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Personal Assistant and Intelligent Home Assistant via Artificial Intelligence Algorithm Using Raspberry Pi

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ABSTRACT: “Personal Assistant “the word itself means assistant working exclusively for one particular person. The major purpose of any automation system or artificial system is to reduce human labour , effort, time and errors due to his/her negligence . The major goal of this project is to design and implement a Personal Assistant and Intelligent Home Assistant in a same device (via world –wide-web) or even any mode of Internet-Access, which gives the ability to control your home appliances and to perform task or service for an individual. These tasks or may be services are based on user input, on location and also the ability to access information from variety of online sources. Various sensor based control for this application is being added to improve the security and also the ability to make more accurate decisions

KEYWORDS: HOME AUTOMATION, PERSONAL ASSISTANT, RASPBERRY PI, NODE MCU, IOT.

I. INTRODUCTION

The “Artificial Intelligence” is the study of how to make computers to do things which at the moment people do better . Now, an intelligent assistant is one kind of automation system which can assist a person’s home as well as his/her home. This can identify the mode of internet access easily which means the internet can be [even a hotspot/Wi-Fi] of any kind. As, the growth of personal computers, high speed internet, mobile phones lead to access any kind of information and can take control of any sort of appliances (home appliances). Managing personal life and home appliances are two different vigorous process. To take both vigorous process into a single one and also to increase the security and assist an individual personally AI algorithms is useful. This allows someone to make his/her house an active partner and also his/her own personal information in managing busy life.

The aim of this project is to give an overview about raspberry pi based on intelligent systems and also to use voice control to control home appliances and personal life from anywhere in the world.

II. RELATED WORK

In [1] author deals with discussion of different intelligent home automation systems and technologies from a various features stand point. The effort targeted on the home automation concept of where the controlling and monitoring operations are expediting through smart devices. Wide-ranging home automation systems and technologies considered in review with central controller based (Arduino or Raspberry pi), cloud-based, Bluetooth-based, SMS based, Zig Bee based, mobile-based, RF Module based, web based and the Internet with performance. In [2] author deals with the application of iPhone is “SIRI” which helps the end user to communicate end user mobile with voice and it also responds to the voice commands of the user. Same kind of application is also developed by the Google that is “GoogleVoice Search” which is used for in Android Phones. But this Application mostly works with Internet Connections. But our Proposed System has capability to work with and without Internet Connectivity. It is named as Personal Assistant with Voice Recognition Intelligence, which takes the user input in form of voice or text and process

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it and returns the output in various forms like action to be performed or the search result is dictated to the end user.

III. PROPOSED WORK

The proposed system is such that it can overcome the drawback of the existing system. The project design involve text to speech. Here whatever the system receives as input after the command the output will get in the form of voice means speech

IV. BLOCK DIAGRAM

Block Diagram of Personal Assistance:

In the Personal Assistant a user can send a voice command through USB MIC .When voice is being given as input, the microphone present in the raspberry pi circuit converts the signal into electric signal and then it is being given to the speech recognition module and the information is taken through the Wikipedia or email etc., and sends to the amplifier which amplifies the low signal to high signal. The output will come in the form of voice. The block diagram of Personal Assistance is as shown in the fig1.

