

# **ALICIA: The Personal Windows**

Assistant

Submitted by,

Sanjana Kundu

(Roll: 193313110028

Reg: 313-1212-0330-19)

*in fulfillment of the award of the degree of*



Under the supervision of

**Mrs.Sonali Gupta**

**Mrs.Kajari Bhattachajee**

**Mrs.Sreejita Chakrabarti**

Gurudas College

Department of Computer Science

Of Calcutta

Kolkata, India



## **CERTIFICATE**

***This is to Certify that the research project entitled***

***ALICIA: The Personal Windows Assistant***

*is a bonafide record of the work done by Sanjana Kundu, Roll: 193313-11-0028, Registration: 313-1212-0330-19 under our supervision, in fulfillment of the requirements for the award of Degree of Bachelor of Science (Honours) with specialization in Computer Science from Gurudas College, the University of Calcutta in the year 2022, at the examination under CBCS semester system.*

---

**Prof. Sonali Gupta**

***Project Guide***

*Department of*

*Computer Science*

*(Gurudas College, CU)*

---

**Prof. Kajari Bhattacharya**

***Project Guide***

*Department of*

*Computer Science*

*(Gurudas College, CU)*

---

**Prof. Srijeeta Chakrabarti**

***Head of Department***

*Department of*

*Computer Science*

*(Gurudas College, CU)*

Date:

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I would also like to thank **Prof. Srijeeta Chakrabarti**, Head of the Department of Computer Science, for providing a good environment and facilities to work on this project.

I regret any inadvertent omissions.

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Sanjana Kundu.

CU Roll: 193313-11-0028

*Semester VI (Hons.)*

*Gurudas College*

*Calcutta University,*

*Kolkata – 700 054*

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## **ABSTRACT**

The project aims to develop a personal-assistant for Windows-based systems. Alicia draws its inspiration from virtual assistants like Cortana for Windows, and Siri for iOS. It has been designed to provide a user-friendly interface for carrying out a variety of tasks by employing certain well-defined commands. Users can interact with the assistant with their laptop's microphone/console. The response generated by the assistant will display on the console or as a speech via the speaker. As a personal assistant, Alicia assists the end-user with day-to-day activities like general human conversation, searching queries in google, Wikipedia, Bing or yahoo, searching for videos, live weather conditions, word meanings. The user statements/commands are analyzed with the help of machine learning to give an optimal solution.

## **Chapter 1 - Introduction:**

An artificial assistant is a program that performs tasks for the user, typically by accepting natural language input and executing commands. Artificial assistants are frequently used to create a more personalized user experience by understanding the user's needs and providing appropriate responses.

Artificial Assistant enables computers to behave like humans. It's the use of technology that emulates the ability of the human mind and is used in computer programs with specific goals and effects—for example, voice recognition, speech synthesis, perception, learning, reasoning and decision making.

### **1.1 Domain Description:**

This project aims to ease human effort to some complex operation related to operating system, browser, information about

1. Articles
2. Famous personalities
3. Fictional characters (if existed)
4. Sports
5. programming related information Like data structure, algorithm, networking, architecture, idea about microprocessor, microcontroller.
6. Details about weather
7. Send WhatsApp message
8. News updating
9. Playing YouTube videos
10. vocabulary help

### **1.2 Motivation:**

Not everyone from previous generation using the latest technology, could make up to it. Even we found people handing over their essential data to others like in case of bank details, credit cards credentials. Voice assistant would help them by handling and responding to the commands the user want.

Moreover, some additional motivations on building such a useful application -----

## **i. Enable a highly engaging user experience:**

Voice assistants engage users like no other interface. Users can speak to the applications naturally to ask for whatever they'd like and can do so while multitasking. This also reduces the cognitive effort for the user to get what they want from the application, and applications that take advantage of voice assistants are seen as easier to use than applications that do not.

According to a [recent PwC report](#), “Consumers see voice assistants as the smarter, faster, and easier way to perform everyday activities.” and that 93% of consumers are satisfied with their voice assistants; 50%, very satisfied. Voice assistants help people feel organized, informed, happy, smart, and confident.

## **ii. Make your application frustration free:**

Common problems with existing Graphical User Interfaces that use touch, type, and mouse are that users have to figure out how to use the application, and oftentimes miss the value of the app and get frustrated in the process. This [friction is a top reason](#) why users drop off from applications after a single use.

With a voice assistant in your app, users are able to ask for exactly what they want and get help when they need it. This is a natural way for users to discover your application value and for you to make the perfect first impression. [Voice also guides the user during the initial onboarding flow](#) to prevent single-use drop-offs and bring every user to the “wow” moment of your application faster.

## **iii. Offer 24/7 support, without the costs:**

Customer satisfaction and retention are key to every application and service, and it can be costly to keep support staff up and running 24/7 around the world. This is why many companies have [opted out of 24/7 support in favor of FAQs](#) and help center articles with endless amounts of information for users to “self-service” support.

But for users, this form of “self-service” via articles is cumbersome, and they often get overwhelmed with the amount of information and don't know what to do with it. Voice assistants are able to instead take questions from the user, and guide them through the problem, continue to gather information as a real customer service representative would, and bring the user to the right solution. This form of support can not only get the user information, but can also point them to the proper workflow and help them enter the information necessary to make the user successful.

#### **iv. Build your brand:**

As the usage of voice assistants increase, brands are seeing them as a channel to interact with their customers in an intimate and personal way. Just as we socialize with others, we're also in a way socializing with our voice assistants that understand our unique context and circumstances when we use them.

Voice assistants [aren't just personal assistants](#), but also entertainers, and soon to be [providers of emotional support](#).

#### **v. Understand what users really want and improve your product offering:**

The X-factor of adding a voice assistant to an application is the user feedback and usage data that comes back from users when interacting with the assistant. With a voice assistant, users will be asking for exactly what they want, and in a way that's natural for them.

Armed with this information, you're able to get deep insights on how to improve the application experience and product offering to maximize the value of your application.

#### **vi. Personalize your app experience for every user:**

Voice assistants are able to be personalized for every user, in any application workflow or scenario. Voice assistants are able to [understand the voice and visual context of applications](#) and respond best to the user that fits that situation.

