



Smart Room Control using IOT

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ABSTRACT

A Smart Room automation is a technique which reduces the human hard work by using electronic devices. This system controls the home appliances during android application based on Node MCU. A Room automation system have a two main apparatus; First one is android app which control by locally as well as remotely and next is Node MCU that has interface to sensors and appliances of an Smart Room automation system. It also saves the energy consumed by domicile appliances.

Keywords : IOT, Node MCU, Android Application, Sensors.

I. INTRODUCTION

IOT means Internet of Things, which connects the devices and things to the internet. The devices is nothing but smart-phones, TV, sensors etc. At the edge of the IOT are the appliance and apparatus we use day after day. These devices and thing are connected across an infrastructure using ZigBee, Node MCU, arduinoIDE ,Wi-Fi etc to provide bi-directional communications link with relatively long range, low power and a enough data rate to cumulative information from many linked devices. Home automation or Smart Room can be described as prologue of technology within the home atmosphere to provide expediency, relieve, protection and power efficiency to its occupant. Adding brainpower to home environment can afford improved quality of living. Now a day via give the opening of the Internet of Things (IOT), the survey and performance of Smart Room computerization system are being paid further in demand.

What is Smart Room Control?

Home/room automation is the manage of some or every Electrical objects in our home, apart from of whether we are here or left. Home automation is be clear surrounded by of the mainly refreshing renovtion in innovation for the home that has gone along in decades. There are quite a lot of substance easy to get to today that allow us control over the objects automatically, either by remote control or even by voice charge.

Inspiration

The inspiration of our method is to get concern of some domicile appliances that may in general be tough for those who are educated bodily disabled and Senior Citizens to turn into self-determining.

The predictable method is to allow a client with any android enabled gadget to run downloadable software on every mobile device such as a smart phones or mobiles. This room mechanization method will allow the client to handle or run a apparatus that is attached

to any domestic device with a Node MCU. The intention of this function will be to straight a protection method with webcam observation, door sensor notification and a light control system. Sensors will be associated to the domicile appliances with Node MCU so that they can be watched and controlled.

II. Literature Review

The automatic control of Home/Room appliances (On/Off) with the help of Mobile/Smart Phone and Node MCU (ESP8266). This is a wired system and every appliance must be connected with the help of cables. The new module which are used that one may complete our preferred target are Dallas Timer, Relays. This article present the drawing and execution of APPLIANCES CONTROLLING USING Internet. Basically by via this home/Room automation we can accumulate time, wealth, man power. plus as well we can have rule, protection and expediency on controlling appliances [1].

Khusvinder Gill and Shuang-Hua Yang[2] produced a familiar home gateway for ZigBee and Wi-Fi. This authorised remote control using a effortless user interface. The method was rate valuable and had excellent protection within the residence.

Smart domicile/Room is not a latest term for skill the world, it is been used from decapods. As electronic technology are moving on, the field of home automation is getting higher rapid. There were different smart system have been projected where the organize is through Bluetooth [7], internet etc. A telephone and PIC microcontroller appliance for controlling the procedure .pin check conclusion was used to execute the method where it was with wires system but not wireless contact.

R.Piyare has bring in propose and execution of a little cost, elastic and wireless way out to the Room automation [9]

Significance of the Work

A smart Room can be built on large region by using diversity of expertise floor or agreement. every skill consists, its own words. Each verbal communication is used to attach the different devices and give commands to execute a job. This system consist the automation of the home or a single Room, housework or domestic movement.

The smart home/Room system is used for far-off area is nothing but conservatory of structure automation and it involve the manage and automation of turn on bulbs, rotation of fan , freshening, air conditioning (AC), appliance. In upcoming the bazaar value of the Room/home automation system is over US\$11 billion.

III. Proposed Work

In 1970s the overture of home/Room automation is unsuccessful to get better the lifestyles of users for more than a few reasons. Firstly, these system is costly that's why the economical benefits of Room automation system is difficult. Secondly, the costs of implementing smart home technology must be depends on their installation and hardware cost.