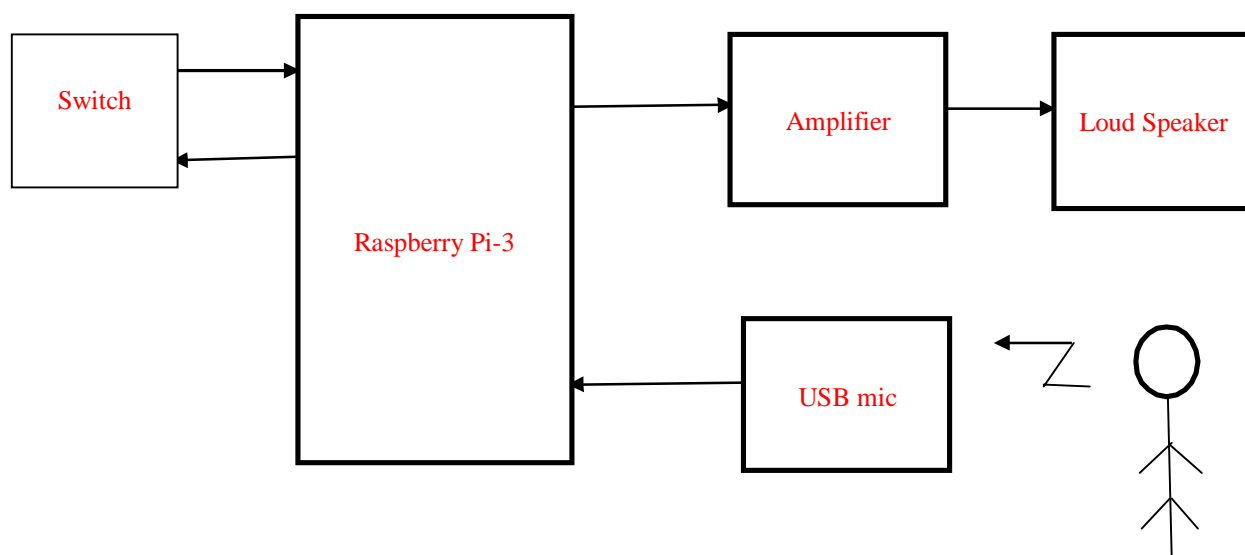


Fig 1: Block Diagram of Personal Assistance using Raspberry Pi

Block Diagram of Home Automation:

The major of the speech recognition module is to convert the analog signal into the digital signal and then the signal will be transferred to the system. Then the system will take decision to win on/off any devices with the help of relay based power control module.

The raspberry pi allows to store the current status of all the appliances into a file and store them in server (this will act as an database). When, the user turns on the mobile app which shows the current status of the appliances. The user can turn on/off by sending a message using certain keyword or by pressing the button in the application. The ESP 8266 WI-

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FI module is in built to the NODE MCU. IOT is used as a third party app. The block diagram of home automation is as shown in the fig2.

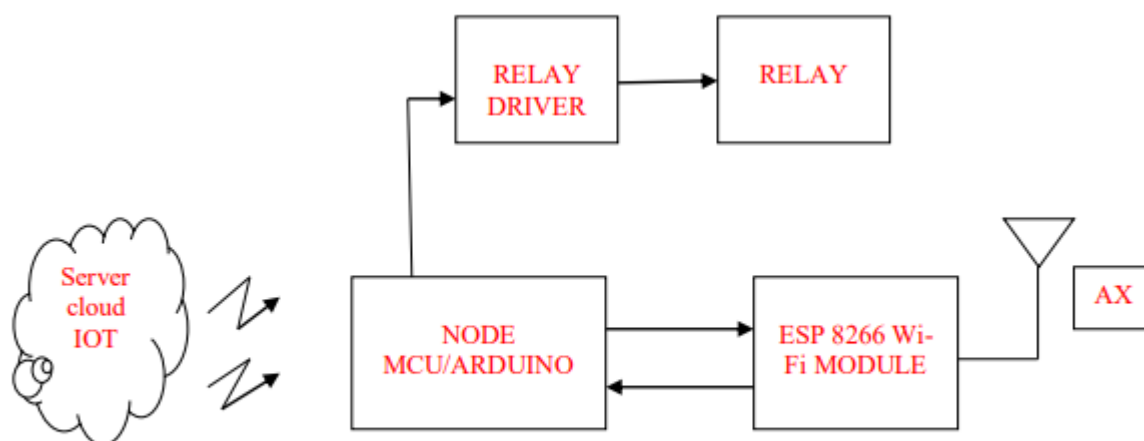


Fig 2: Block Diagram of Home Automation.

V. CONCLUSION

The proposed system is very useful for each and every human being. Mistakes are being done by each and every human being often. This will act as an error reducer for each and every human artificially. Mostly, useful for physically challenged persons who are not able to do various activities efficiently even to do small works they need assistance and also many accidents like fire, short circuit in home can be found easily.

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