CHAPTER 1

INTRODUCTION

Artificial Intelligence when used with machines, it shows us the capability of thinking like humans. In this, a computer system is designed in such a way that typically requires interaction from human. As we know Python is an emerging language so it becomes easy to write a script for Voice Assistant in Python. The instructions for the assistant can be handled as per the requirement of user. Speech recognition is the Alexa, Siri, etc. In Python there is an API called Speech Recognition which allows us to convert speech into text. It was an interesting task to make my own assistant. It became easier to send emails without typing any word, Searching on Google without opening the browser, and performing many other daily tasks like playing music, opening your favorite IDE with the help of a single voice command. In the current scenario, advancement in technologies are such that they can perform any task with same effectiveness or can say more effectively than us. By making this project, I realized that the concept of AI in every field is decreasing human effort and saving time.

As the voice assistant is using Artificial Intelligence hence the result that it is providing are highly accurate and efficient. The assistant can help to reduce human effort and consumes time while performing any task, they removed the concept of typing completely and behave as another individual to whom we are talking and asking to perform task. The assistant is no less than a human assistant but we can say that this is more effective and efficient to perform any task. The libraries and packages used to make this assistant focuses on the time complexities and reduces time.

The functionalities include , It can send emails, It can read PDF, It can send text on WhatsApp, It can open command prompt, your favorite IDE, notepad etc., It can playmusic, It can do searches for you, It can open websites like Google, YouTube, etc., in a web browser, It can give weather forecast, It can give desktop reminders of your choice. It can have some basic conversation. Tools and technologies used are PyCharm IDE for making this project, and I created all py files in PyCharm. Along with this I used following modules and libraries in my project. pyttsx3, Speech Recognition, Date time, Wikipedia, Smtplib, pywhatkit, pyjokes, pyPDF2, pyautogui, pyQt etc.

Functionalities of this project include:

1. It can send emails.
2. It can read PDF.
3. It can send text on WhatsApp.
4. It can open command prompt etc.
5. It can play music.
6. It can do Wikipedia searches for you.
7. It can open websites like Google, YouTube, etc., in a web browser.
8. It can give weather forecast.
9. It can give desktop reminders of your choice.
10. It can have some basic conversation.

OBJECTIVE

Desktop Voice Assistant with home assistant is to create a home automation system that performs all basic functions of a virtual assistant like telling the time, date, temperature and also controlling the electrical home appliances that is connected to. The entire system is aimed to be voice operated so that there is no need to type anything at all. The main objective is developed for making everyday life of a user easy. Getting things done without actually having to make an effort to do is the main motto.

CHAPTER 2

PROBLEM STATEMENT

As we know each human have their own characteristics and every developer applies his own method and approaches for development of a product. One assistant can synthesize speech more qualitatively, another can more accurately and without additional explanations and corrections perform tasks. others are able to perform a narrower range of tasks, but most accurately and as the user wants Therefore, there is no such assistant that can perform all the work and tasks equally.

Remotely controlling system in home appliances is not that useful for elderly and disable people. This is because they might be illiterate which they don't understand about the words that label in the remote control Besides, if someone having eyes sight problem, they not able to read the small label that stick in the remote control Thus, using voice controlling system will be the best way to solve those people and it able to make them control the home appliance more easily. Due to the physical device able to place in different height or position, the wireless voice controlling system is being implemented.

CHAPTER 3

REQUIREMENTS

- **HARDWARE REQUIREMENTS**
  - Processor :8th Gen Intel(R) core(TM)
  - RAM : 8.0 GB
  - Processor Speed :2.30GHz 2.30GHz

- **HARDWARE COMPONENTS**
  - Arduino UNO Micro controller
  - 4-ChannelRelay module
  - Bread board
  - DHT 11 Temperature Sensor

- **SOFTWARE REQUIREMENT**
  - Operating System : Windows 10.
  - Editor :Visual Studio Code, Arduino Software.