In this system we will use some sensors like gas detector sensor and temperature sensor which help to create a home as a smart home. We are implementing a scheduling mechanism in this system.

The Node MCU is act as minicomputer and is connected with Wi-Fi. Home Automation structure can be access from the web browser by using some locally, or vaguely from any PC or mobile handled device associated to the internet with proper web browser, Google Assistance through server real IP.

Wi-Fi technology is used to select the network road and rail network that connects sensors and the servers. There is a require for home automation structure is to be cost efficient, stretchy and easy to set up with many network infrastructures and home appliances. The proposed home automation system has the capabilities to control the Temperature and humidity, Motion detection, Fire and smoke detection, Light level etc.

IV. HW /SW Requirement

S/W Requirement:

1. Node MCU ESP8266 operating System
2. Blynk
3. Webhook
4. Android Google Assistance

H/W Requirement

1. Node MCU
2. Relays
3. Connecting Wires
4. DC Motor Driver L293D
5. IR Sensors
6. DC Motors

V. Architecture

The structure Architecture of the system is given below :

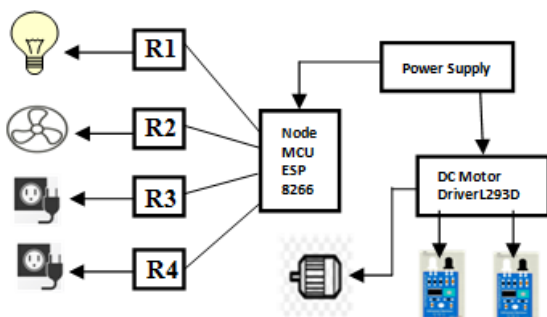


Fig1: System Architecture.

In above system architecture the neighbourhood equipment includes Node MCU and Arduino IDE. Arduino IDE is associated with MCUs and relay. Arduino IDE gathering information and all the home appliances are associated with the relay circuit. Relay is utilized to change over the power supply from low to high. Node MCU goes about as master and the arduino IDEs are go about as slaves. The server interfaces the system with the neighbourhood equipment and mobile smart devices. The final fraction is the mobile smart device operation Android operating system, such as smart superior mobile phone or tablet, on which the Android function software of the method is introduce to arrive at and agreement with the in home devices by way of the server. The Android application on the mobile smart device similarly gives its users an easy to use graphical crossing point to efficiently control the automatic at home appliances.

VI. Experiment Results: Hardware Implementation

Here, we first give 12v power supply to the IC 7805 through Adapter which provide 5v power to the Node MCU. The Node MCU is connected to the Relay Circuit through connecting wires for glowing the LED bulb and Rotating Fan. (2 Relay in use) From below fig.

Again Here, we give AC power supply to the remaining 2 relays of Relays Circuit. This 2 relays Are Connected to the External Socket 1 & Socket 2.

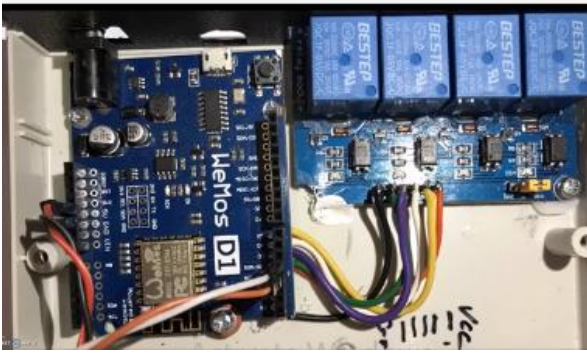


Fig 2 Android Google Assistance:



Hi, I'm your Google Assistant.
Tell me how can I help.
Listening...