That means for every user, they can be responded to based on their locality, language, and preferences. [Top brands are already doing this with search services](#), and voice assistants can do the same for every user in every application.

#### **vii. Provide a ubiquitous experience:**

Voice assistants provide a consistent experience for the user, no matter what type of application or device they're using. If users go from your mobile app to your web app, the assistant will let them pick up right where they left off. This also applies across different applications that have voice assistants. Voice assistants are able to take information from one application and use it in others, known as a [connected ubiquitous experience](#).



Voice assistants offer immense benefits for both businesses as well as the app users – from saving costs on customer support to offering a personalized and productive voice experience to the users. Voice assistants are still new, but the door is closing for companies to take full advantage of them before it's too late.

If you're looking to lead the way and integrate a voice assistant in your application, get started today with the most advanced conversational voice AI platform, [Alan AI](#).

## **1.3 Applications:**

### **i. Enhances E-Commerce Marketing:**

For those in the e-Commerce industry, these voice assistant technology-enabled [chatbots](#) are a great way to thrill customers, by providing them with the ease of online shopping on any device. Also, businesses get data gathered from consumer information based on their interests, device, cart/purchase history, access location, search history, etc. The data collected can be used for personalized marketing strategies and improved Search Engine Optimization (SEO) for your business website.

### **ii. Eradicates Language Barriers:**

While travelling abroad or even while interacting with content online, most people have to deal with language barriers. So, what's the solution? Including personal assistant technology integrated with automatic translation to help ease the language barrier.

For example, Google's assistant is compatible with 27 different languages and working on adding more languages. Thus, when consumers are able to communicate with you in their native language, it can unequivocally lead to better customer experience and more business for you.

### **iii. Helps Streamline Operations:**

Another excellent business benefit of personal voice assistants is that it streamlines operations that come with integrating digital assistants into your business. Even with emerging innovations and deep learning, these talking assistants never stop working. They are continually accessing reports, analyzing data, and ensuring critical systems are updated.

You can make use of [Alexa Skills](#) and [Google Actions](#) to facilitate specific actions for your customers. Artificial intelligence assistant technology helps your business to streamline day-today operations that are always being supervised. Things such as remembering important dates, deadlines, booking appointments, scheduling, etc. can be all triggered using specific voice commands.

#### **iv. Saves Time by Automating Repetitive Tasks:**

Automating repeated tasks to a voice-activated personal assistant frees up the human time and resources.

Also, it can efficiently perform these mundane tasks with no errors, which often leads to an improvement in customer satisfaction. While voice assistants are left to deal with routine tasks, humans can dedicate more time to duties where human intervention is required for successful business solutions and services.

Additionally, introducing voice assistants to your workforce will not only impact your consumers' experience but will also improve the overall productivity level of your business.

#### **v. Enables Smart Offices:**

Voice assistants also allow the creation of smart and connected offices. If a voice-activated personal assistant knows that a particular part of the office space will not be in use, it can connect with smart office solutions to turn off the lights and other utilities until the area is needed. You can do this by simply setting up a smart thermostat to your voice assistant and tell it.

when you're leaving the office so that your heating and lights get turned off. Also, office and business resources can be ordered using simple voice commands and likewise set to give alerts when supplies are running low.

#### **vi. Aids Hand-free Operation:**

Voice talking gives consumers hands-free access to many functions because you only need the voice to activate them. So, it makes it easier and faster to do certain things. The [research from PwC](#) shows that consumers often make use of personal voice assistant while doing other tasks such as cooking, watching TV, driving, etc. The research also shows that several demographic groups find it easy to use voice assistance. Hence the high adoption rate of voice technology poses great potential for companies that can utilize the technology to their advantage.

## **1.4 Scope of the Project:**

Presently, Alicia is being developed as an automation tool and virtual assistant. Among the Various roles played by Alicia are:

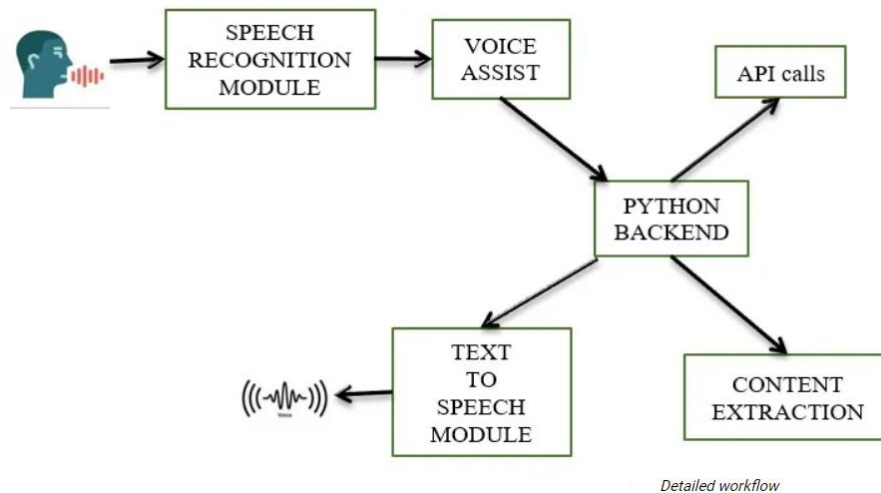
- Search Engine with voice interactions
- Medical diagnosis with Medicine aid.
- Reminder and To-Do application.
- Vocabulary App to show meanings and correct spelling errors.
- Weather Forecasting Application.

## **Chapter 2 - Background /Review of related work:**

Each company developer of the intelligent assistant applies his own specific methods and approaches for development, which in turn affects the final product. One assistant can synthesize speech more qualitatively, another can more accurately and without additional explanations and corrections perform tasks, others can perform a narrower range of tasks, but most accurately and as the user wants. Obviously, there is no universal assistant who would perform all tasks equally well. The set of characteristics that an assistant has depends entirely on which area the developer has paid more attention to. Since all systems are based on machine learning methods and use for their creation huge amounts of data collected from various sources and then trained on them, an important role is played by the source of this data, be it search systems, various information sources or social networks. The amount of information from different sources determines the nature of the assistant, which can result as a result. Despite the different approaches to learning, different algorithms and techniques, the principle of building such systems remain approximately the same. Figure 1 shows the technologies that are used to create intelligent systems of interaction with a human by his natural language. The main technologies are voice activation, automatic speech recognition, Teach-To-Speech, voice biometrics, dialogue manager, natural language understanding and named entity recognition.

