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# Home Automation Using Google Assistance

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***Abstract:*** ***This document has an automation proposal using voice via Google Assistant. Home Automation or Domestic a household automation term invented by Jim Hill has been significantly evolved. The Apple Home Kit is also significantly more expensive, over $100 (USD) more than the Google Home for a basic setup. Philips Hue, a smart light controlled by Google Assistant, Amazon Echo and Siri, Apple's voice assistant, costs around $145 (USD). So overall we can see here that to make our home smart we have to invest a lot, say around $250 (USD) for a basic setup. What if we could automate our home indoors (Smartphone cost is not included as it's supposed to belong to every individual these days) $10 (USD) and you can control up to 8 devices at the Google assistant help? Well, this document describes the implementation of such a system.***
***Keywords: IOT, Nodemcu, Relay board, Google Assistance, IFTTT.***

## I. INTRODUCTION

Home is where you want or want to be after a long, hard day. People come home exhausted after a long, hard day's work. or the bed. Therefore, any small device/technology that helps them turn their lights on or off or play their favorite music etc. while travelling with their voice using their Smartphone will make their home more comfortable. It would be better if everything like heating the bath water and setting the temperature in the room could be done by voice command before you even get to your house. So when people came home, they found room temperature, bath water adjusted to their own preferences, and they could immediately relax and feel more comfortable and more at home. Human assistants like housewives have historically been a way for millionaires to keep their homes. Even now, if the technology is useful enough, only the wealthy people in society are blessed with these new smart home devices as the cost of these devices is a bit high. However, not everyone is rich enough to afford a human assistant or smart home kit. Therefore, the need to find a smart and affordable assistant for ordinary families keeps growing.

## II. METHODOLOGY

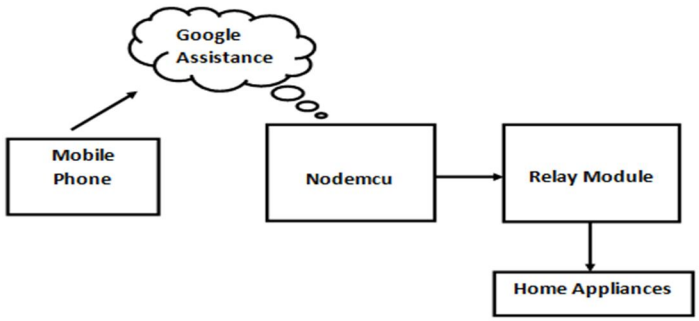



Fig. 1: Block diagram of Home Automation using Google assistance.

### *A. Components Details*

#### *1) Nodemcu*

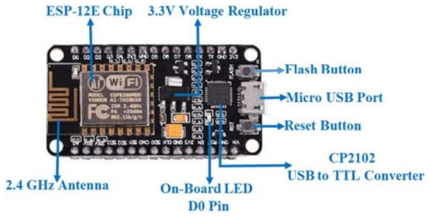



Fig. 2 Nodemcu.

The Nodemcu (Node Micro-Controller Unit) is ASCII text file software and hardware development atmosphere designed around a reasonable System-on-a-Chip (SoC) referred to as the ESP8266. "The ESP8266 i.e. Nodemcu designed and fabricate by Espressif Systems, It contains the crucial parts of a computer: CPU, RAM, networking (Wifi), and even a contemporary software system and SDK". The produces it a wonderful alternative for the web of Things (IoT) comes of all kinds. The Nodemcu has feature to communicate with website using API, The Nodemcu is specifications are as follows,

*a)* Nodemcu has inbuilt microcontroller "Tensilica",32-bit RISC CPU Xtensa LX106.
*b)* Operating Voltage: 3.3V.
*c)* Input Voltage: 7-12V.
*d)* Digital I/O Pins (DIO): 16.
*e)* Analog Input Pins (ADC): 1.
*f)* UARTs: 1.
*g)* SPIs: 1.
*h)* I2Cs: 1.
*i)* Flash Memory: 4 MB.
*j)* SRAM: 64 KB.
*k)* Clock Speed: 80 MHz.

Table 1: Pin configuration of Nodemcu [8]

| Pin | Code | Arduino alias |
|---|---|---|
| A0 | A0 | A0 |
| D0 | GPIO 16 | 16 |
| D1 | GPIO 5 | 5 |
| D2 | GPIO 4 | 4 |
| D3 | GPIO 0 | 0 |
| D4 | GPIO 2 | 2 |
| D5 | GPIO 14 | 14 |
| D6 | GPIO 12 | 12 |
| D7 | GPIO 13 | 13 |
| D8 | GPIO 15 | 15 |
| SD2 | GPIO 9 | 9 |
| SD3 | GPIO 10 | 10 |
| RX | GPIO 3 | 3 |
| TX | GPIO 1 | 1 |

*2) Relay Module*

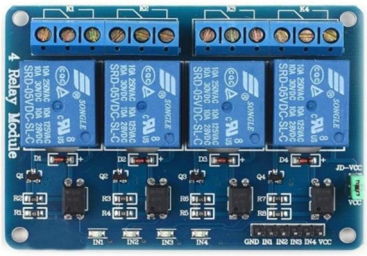



Fig. 3 Four channel relay module.

