Home Automation using Google Voice Assistance with Raspberry Pi

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ABSTRACT

Home automation popular in day to day to number of advantages. In previous and current we monitor the home appliances remotely by emails or text messages. This paper gives an innovative idea of controlling the home appliance using with Google voice assistance by using the Raspberry Pi. As a server system Internet of Things (IoT) links smart objects to the internet. It can enable exchange of data in a more secure way. Rapid adaptations of Smart City and Internet of Things technologies are assisting in urban planning to ensure sustainable cities and lifestyles. Life is made simpler and more productive through IOT. As the Wi-Fi hotspots are increasingly becoming common in the recent times, the existing infrastructure can be used to develop a cost-effective solution to enable the existing appliances with IOT Raspberry Pi is single board computer (SBC) is proposed in this paper to Raspberry pi known as a Single Board Computer (SBC) is proposed in this paper to reach these goals. The voice commands will give to Raspberry PI using Google voice assistance. These commands will control the any appliances or devices at home. This will provide a better communication in automated home as compared to normal homes.

Keywords: IoT, WI-FI, Raspberry Pi.

I. INTRODUCTION

In this cutting-edge time, computerization of everything is the need of great importance Automation is the utilization of control frameworks and data innovation to manage gear, modern hardware, and procedures, limiting the requirement for human inclusion. Computerization assumes an inexorably imperative job in the worldwide economy and in step by step experience. Architects work to connect mechanized gadgets with scientific and hierarchical devices to make complex frameworks for quickly growing parameters of uses and human exercises. For the improvement of keen urban areas,

there is a need to robotize everything, so the idea of brilliant home mechanization framework is a thought which is utilized to make the city shrewd. A Smart Home is one that gives solace, security and gives the sentiment of home to house individuals. Shrewd homes likewise give Energy proficiency (low working expense) and comfort consistently, for each person at home. Home computerization implies the checking and control of family unit protests insightfully for powerful use. The family questions ought to be astutely interconnected and also give data to better tasks. Home computerization increased with the Internet of Things (IoT) gives better adaptability in overseeing and controlling family unit questions in

a more extensive perspective. This will bolster the interconnectivity of countless homes for better asset usage in more extensive zone.

II. EXISTING SYSTEM

In the existing system, home appliances are controlled through Bluetooth, Zigbee and other devices. But they are limited to certain area. To overcome this problem, we are moving to the proposed system.

III. PROPOSED SYSTEM

In the proposed system we are control home appliances using Raspberry Pi with Google assistance in mobile. We can give command to the Google assistance according to that command's loads will turn on or turn off. The user can have access to operate the loads from anywhere in the world.

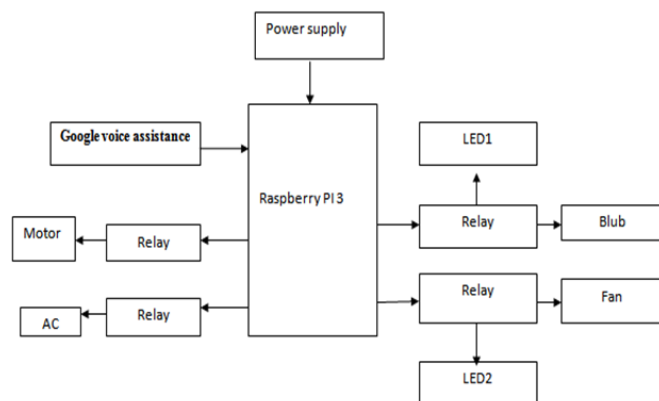## IV. METHODS AND MATERIAL

BLOCK DIAGRAM

Figure 1 : block diagram of the system

HARDWARE REQUIREMENTS

a) Raspberry Pi 3

The Raspberry Pi is an ATM card sized PC that fittings into your TV. It is a fit little PC which can be used as a piece of equipment wanders, and for an extensive part of the things that your work zone PC does, like spreadsheets, word-getting ready and diversions. It likewise plays superior quality video. We need to see it being utilized by kids everywhere throughout the world to figure out how PCs function, how to control the electronic world around them, and how to program.

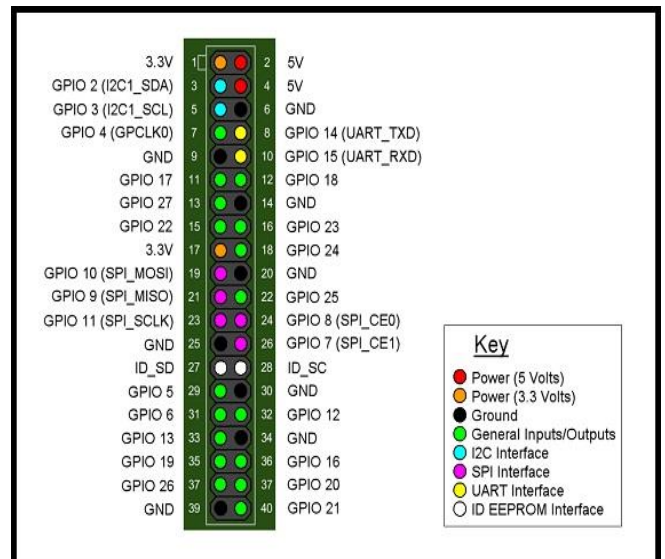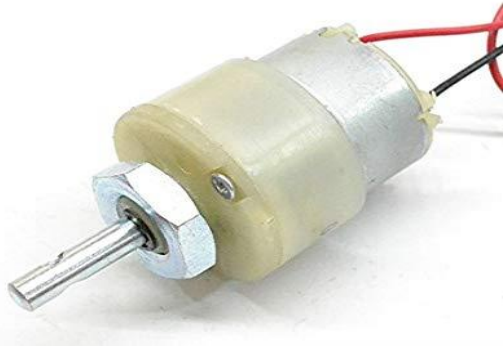**Figure 2 :** Raspberry Pi3 module