<b>Voice Technology</b>	<b>Brain Technology</b>
Voice Activation	Voice Bio-metrics
Automatic Speech Recognition (ASR)	Dialog Management
(Teach-To-Speech (TTS)	Natural Language Understanding (NLU)
	Named Entity Recognition NER)

## Chapter 3 – Methodology:



### **i. Speech Recognition module:**

The system uses Google’s online speech recognition system for converting speech input to text. The speech input Users can obtain texts from the special corpora organized on the computer network server at the information centre from the microphone is temporarily stored in the system which is then sent to Google cloud for speech recognition. The equivalent text is then received and fed to the central processor.

### **ii. Python Backend:**

The python backend gets the output from the speech recognition module and then identifies whether the command or the speech output is an API Call and Context Extraction. The output is then sent back to the python backend to give the required output to the user.

Modules Needed:

- **Pytttsx3:** This module is used for the conversion of text to speech in a program it works offline. To install this module, type the below command in the terminal.

*pip install pytttsx3*

- **Wikipedia:** As we all know Wikipedia is a great source of knowledge. we have used the Wikipedia module to get information from Wikipedia or to perform a Wikipedia search. To install this module, type the below command in the terminal.

*pip install Wikipedia*

- **Speech Recognition:** Since we're building an application of voice assistant, one of the most important things in this is that your assistant recognizes your voice (means what you want to say/ ask). To install this module, type the below command in the terminal.

*pip install SpeechRecognition*

- **Web browser:** To perform Web Search. This module comes built-in with Python.
- **Pyjokes :** Pyjokes is used for the collection of Python Jokes over the Internet. To install this module, type the below command in the terminal.

*pip install pyjokes*

- **Requests:** Requests is used for making GET and POST requests. To install this module, type the below command in the terminal.

*pip install requests*

- **Datetime:** Date and Time are used to showing Date and Time. This module comes built-in with Python.

### **iii. API calls:**

API stands for Application Programming Interface. An API is a software intermediary that allows two applications to talk to each other. In other words, an API is a messenger that delivers your request to the provider that you're requesting it from and then delivers the response back to you.

### **iv. Text-to-speech module:**

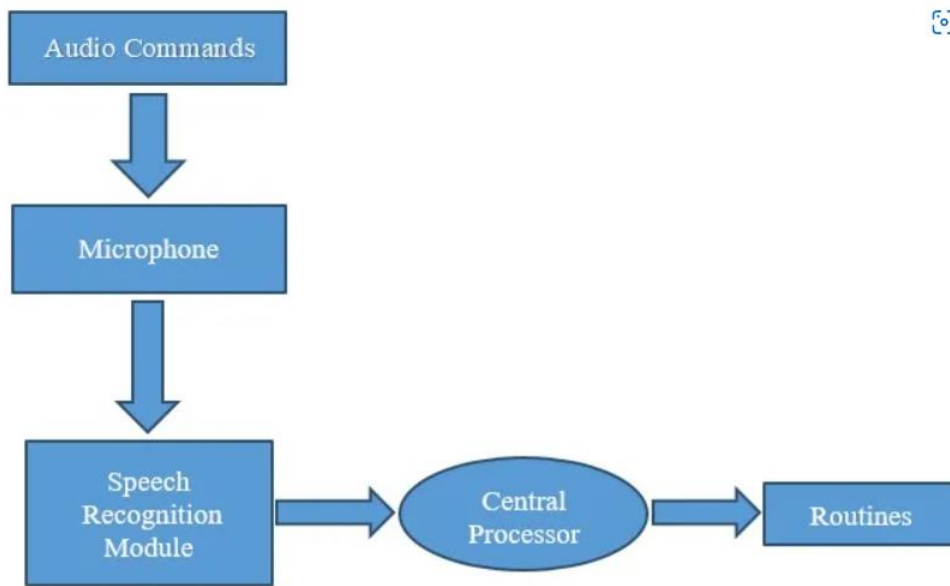
Text-to-Speech (TTS) refers to the ability of computers to read text aloud. A TTS Engine converts written text to a phonemic representation, then converts the phonemic representation to waveforms that can be output as sound. TTS engines with different languages, dialects and specialized vocabularies are available through third-party publishers.

### **3.1 Problem Formulation:**

As we are growing rapidly in the technological field, the complexity of technology increases in huge prospect. It is now, among the essential need. But what if new comers barely had an idea about it. It will become very hard to grip the huge productivity in technologies. What if they are provided with a guide. A guide who can present 24/7 at his/her side. More often, bring some ease in operations to some extent by handling it on its own. Even the commands to the operation are eased with voice inputs. The time is managed through this approach to some extent. our project has a solution to the said problem. It detects voice input and response with operations like file system I/O, Operating System basic operations, System handling like power off, restart, browser control.

### **3.2 Design Description:**

The work started with analyzing the audio commands given by the user through the microphone. This can be anything like getting any information, operating a computer's internal files, etc. This is an empirical qualitative study, based on reading above mentioned literature and testing their examples. Tests are made by programming according to books and online resources, with the explicit goal to find best practices and a more advanced understanding of Voice Assistant.



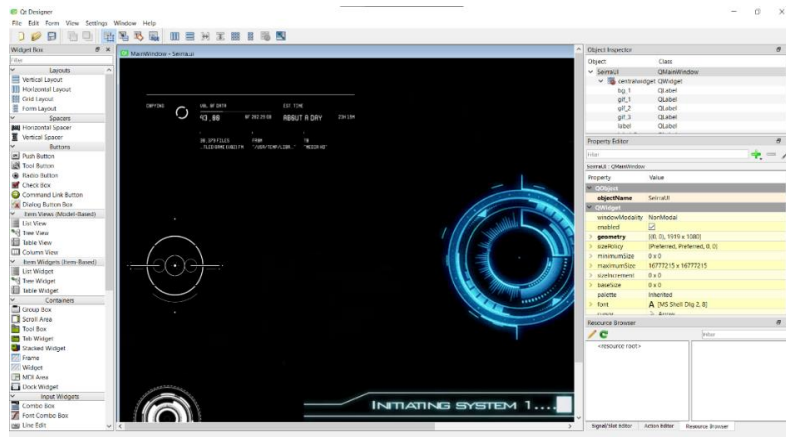
*Fig.2. Basic Workflow*

This shows the workflow of the basic process of the voice assistant. Speech recognition is used to convert the speech input to text. This text is then fed to the central processor which determines the nature of the command and calls the relevant script for execution.