CHAPTER 4

LITERATURE SURVEY

E.Elakkiya et al 2004-In this paper Home automation is a modern technology that modifies our home to perform different sets of tasks automatically. It guarantees security, surveillance, automation of devices for the user to make their life more comfortable. In the proposed method, the voice recognition and web app are used to control the functioning of the electrical appliances like fan and light. A small-scale prototype is also implemented for intrusion detection and web app using Raspberry pi. This method is integrated with wireless home automation system and it sends email alert to the respective user. The face recognition is done for the security features for the purpose of identifying the unauthorized person. [1]

Mr. Kalyan Chenumalla et al. 2019-In this paper the idea behind Google assistant-controlled Home automation is to control home devices with voice. On the market there are many devices available to do that, but making our own is awesome. In this project, the Google assistant requires voice commands. Adafruit account which is a cloud based free IoT web server used to create virtual switches, is linking to IFTTT website abbreviated as "If This Than That" which is used to create if else conditional statements. The voice commands for Google assistant have been added through IFTTT website. In this home automation, as the user gives commands to the Google assistant, Home appliances like Bulb, Fan and Motor etc., can be controlled accordingly. The commands given through the Google assistant are decoded and then sent to the microcontroller, the microcontroller in turn control the relays connected to it. The device connected to the respective relay can be turned On or OFF as per the users request to the Google Assistant. The microcontroller used is NodeMCU (ESP8266) and the communication between the microcontroller and the application is established via Wi-Fi (Internet). [2]

M. HANSSON et al. 2014 -In this paper This report details the development process for a voice-controlled–home-automation system. Manually controlling various devices found in one's home might be tiresome and for others nigh impossible. This system is able to ease a user's interaction with home equipment by providing a new, easy to use, interface. The initial

phase of the development involved surveying the current field by conducting studies on speech-recognition software and the needs of potential users. These studies provided a foundation for the prototype requirements that acted as the goal for the implementation phases that followed. The report also presents the finished prototype, which is a system capable of interpreting speech as commands. These commands can be formulated in several different ways to make the interaction more natural. After a command has been interpreted an appropriate action is taken on the correct home equipment. In order to control a number of different equipment the control is achieved through radio-controlled outlets. The use of outlets enables the prototype to control most equipment that is controlled with on and off switches. The prototype can also be used with a graphical user interface for any case when the user has problems using his voice. [3]

E. A. Nyiekaa1 et al. 2020 -In this paper System automation is a trending research area in the 21st century considering its important role in our daily lives. The main importance of an automated system is the fact that it reduces human stress and error. There has been a sudden shift from the normal switches to the remote based control switches in recent times. Presently, conventional wall switches located in different parts of the house makes it difficult for operation more especially the elderly and physically challenged people. Technological advancement has made it easier and necessary that every human being should own a mobile smart phone. Applications are being developed on Android systems that are useful in various ways. Another upcoming technology is natural language processing which enables the command and control of systems using voice. This research work presents a Micro Controller-based Voice Control Automation System using Android Smartphone. This system can enable users to have absolute control over every appliance in the house using their voices. The control circuit consists of an Arduino Uno microcontroller, which processes the user commands using voice via android smartphone which is installed with 'AMR voice' application. The relay controls the switching of devices while the Bluetooth Module shares signal data having establish a wireless connection between the microcontroller and the smartphone. [4]

Sonali Sen et al. 2015 In this paper Automation is a trending topic in the 21st century making it play an important role in our daily lives. The main attraction of any automated system is reducing human labour, effort, time and errors due to human negligence. With the

development of modern technology, smart phones have become a necessity for every person on this planet. Applications are being developed on Android systems that are useful to us in various ways. Another upcoming technology is natural language processing which enables us to command and control things with our voice. Combining all of these, our paper presents a micro controller based voice controlled home automation system using smartphones. Such a system will enable users to have control over every appliance in his/her home with their voice. All that the user needs is an Android smartphone, which is present in almost everybody's hand nowadays, and a control circuit. The control circuit consists of an Arduino Uno microcontroller, which processes the user commands and controls the switching of devices. The connection between the microcontroller and the smartphone is established via Bluetooth, a widespread wireless technology used for sharing data. [5]

Mr. G. Chenna Keshava Reddy1 et al. 2021 This paper framework utilizing Artificial Intelligence to control home appliances using google voice assistance. Home automation or domotics a term for home automation coined by Jim Hill has been evolving drastically. We saw many home automation technologies introduced over these years from Zigbee automation to Amazon Echo, Google Home and Home from Apple. It has become a craze these days. Our main aim is to automate our house within less cost unlike other modules like Alexa echo dot and can control up to 8 appliances using Google Assistant. In this system we have 2 AC loads (Bulb or Fan) connected to the microcontroller by 2 relays. When we send a voice command or a text command through the Google Assistant the command is received by the microcontroller through the Wi-Fi module. [6]