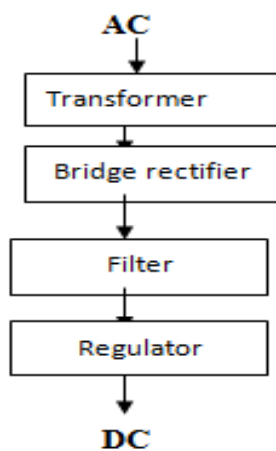**Figure 3 :** Pin layout of raspberry Pi GPIO used in system

d) Motor

Electrical DC Motors are continuous actuators that convert electrical energy into mechanical energy. The DC motor achieves this by producing a continuous angular rotation that can be used to rotate pumps, fans, compressors, wheels, etc.
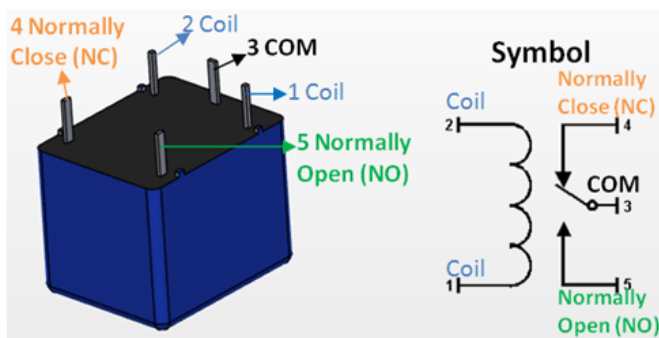
Figure 4 : DC motor

b) **Power Supply**

Figure 5 : Flow chart of power supply

c) **Relay**

Relay is electromagnetic switch that open or close the switches electrically or electromechanically. Relay is mostly used to switch smaller circuits.

Figure 6 : Relay

SOFTWARE COMPONENTS

a) Raspbian OS

Raspbian OS is such of the no buts about it operating systems at hand without electronic commerce a dime to transform and use. The apparatus is chiefly based on Debian Linux and is optimized to employment effectively by the whole of the Raspberry Pi laptop. As we erstwhile know an OS is a reside of integral packages and utilities that murmur a indisputable hardware, in this position the Pi. Debian could be literally lightweight and makes a amazing in a class all by itself for the Pi. The Raspbian includes tools for surfing, python programming and a GUI computing device.

WORKING PRINCIPLE

We are using Raspberry PI to control the appliances in the home through wireless Communication. The Appliances in the Home are controlled through Google assistance through the Wi-Fi Connectivity. ON/OFF instructions are given through Wi-Fi present in the user Mobile, the Data Transfers from mobile phone to Module and then instruction is further given to the Controller and thus the loads are operated.

V. RESULTS AND DISCUSSION

APPLICATIONS

  ➢ Used in homes,
  ➢ offices,
  ➢ industrial areas etc.,

ADVANTAGES

  ➢ Smart and secure.
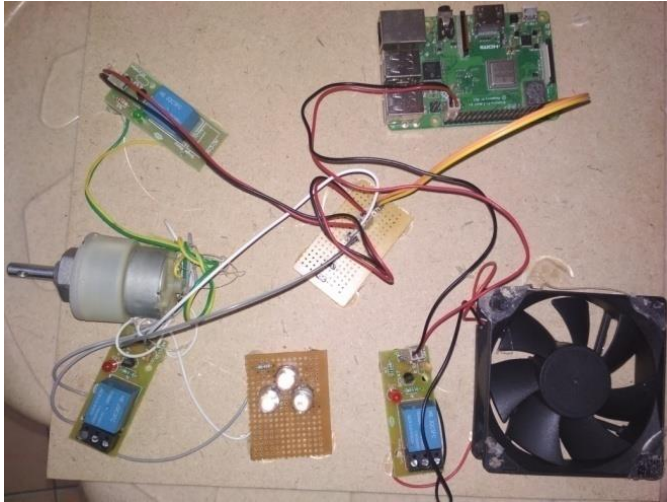 ➢ Controlling home appliances from anywhere in the world.

RESULTS

Figure 7 : Hardware design of the project

Figure 8 : Google voice assistance for light on

Figure 9 : Google voice assistance for light off

to keep the city clean by informing about the garbage levels of the bins by providing graphical image of the bins via IOT Php web development platform.

VI. CONCLUSION

Home automation integrates any electrical devices and in houses each other. In this paper we implemented home appliances (fan, electric tubes, refrigerator and washing machine) control using Google voice assistance with help of raspberry Pi.Development of such Smart Home achieve by using Internet of Things technologies. This system is low cost and more reliable.

VII.REFERENCES

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