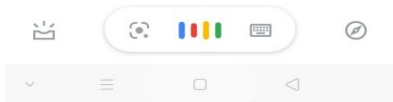


Fig 3 : Long Press Home Button For Google Assistant from Android mobile

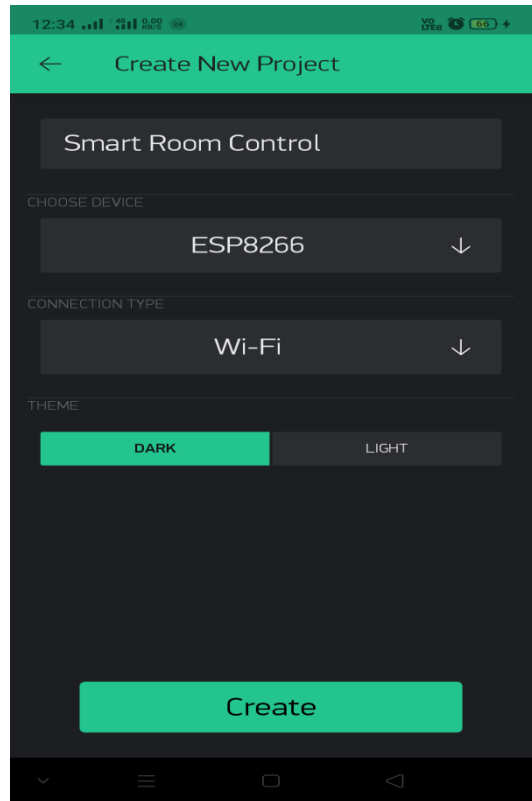


Fig 4: Smart Room Control using Node MCU. Blynk Mobile App which is use to interface Google assistant with Node MCU. Here we Create New Project with Available Devidce and Connection Type

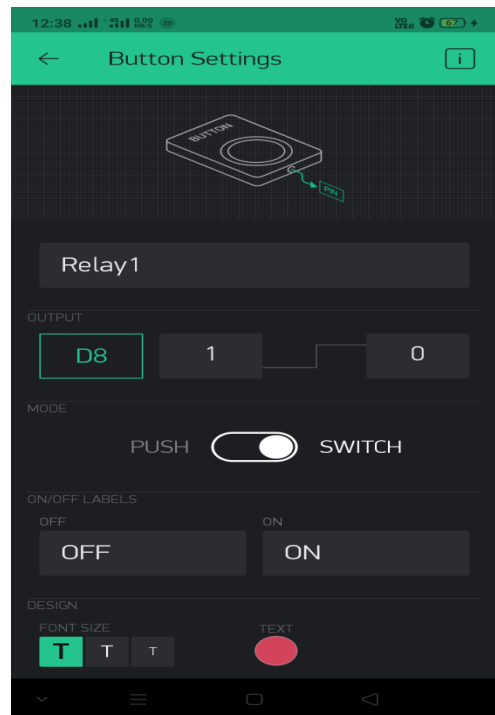


Fig 5: Here we Assign Button With Respect to Relay we use for eg Light, Fan & Sockets

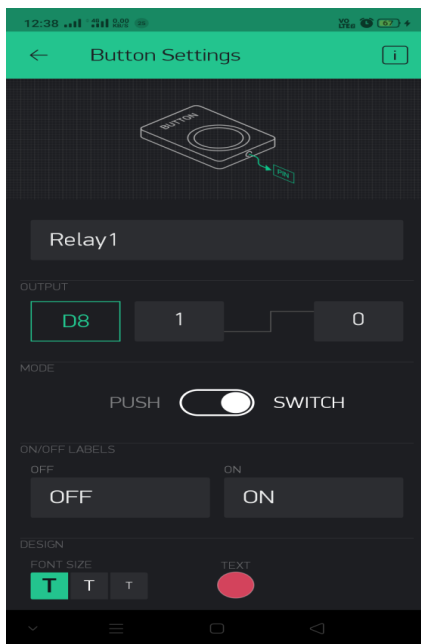


Fig 6: Final Operating Board for Smart Room Control using Node MCU

VII. CONCLUSION

IOT established smart home system will bring more handiness and easy to public lives. The android based smart home application communicates with the Node MCU via an internet. Any android promoted gadget can be used to set up the smart home application. Using android function as well as by Voice Command through Google Assistant user can control and monitor the smart home environment.

These home/Room automation systems are mandatory because sometimes human can forgot to switch off the appliances when there is no need to use and in this situation, the home automation structure is used to trim down the consumption of electrical energy.

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