But the complexities don't stop there. Even with hundreds of hours of input, other factors can play a huge role in whether or not the software can understand you. Background noise can easily throw a speech recognition device off track. This is because it does not inherently have the ability to distinguish the ambient sounds it "hears" of a dog barking or a helicopter flying overhead, from your voice. Engineers have to program that ability into the device; they conduct data collection of these ambient sounds and "tell" the device to filter them out. Another factor is the way humans naturally shift the pitch of their voice to accommodate for noisy environments; speech recognition systems can be sensitive to these pitch changes.



### 3.3 Other Designs:



The tool we used to design the GUI (frontend) for this project



The Final GUI

## Chapter 4 - Implementation:

Since this project is totally based on voice interpretation, three important modules **pyttsx3**, **speech\_recognition** and **pyAudio** play major roles.

### Program begins:

When the program begins, the assistant Alicia welcomes warmly to whoever is the present operator. The voice that it uses is using a driver **Sapi5**. **pyttsx3** includes drivers for the following text-to-speech synthesizers

The `pyttsx3.init()` explains how to select a specific synthesizer by name as well as the default for each platform.

An application invokes the **`pyttsx3.init()`** factory function to get a reference to a **`pyttsx3.Engine`** instance. During construction, the engine initializes a **`pyttsx3.driver.DriverProxy`** object responsible for loading a **speech engine driver** implementation from the **`pyttsx3.drivers`** module. After construction, an application uses the engine object to register and unregister event callbacks; produce and stop speech; get and set speech engine properties; and start and stop event loops.

Even we can change the property of the voice, like its voice, rate, volume through **`getProperty()` function**. This function gives the current engine property.

after Alicia finishes her greeting, she is ready to serve. She waits for the command to perform the corresponding operation. To command her first the voice must be recognized.

Recognizing speech requires audio input, and **SpeechRecognition** makes retrieving this input really easy. Instead of having to build scripts for accessing microphones and processing audio files from scratch, **SpeechRecognition** will have you up and running in just a few minutes.

The **SpeechRecognition** library acts as a wrapper for several popular speech APIs and is thus extremely flexible. One of these—the Google Web Speech API—supports a default API key that is hard-coded into the **SpeechRecognition** library.

**SpeechRecognition** will work out of the box if all you need to do is work with existing audio files. Specific use cases, however, require a few dependencies. Notably, the **PyAudio** package is needed for capturing microphone input.

There **PyAudio** should be installed for working of the **SpeechRecognition** .

Since everything is set up, we have to instantiate **Recognizer** class

The primary purpose of a **Recognizer** instance is, of course, to recognize speech. Each instance comes with a variety of settings and functionality for recognizing speech from an audio source.

Each **Recognizer** instance has seven methods for recognizing speech from an audio source using various APIs. These are:

`recognize_bing()`: Microsoft Bing Speech

`recognize_google()`: Google Web Speech API

recognize\_google\_cloud(): Google Cloud Speech - requires installation of the google-cloud-speech package

recognize\_houndify(): Houndify by SoundHound

recognize\_ibm(): IBM Speech to Text

recognize\_sphinx(): CMU Sphinx - requires installing PocketSphinx

recognize\_wit(): Wit.ai

Of the seven, only recognize\_sphinx() works offline with the CMU Sphinx engine. The other six all require an internet connection.

## Commanding Alicia:

When the user commands Alicia to perform a task, the program internally calls a user defined function **takeCommandMic()** inside which actual **Recognizer** class is instantiated. After that a resource management and exception handling technique is created with "With As" under which instances of the Recognizer class is manipulated like having an **energy\_threshold**, **pause\_threshold** is set. Finally the input audio is listened to through a **source** using **listen()** function present in the Recognizer class.

Finally, the audio obtained as a string is stored in a variable **audio**. The audio data is not in string at that time. It is still in unrecognized format.

Within a try catch block, the audio is queried using one of the **SpeechRecognition** method, **recognize\_google()** and the result query is assigned to a variable **query**. **recognize\_google()** takes two parameters, first one is audio and the second one is the language it will be recognized using **Google Speech Recognition**.

finally, the query after google speech recognition, is returned by the function **takeCommandMic()**. if somehow an exception occurs, it will be handled simply saying

"**Say that again..**" returning "**none**" as a string.

**Note:** None is null in Python, but here it is returned as string because explicitly the query needs to be lowercase, and a None value has no attributes like these.

Under **\_\_main\_\_** block, an infinite while block is started where the query returned is checked every time a query is made . As soon as a query is made by the user for operation, all the if-else blocks having some specific operations find if the query matches. if match found, the operation is performed and again because of infinite while block, the query is asked over and over again.

## The GUI:

The concept of multi-threading is applied in this project. One thread handling the operations over the voice commands, replying any queries and the Other thread is running the GUI for a well representation .

## Chapter 5 - Result and Discussion:

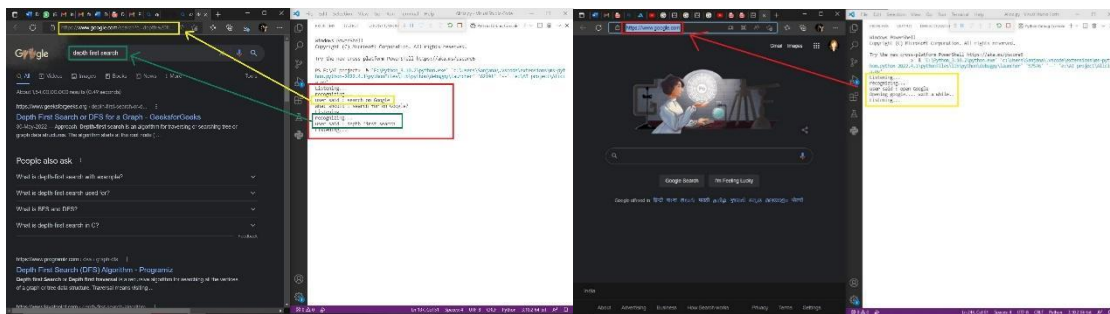
### 1. Queries from the web:

Making queries is an essential part of one's life. and nothing changes even for a developer working on windows. We have addressed the essential part of a netizen's life by enabling our voice assistant to search the web. Alicia supports a plethora of search engines like Google, Bing and Yahoo and displays the result by scraping the searched queries.