By default, this is a 5V relay module and uses jd-vcc for the relay power and is compliant with international safety standards, controls and load areas isolation trenches. "The four channel relay module has application to used for control various appliances and other types of home appliances with large current". The maximum output of the relay module is AC250V 10A and DC5V 10A.This 5V 4ch relay is ideal for microcontrollers compatible with arduino, AVR, PIC, ARM and so on.

*3) Adapter*



Fig 4: DC Adapter (12 volt).

This project is required DC power supply therefore we are using 12 volt adapter which can be give the 12 volt 1.5 ampere supply.

*4) Voltage Regulator IC 7805*

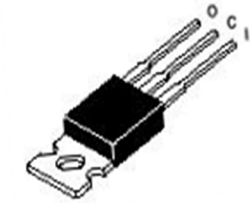


Fig. 5 Regulator IC 7805.

The above figure show the diagram of the regulator ic 7805 which can be used to give the output as 5 volt. This ic has 3 pins Vin, GND, Vout. In our project we are using all the components which work in 5 volt.

*B. Software Platform*

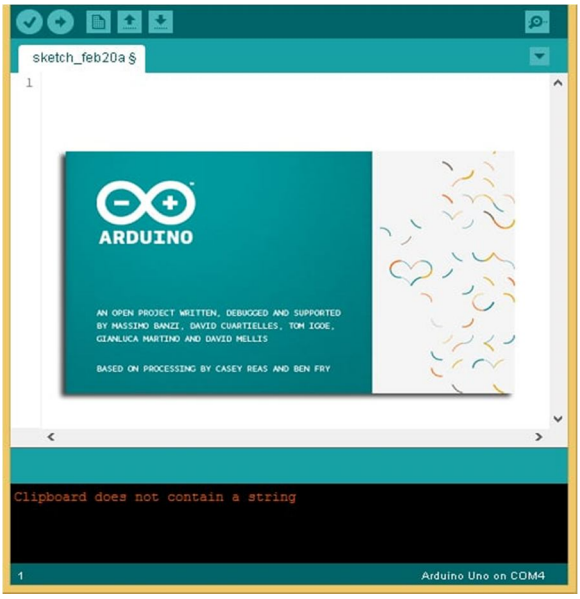



Fig. 6 Arduino IDE

The above figure show the platform of arduino IDE which is used to code the Nodemcu. This platform support few language i.e. C,C++. This software available open source. This platform providing us the different type boards which can be arduino UNO, Nano, Mega, Nodemcu, and many more.




Fig. 7 IFTTT Platforms and applets view.

IFTTT is obtainable as an internet site and mobile app for each iOS and robot device, and any automation you produce are available on all 3 platforms. It' compatible with over 650 brands and services - the list is exhaustive, however includes merchandise akin to Gmail, Dropbox, Slack, Uber, GE sensible appliances, Pinterest, Twitter, and Withings. By connecting these services with If This Then That statements, you create Applets, which are the automations that endure you within the background. Here are some samples of Applets you'll be able to create with IFTTT.

## III. WORKING OF PROJECT

In our project we implement Google support. This consists of some devices like Nodemcu, four channel relay module, 7805 regulator IC and adapter. The Nodemcu is our project microcontroller that is used to process the project and handle Android's Google commands. We are employed by IFTTT, which may provide us with the Google command processing service. And we use the adafruits library in our program to communicate with IFTTT and Nodemcu. On the basis of voice command the devices are ON and OFF.

The relay module is used for turn on and off the home appliances. We are using 4 channel relay so we can connect any four home appliances. In any case, as innovation progresses so rapidly, the normal individuals have prepared access to calculations that can do some really astonishing things. If you connect the customer's gadgets with client WiFi or other atchy devices, the customer's house continues to be gradually effective in heating, cooling, lighting, and good running.As manufacturers continue to make their products brighter, the possibility of reserve and security increases. The latest Home Partnerships and Smart Machines include more safety and efficiency features than models from a year ago.

## IV. ADVANTAGES

*A.* Inexpensive.
*B.* Accomplish Something Different.
*C.* More viable advancement conditions.
*D.* Adaptable Design and Enhanced Function.
*E.* Plentiful Learning Resources.
*F.* Advantageous Application Development.
*G.* Motivator program.
*H.* Low energy utilization.
*I.* Integrated help for WIFI organization.
*J.* Reduced size of the board.

