easily adoptable to any environment where everyone can easily learn this concept and implement it. The special feature of this controller Node MCU is Wi-Fi integrated[15].

REFERENCES

- [1]. ANUJA SHINDE, KANADE SHOBA, JUGALE NAMRATHA, GURAV ABHIJEET, A. VATTI RAM-BABU AND M. M. PATWARDHAN, Smart Home Automation using IR remote, Bluetooth and GSM from INTERNATIONAL CONFERENCE ON IMAGE INFORMATION PROCESSING, presented in the year 2016.
- [2]. G. Mahalakshmi M..Vigneshwaran. , IOT Based Home Automation Using Arduino from International Journal of Engineering and Advanced Research
- [3].GOURAVVARADKAR,HITESH RAMINA,VINAYMAITHRY,TEJASVI ANSURKAR,ASHA RAVATH, PARTH DAS, AUTOMATIC ROOM LIGHT CONTROLLER USING VISITOR COUNTER from INTERNATIONAL COFERENCEON MECHATRONIC presented in the year 2017.
- [4]. HASAN SHEHAB, MD LIZUR RAHMAN, MD..HASIBUL HASAN,MDIFTHEKAR UDDIN, SYED ABRAB MAHMOOD , An HOME AUTOMATION SYSTEM USING VOICE RECOGNITION from journal INTERNATIONAL COFERENCE ON MECHATRONICS presented in the year2020.
- [5] Majid Al-Kuwari, Abdulrahman Ramadan ,Yousef Ismael, Laith Al-Sughair, Adel Gastli, MohieddineBenammar is an Smart-home automation using IoT-based sensing and monitoring platform published in2018 IEEE 12th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG 2018)
- [6] Bilal Mustafa,Muhammad Waseem Iqbal, Mohsin Saeed Abdul Rehman Shafqat Hasnain Sajjad , Muhammad Raza Naqvi IOT Based Low-Cost Smart Home Automation System Published in: 2021 3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications (HORA).
- [7]Bhargavi Siddineni, RayapatiNanditha, Tammina Jayanth Satyanarayana, Venkata Sai Rama Krishna Sighakoll Enhanced Smart Home Automation System based on Internet of Things Published in the year 2019 Third International conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC)
- [8]Vishwajeet Hari Bhide, Dr.SanjeevWagh,,” i-Learning IoT: An Intelligent Self Learning System for Home Automation Using IoT”, International Conference on Communication and Signal Processing,, pp. 1763-1767, 2015.
- [9] Ian G smith, “The Internet of things” NewHorizons, IERC-Internet of things European Research cluster, 2012.
- [10] Vikram.N, Harish.k, Nihaal.M, Raksha umesh ,ShettyAashik Ashok kumar, “A Low Cost Home Automation System Using Wi-Fi Based Wireless Sensor Network Incorporating Internet of Things (IoT)”, IEEE 7th International



Advance Computing Conference, pp. 174-178, 2017.

[11] Zeinab Kamal Aldein Mohammed, Elmustafa Sayed Ali Ahmed, "Internet of Things Applications, Challenges and Related Future Technologies", pp. 126- 148, 2017.

[12] Kumar Mandula, RamuParupalli, CH.A.S.Murty, E.Magesh, Rutul Lunagariya, " Mobile based Home Automation using Internet of Things(IoT)", International Conference on Control,Instrumentation, Communication and Computational Technologies (ICCICCT) ,pp. 340-343, 2016.

[13] Himanshu Singh, Vishal Pallagani†, Vedant Khandelwal, Venkanna U. "IoT based Smart Home Automation System using Sensor Node", 2018.

[14]https://www.academia.edu/11182817/WIFI_BASED_WIRELESS_ADVANCED_HOME_AUTOMATION_SYSTEM

[15]<https://circuitdigest.com/microcontroller-projects/diy-smart-plug-using-esp8266>

[16]<https://circuitdigest.com/home-automation-projects>

[17]<https://www.makeuseof.com/tag/getting-started-blynk-simple-diy-iot-devices>

[18]<https://steemit.com/money/@purechocola/>

[19]<https://ipoint-tech.com/wireless-networking-wi-fi-advantages-and-disadvantages-to-wireless-networking>

[20]<http://devconhomesecurity.com/blog/advantages-utilizing-wifi-based-home->



INNO SPACE
SJIF Scientific Journal Impact Factor
Impact Factor
7.54

ISSN

INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com