In order to make queries from different search engines, the given format should be adopted:

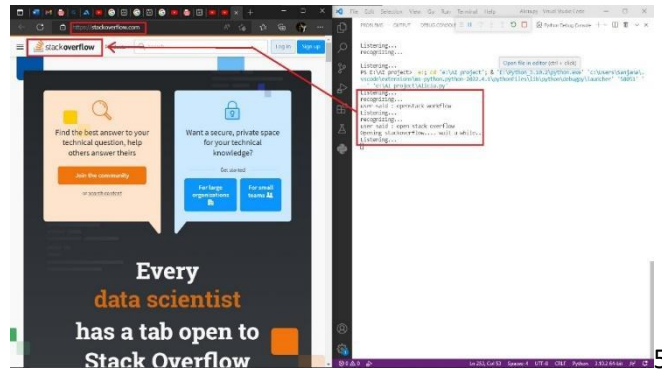
*Search on<search engine name>*

Alicia supports Google, Bing and Yahoo, and many more browser which should precede the desired query.



*Search on Google using voice command*

*Open Browser (like Google) using voice command*



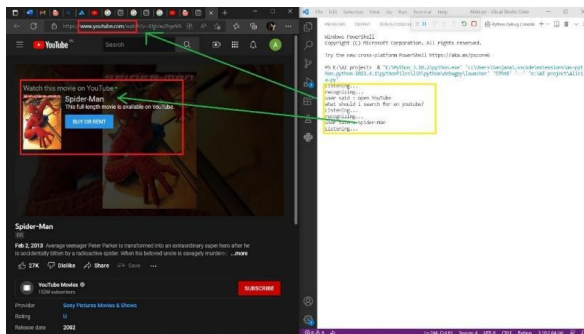
*Open Browser (like stack overflow) using voice command*

## 2. Accessing YouTube videos:

Videos have remained as a main source of entertainment, one of the most prioritized tasks of virtual assistants. They are equally important for entertainment as well as educational purposes as most teaching and research activities in present times are done through YouTube. This helps in making the learning process more practical and out of the four walls of the classroom.

In order to access videos from YouTube format is:

*YouTube<video you want to search for>*



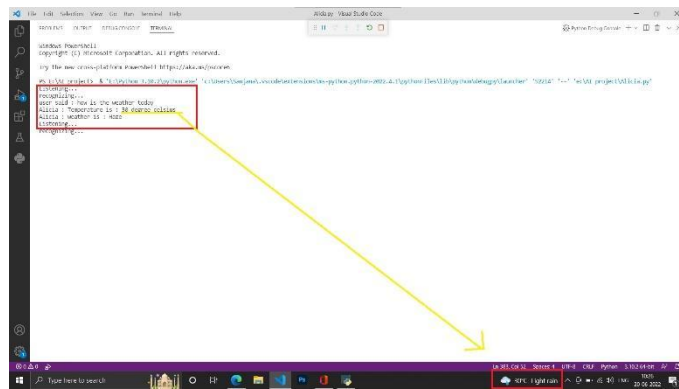
*Opening YouTube video using voice command*

## 3. Get weather for a location:

Getting live weather conditions about a place remains an important task of virtual assistants. It helps the user charter the course of their action. Alicia addresses this issue with the help of Python.

In order to access the live weather condition format is:

*<weather>*



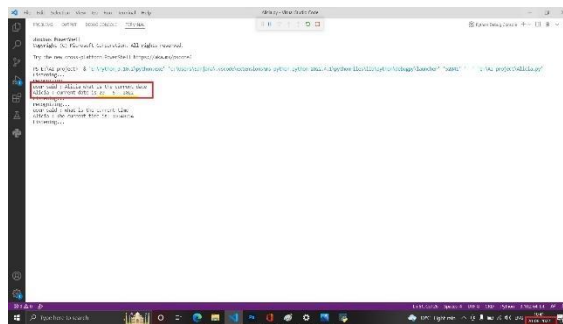
*Weather details*

## 4. Get Date and Time:

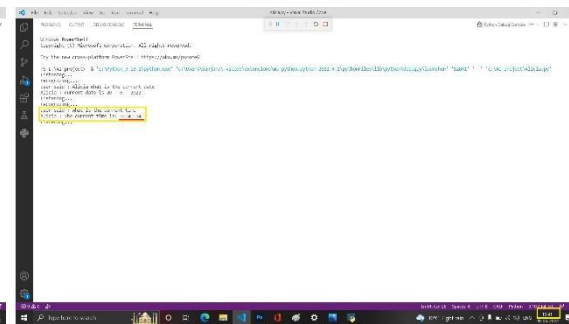
Date and Time are used for showing Date and Time. This module comes built-in with Python.

In order to know the current date & current time, format is:

*<current date> & <current time>*



*Showing date using voice command*



*Showing time using voice command*

## 5. Information about Famous personalities, Fictional characters (if existed):

Alicia tells about famous personalities, Fictional characters (if existed) and also tells you about almost every well-known person you ask.