## V. APPLICATIONS

The applications are as given below.

*A.* Prototyping of IoT gadgets
*B.* Low power battery worked applications Network projects.
*C.* This project use in home as well as in offices.

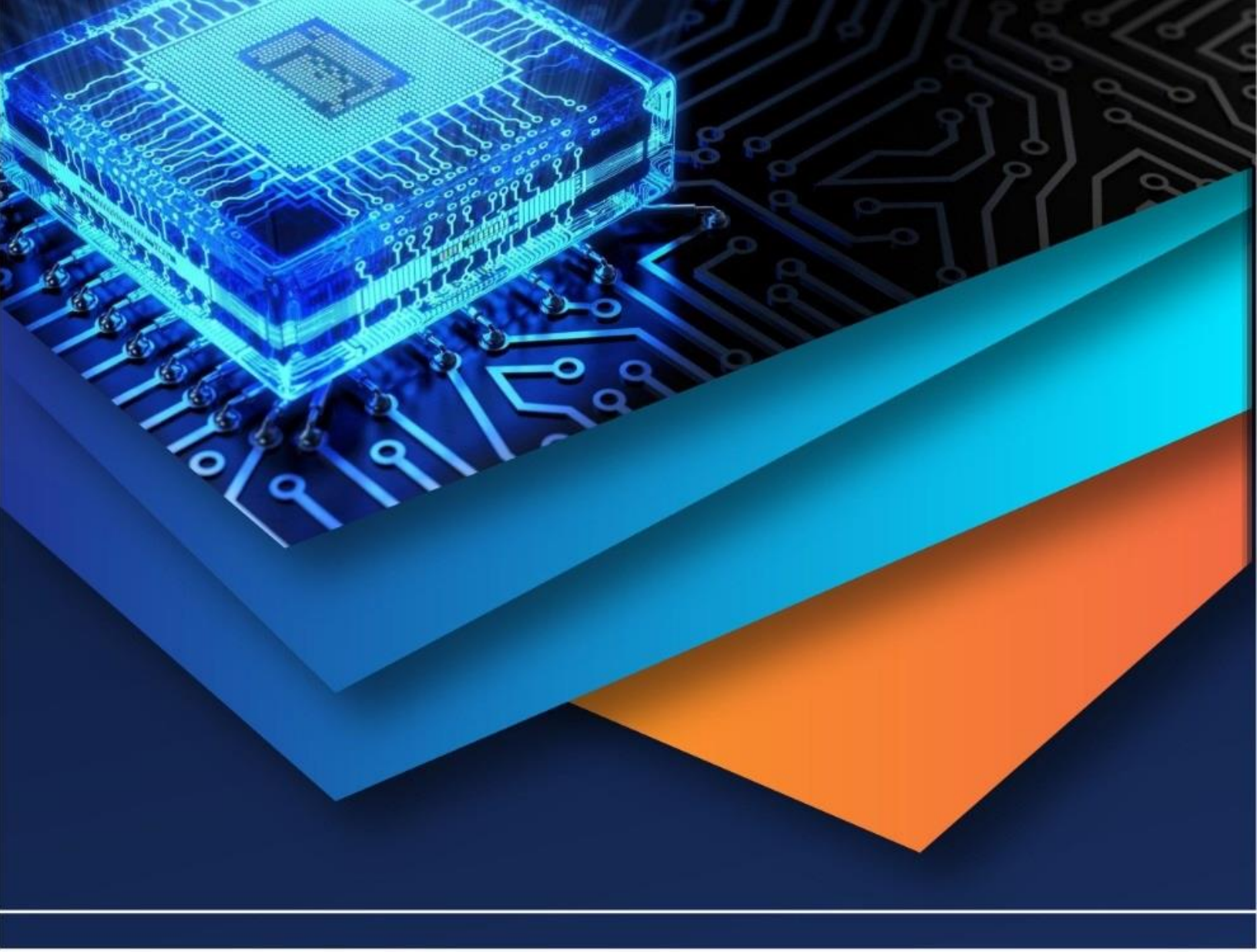
## VI. CONCLUSION

In this paper we tend to are implementing and style sensible home automation victimization Google assistance. the purpose of the task to propose a price productive voice controlled (Google Assistant) home mechanization dominant general apparatuses found in one's home. The methodology talked concerning within the task was fruitful and also the structure is actual effectively. This framework is deeply solid and productive for the matured in- dividuals and distinctively ready individual on a wheel seat who can't make the switch for the covering ON/OFF the contrivance and are dependent on others.

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