K AmrithaVarshini et al. 2020 -In this paper Technology has brought everything to happen in the hand. We are using technologies to controlling and monitoring electrical appliances using voice control app with the help of internet connection. so it gives a more space at a home, university and industrial controlling electrical appliances anywhere in the world. By using nternet of things we can control many devices such as light, power plug, Fan, computer, security system and etc. It will reduce human effort and power efficiency. A home appliance is a device or instrument designed to perform a specific function, especially an electrical device, such as a refrigerator, for household use. The words appliance and devices are used interchangeably. Automation is today's fact, where things are being controlled automatically, usually the basic tasks of turning ON/OFF certain devices and beyond, either

remotely or in close proximity. But the fact is monitoring less devices and safety is less. More power consumption. So we have use automation with less power here we proposed a system That consist of a computer server with internet connection, an IOT Ethernet shield used to connecting the server to the external network, There. An Arduino microcontroller with a hardwired application connected to the devices. The prototype system supports two-level devices that only need to be switched on or off. An IOT based home automation system focuses on controlling home electronic devices whether you are inside or outside your home. Save the electric power and human energy. [7]

CHAPTER 5

METHODOLOGY

The data in this project is nothing but user input, whatever the user says, the assistant performs the task accordingly. The user input is nothing specific but the list of tasks which a user wants to get performed in human language. In this method, a prototype is designed to monitor and control the home appliances and security over the web application and also through voice recognition.

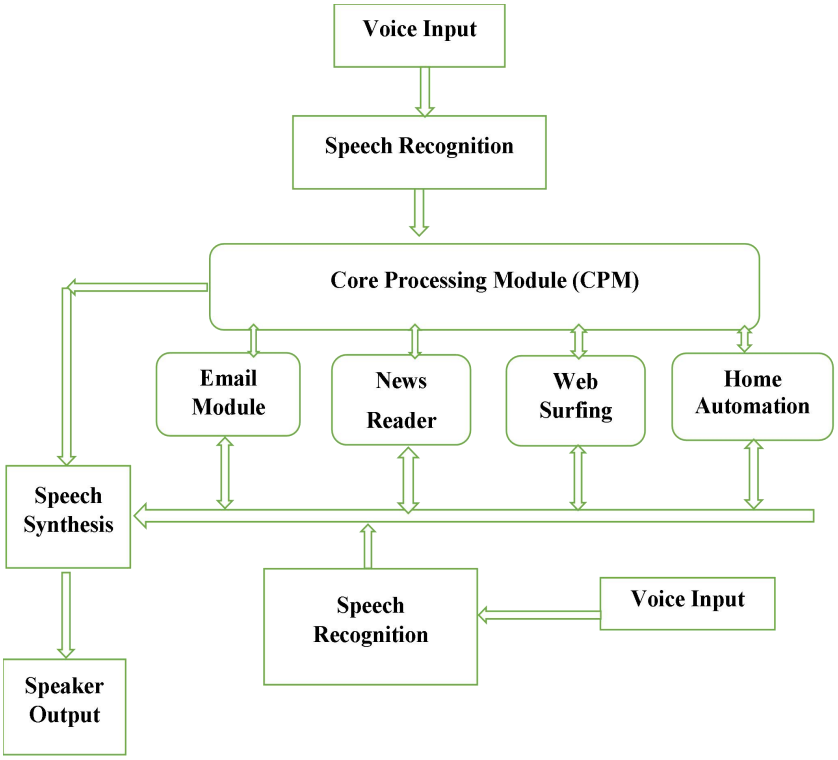

Fig.1: Block Diagram of the proposed system

Home automation is a modern technology that modifies our home to perform different sets of tasks automatically. It guarantees security, surveillance, automation of devices for the user to make their life more comfortable. In the proposed method, the voice recognition is taken as input to control the functioning of the electrical appliances like fan and light, also web application is developed to control the appliances from remote area by using natural language. This detection system is integrated with wireless home automation system and it sends email alert to the respective user. Face recognition is also done for the security purpose for identifying the unauthorized person.

CHAPTER 6

CONCLUSION

Our desktop voice assistant is a very helpful voice assistant without any doubt as it saves time of the user by conversational interactions, its effectiveness and efficiency. Voice assistants have had a huge change in user' s interaction with technologies embedded in their devices. Like any other technology of such magnitude, they have altered the basic genome of the sphere in which they operate. While this has largely created a better world with drastic benefits for communities, which were before kept in dark with reference to technological innovations, they have posed new kind of threats with respect to user's privacy and security.

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