In order to know about the famous personalities, the format is:

*Who is <person you want to search for>*

```
File Edit Selection View Go Run Terminal Help
Alcely Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Python Debug Console
Python (Debug)

user said : who is Sachin Tendulkar
Result is :
Sachin Ramesh Tendulkar (in [listen]) (pronounced [səʃɪn tɐndʊlkər]; born 24 April 1973) is an Indian former international cricketer who captained the Indian national team. He is regarded as one of the greatest batsmen in the history of cricket. Tendulkar took up cricket at the age of eleven, made his Test match debut on 15 November 1989 against Pakistan in Karachi at the age of sixteen, and went on to represent India internationally for close to twenty-four years. In 2002, halfway through his career, Tendulkar ranked in the second-greatest Test batsman of all time, behind Don Bradman, and the second-greatest ODI batsman of all time, behind Viv Richards.

user said : who is Subhas Chandra Bose
Result is :
Subhas Chandra Bose ( [listen] shoo-CHHOS CHAN-dra BOHSS; 23 January 1897 – 18 August 1946) was an Indian nationalist whose defiance of British authority in India made him a hero won 8 Indians, but his wartime alliances with Nazi Germany and Imperial Japan left a legacy viewed by some as controversial, anti-western, and military failure. The heroic label (Hindustani: "Respected leader") was first applied to Bose in Germany in early 1942 by the Indian soldiers of the Indian National Army and by the German and Indian officials in the Special Bureau for India in Berlin. It is now used throughout India. Subhas Bose was born into wealth and privilege in a large Bengali family in Calcutta during the British Raj.

user said : who is Lata Mangeshkar
Result is :
Lata Mangeshkar ( [listen] mən gə [listen] ) (born as Hema Mangeshkar; 28 September 1929 – 6 February 2022) was an Indian playback singer and occasional music composer. She is widely considered to have been one of the greatest and most influential singers in India. Her contribution to the Indian music industry as a singer spanning seven decades gained her honorific titles such as the "Queen of Melody", "Nightingale of India", and "Voice of the Hindi cinema". Lata recorded songs in over thirty-six Indian languages and a few foreign languages, though primarily in Marathi, Hindi, and Bengali.

user said : who is Aishwarya Bachchan
Result is :
Aishwarya Bachchan (pronounced [aɪʃwəɾɪə bəʃtʃən] [listen]) (born Aishwarya Srivastava; 11 October 1967) is an Indian actress, film producer, television host, occasional playback singer and former politician known for her work in Hindi cinema. He is regarded as one of the most influential actors in the history of Indian cinema. During the 1970s–1980s, he was the most dominant actor in the Indian movie scene. The French actor Francis Truffaut called him a "one-man industry". Bachchan was born in 1967 in Allahabad to the Hindi poet Harish Chandra Bachchan and film producer Shobana.

user said : who is Sourav Ganguly
Result is :
Sourav Chandra Ganguly ( [listen] ; natively spelled as Gangopadhyay; born 8 July 1972), affectionately known as Dada (meaning "older brother" in Bengali), is an Indian cricket administrator, commentator and former national cricket team captain who is the 10th and current president of the Board of Control for Cricket in India (BCCI). He is popularly known as Bhai Dada or "Bhai Dada". During his playing career, Ganguly established himself as one of the world's leading batsmen and also one of the most successful captains of the Indian national cricket team.

user said : who is Kalpana Chawla
Result is :
Kalpana Chawla (17 April 1952 – 1 February 2003) was an Indian-born American astronaut and mechanical engineer who was the first woman of Indian origin to go to space. She flew on the Space Shuttle Columbia in 1997 as a mission specialist and primary payload specialist.

10:00:04 AM - Source: 4 - 100.0 - Python 3.10.14 64-bit / 64-bit
```

## Information about famous personalities

## 6. Information about anything:

Alicia tells about any details you want to know. Like, programming related information Like data struct, algo, networking, architecture, idea about microprocessor, microcontroller and sports related details, movies, Games and almost everything you ask.

In order to know about other things, the format is:

*What is <things you want to know about>*

```
File Edit Selection View Go Run Terminal Help
Alcely Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Python Debug Console
Python (Debug)

user said : what is the use of search
Result is :
The use of search is a technique for traversing or searching tree or graph data structures. The algorithm starts at the root node (selecting some arbitrary node as the root node in the case of a graph) and explores as far as possible along each branch before backtracking. A version of depth-first search was investigated in the 18th century by French mathematician Charles Pierre de Moivre as a strategy for solving mazes.

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10:00:04 AM - Source: 4 - 100.0 - Python 3.10.14 64-bit / 64-bit
```

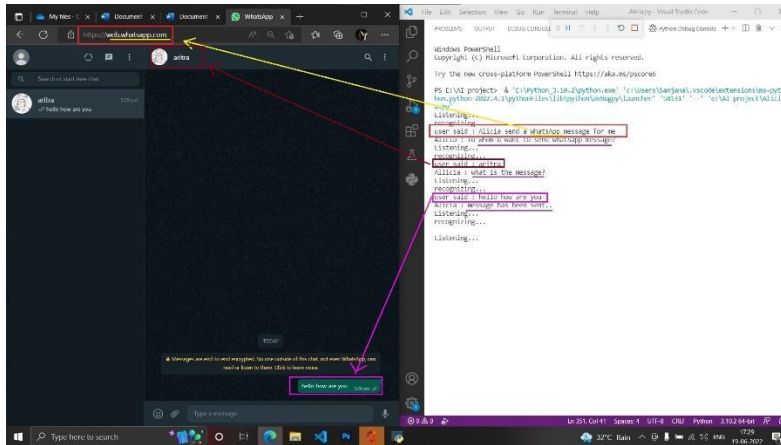
## Information about other things

## 7. Send WhatsApp message:

In this feature into our voice assistant can send WhatsApp messages and it will take the input from the user through the microphone such as the message as well as the user's name, Using installing and importing the package pyautogui.

In order to send WhatsApp message, the format is:

*Send WhatsApp message<to whom you want to send WhatsApp message><message>*



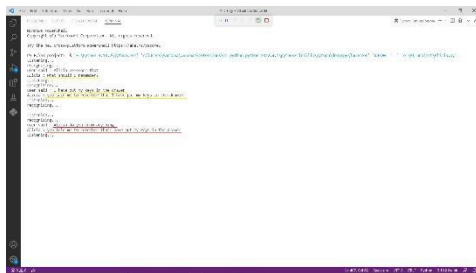
*Send WhatsApp message using voice command*

## 8. Remember things:

If you want our virtual voice assistant to remember somethings that if you've put your keys in the drawer or in the bag so you can just tell our voice assistant and it will remember that. So, if you forget things easily so you can tell our voice assistant to remember that. so, for example, you have put your keys in the bag or your phone in the bag, you can just our voice assistant to remember that thing and whenever you want it to tell you what you have told him to remember so you can just ask Alicia do you anything so it will repeat that thing that what you have told to the voice assistant.

