Smart Home Assistant Using RPI

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Abstract
A home automation project can be made possible by giving voice commands through Alexa. Alexa is capable of voice interaction, music playback, making to do lists, setting alarms, streaming podcasts, playing audio books, and providing weather, traffic, and other real time information. Alexa can also control several smart devices using itself as a home automation hub. We will use on this project, the "raspberry Pi", that uses Alexa services which allows users to activate the device using a wake-word (such as "Alexa"). In the home automation , Alexa can interact with several different devices.

1. INTRODUCTION

Today the technology is getting improved and used for the ease in our day to day life. The life is getting automated for the simplicity, security, saving electricity and time. Home automation can be done without human efforts. In home automation we can control the devices which can be ON and OFF with a single switch like fans, tubes, air conditioner, security of door lock system, also the sensor helps water level monitoring and saves electricity. It provides convenience, comfort, security and saves energy.

2. LITERATUREREVIEW

This paper provides a low cost-effective and flexible home control and monitoring system with the aid of an integrated micro-web server with internet protocol (IP) connectivity for access and to control of equipment and devices remotely using Android-based smartphone app. The proposed system does not require a dedicated server PC with respect to similar systems and offers a new communication protocol for monitoring and controlling the home environment with more than just switching functionality. Smart home interfaces and device definitions to ensure interoperability between Wi-fi devices from various manufacturers of electrical equipment, meters and smart energy enables products to allow manufactured. In this project gives the intelligent operation for lamps and fans. Here the system is connected with temperature control and lamp control. Light dependent resistor

(LDR) and Temperature sensor (LM35) are the main components for this automatic control of lamps and fans. Here the LDR is responsible for lamp control and LM35 is responsible for controlling the operation of fan. The proposed home energy control systems design intelligent services for users and provides, The proposed system are implemented with smartphone

Wi-fi is controlled by using a Blink android application instead button method. Here only needs to touch the button in Blink android application to control the electrical equipments in on and off conditions. So here Blink android application is used as a transmitting device and indult Wi-fi module placed in the electrical equipments is used as a receiver. Blink android application will transmit command using Wi-fi to the electrical equipments so that it electrical equipments depend up on the required condition

Home automation evolution starts with some basic ideas. It minimizes the human efforts and it can be deployed in a lot of fields like military, surveillance application is developed in the modern world. Now a day's Home automation is developed by using Wireless technology. Wireless technology in Home automation starts with Bluetooth, WI-FI, and Zigbee Communication. Based on the Requirement and Application they deployed the communication in Projects. And we have numerous android Applications in Play store to control a Home automation. Blink is a Popular App used in this Project it has a lot of Features like buttons, gauges, Sliders and Plotting Features also. By using Wi-Fi technology we can connect a greater number of Home automation to control it very useful for surveillance application. Now a day's Indoor localization Technologies are developed on that case also we can deploy this type of Wi-Fi-controlled Home automation