In order to remember something for Alicia, the format is:

*Remember things<things to remember>*



*Remember things using voice command*

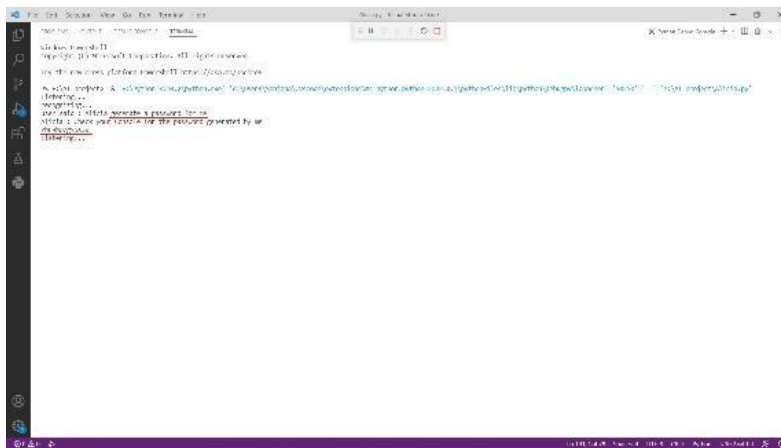


## 9. Generate Password:

Your password is your authentication. Password authentication relies on a secret value that is known only to you. So, if a website used only your username, then anyone who knew your email address, for instance, could log in to any of your online accounts, including your bank, email, Facebook or Amazon accounts. The stronger your password, the more protected your computer will be from hackers and malicious software. You should maintain strong passwords for all accounts on your computer. so, we added this feature, which is able to generate a password us.

In order to generate a password, the format is:

*<generate a password>*



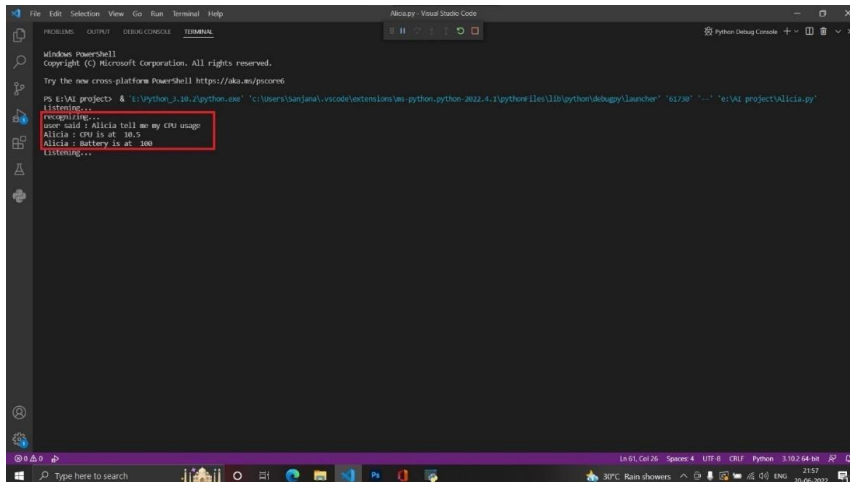
*Generate a unique password using voice command*

## 10. CPU & Battery usage:

If we want to get our CPU usage as well as the battery percentage which we having on our laptop. So, we can easily use our AI assistant to get what battery percentage we have and about our CPU usage by using, an external library which is called psutil.

In order to check CPU usage, the format is:

*<tell CPU usage>*



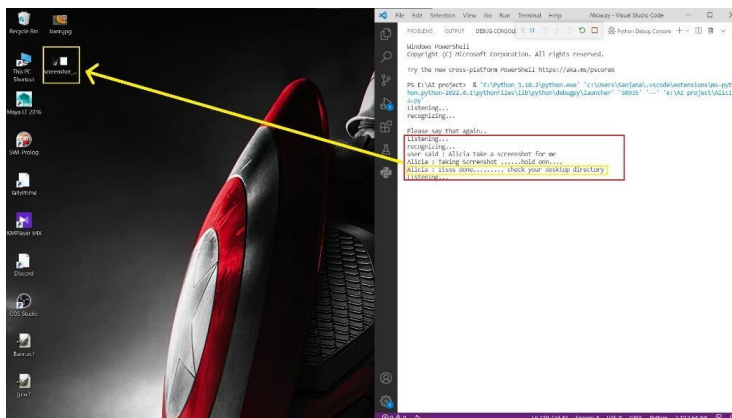
*CPU & battery percentage*

## 11. Take Screenshots:

In this feature into our Virtual Assistant in which, we will able to take screenshots of our screen.

In order to take a screenshot, the format is:

*<screenshot>*



*Screenshot function*

## 12. Tossing Coin with Alicia:

In this feature into our virtual voice assistant using, it will be able to flip a virtual coin for us it will give us an output like heads or tails. So, many times we get confuse between two things and what should to do? For that reason, we want to toss a coin or flip a coin for so we will be adding a feature into our voice assistant using which, it can be able to

In order to toss a coin, the format is:

[illegible]

### 13.Roll a Die with Alicia:

In order to roll a die with Alicia, the format is:

[illegible]

## 14. Get jokes:

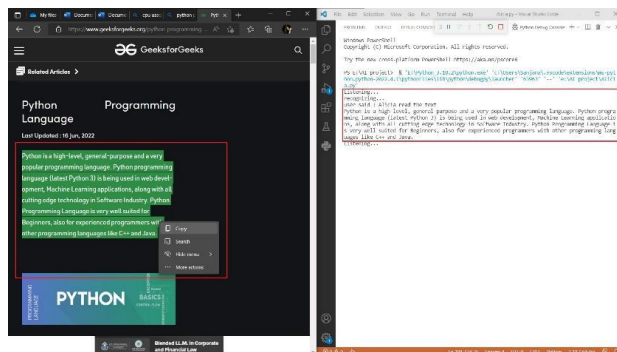
Page | 23



the text and copy it and ask our virtual assistant and ask our virtual voice assistant to convert it into speech. If you using a blogging website to read the block so you can just automate the task by using select the blog and copying it and ask our voice assistant to read the text so, it will read the entire blog to you. so, u don't waste time by reading the entire thing and you can just listen to the blog and learn about the thing.