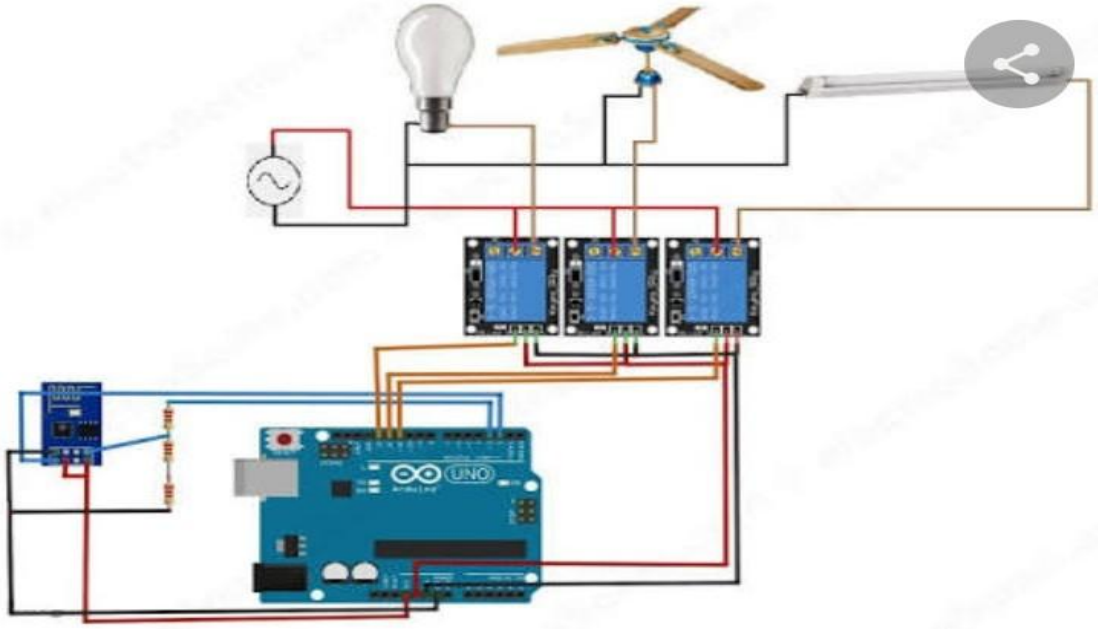

Fig.2 Existing System

3. PROPOSED SYSTEM

Here we propose an automated home automation that works on speech processing. System eases the home automation task by listening to user's speech and switching appliances as per user spoken commands. Here we use a micro phone to record user's speech and transfer these commands to the Raspberry Pi through our circuitry. The Pi processor now processes user's speech to extract keywords related to load switching. It analyses the sentence of user to check if user said a command to switching of loads in his speech. If the system detects a command in user's sentence, it analyses which load is referred to and what command is issued. On processing of user spoken keywords the board operates a relay based circuit to switch loads on/off. The relay based circuit is used to switch AC supply loads easily using user commands.

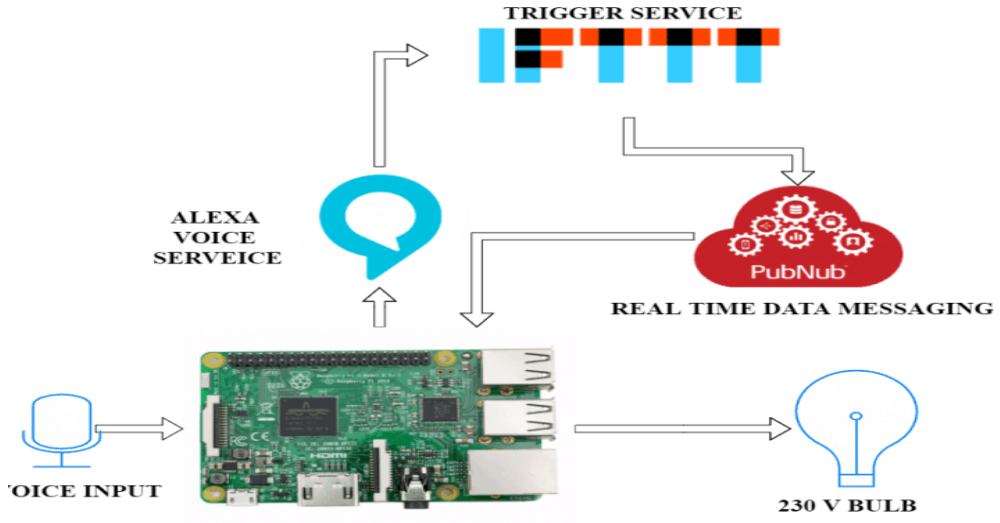

Fig.3 Proposed System

Have you ever thought about a speaker which can be controlled by your voice!!! What if we can control our home appliances this way and make these appliances smarter? Voice assistants becoming more popular as we are heading towards an era of AI and IoT based systems. You have heard about *Google Assistant, Apple Siri and Amazon Alexa*.These all are Voice based AI systems, what makes these different from each other is their ecosystems, and this is where Amazon Alexa standout the most. Google, Apple and Amazon, all these companies already launched their Echo Dot Spot, etc. are the smart speakers which are available in market.

Amazon provides the API for using its much popular voice service, Alexa. It is open source and available on Github. Further you can install or integrate Alexa on custom devices like Raspberry Pi and get the full Amazon Echo functionality in that device. Using Alexa voice service, we can play music, get information about weather, book tickets and many more. All you have to

do is ask. In previous tutorial we have controlled Raspberry Pi GPIO using Amazon Alexa. In this tutorial, let's see how to build a voice controlled home automation system using Amazon Alexa and Raspberry Pi. We will see how we can use Raspberry Pi to run the Alexa Voice Service and control a Light Bulb

4.CONCLUSION

Hence machine-controlled workplace could be a place with all the automation created to cut back the ability consumption and to create it economical to figure. Alexa Voice Services build the workplace a lot of fascinating and useful with an introduction to the automation. Voice controlling automation creates the working environment more virtual and imaginative, which ease to work also reduce the time consumption.Parameters and learning about the dynamic reconfiguration. With the help of the robot operating system and, in particular, the TurtleBot 3 robot, we can now establish a solid foundation for subsequent research and development. In the future, it ought to be possible to utilize additional information sources like a camera or an ultrasonic sensor, combine the data that has been collected, and attain even higher performance outcomes. A cross-section of the TurtleBot 3 can be seen here through our Munich office space.

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