In order to read selected text, the format is:

*<read the text>*



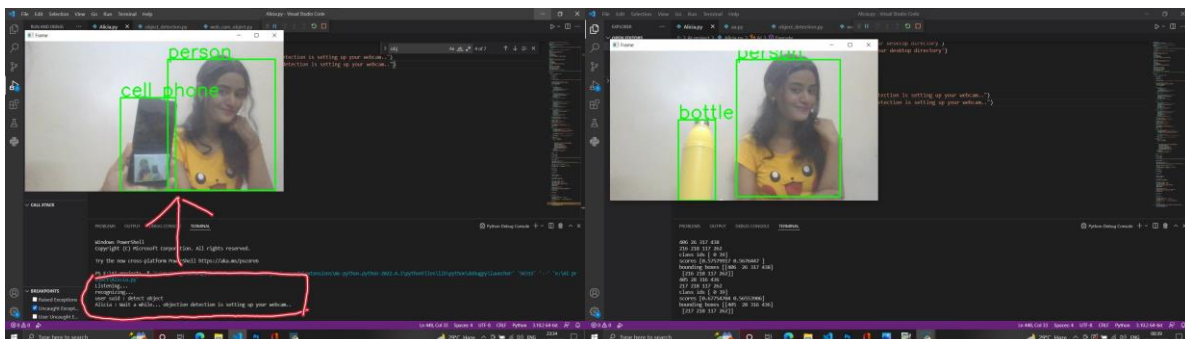
*Read selected text*

## 17. Detect an object with OpenCV-Python:

OpenCV is the huge open-source library for computer vision, machine learning, and image processing and now it plays a major role in real-time operation which is very important in today's systems. By using it, one can process images and videos to identify objects, faces, or animals. Object Detection is a computer technology related to computer vision, image processing, and deep learning that deals with detecting instances of objects in images and videos.

In order to detect object, the format is:

*<Detect Object>*



## 17. Re-start and Shutdown the system:

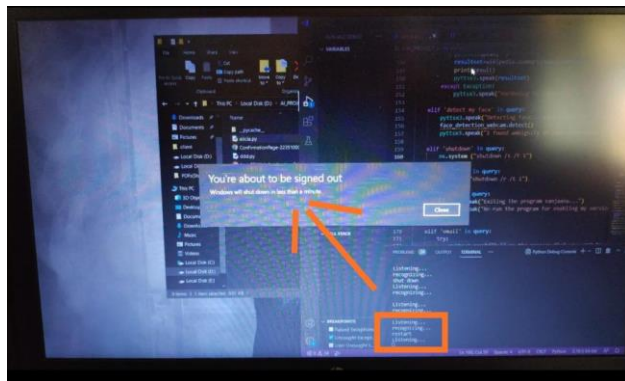
Alicia shutdown and restart our computer system after default time, that is **30** seconds. As soon as you run the program given below, your computer gets shutdown or restart after 30 seconds

To restart your computer system using a python program, just replace the `/s` with `/r` from the program given to **shut down the system**.

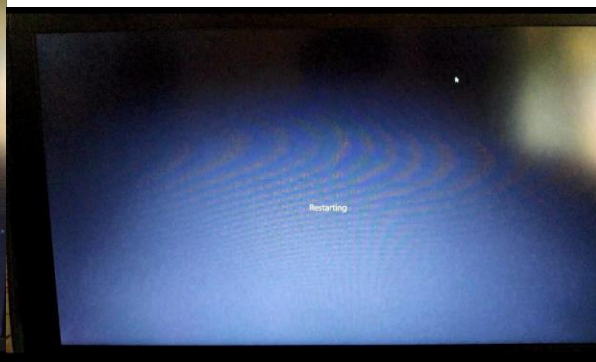
In order to check CPU usage, the format is:

*<Shutdown>*

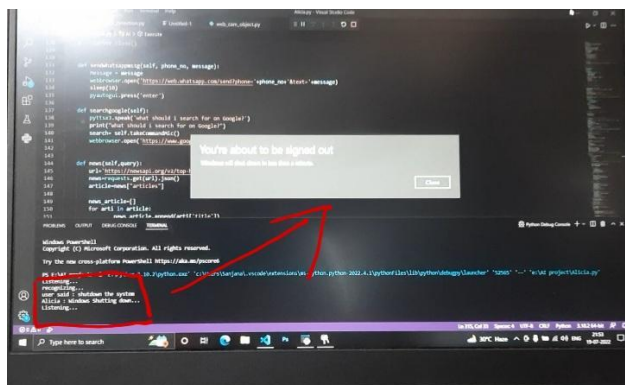
*<restart>*



*Restarting the system*



*Restarting*



*Shutting down the system*



*Shutdown*

## **Chapter 6 - Conclusion:**

Through this voice assistant, we have automated various services using a single line command. One thing is for sure. Personal voice assistance technology is here to stay. Just the simple thought of talking to a device to get some tasks done is an appealing innovation that presents multiple opportunities, most notably for businesses. We aim to make this project a complete server assistant and make it smart enough to act as a replacement for a general server administration. The voice talking technology is poised to continue to shift consumer behavior, and it, if necessary, for businesses to prepare to meet consumer needs. Getting into the voice technology space today is bound to make a huge difference and give your brand an edge in a highly competitive market.

### **6.1 Constraints:**

1. Required high processing computer machine to execute the application.
2. Required many modules and libraries to implement the application.
3. It cannot work in noisy environment.
4. Required high resolution camera to detect the face's object properly.
5. Could not work without internet access
6. Listening problem

### **6.2 Future Scope:**

This project can be extended to hardware implementations for smart working. We plan to Integrate Alicia with mobile application to provide a synchronized experience in devices. This project can be used as a driver with Arduino UNO for functionalities like smart working of house appliances like switching on/off lights, fans, window opening in car. Further, in the long run, Alicia is planned to feature auto deployment supporting elastic beanstalk, backup files, and all operations which a general Server Administrator does. The functionality would be seamless enough to replace the Server Administrator with Alicia.

## **Chapter 7 - References:**

1. An Introduction to Voice Computing in Python --- **Jim Schwoebel**

Cover Designer: Faaizah Ali October 2018: First Edition Revision History for the First Edition 2018-10-01:

### **First release**

2. Schwoebel, J. (2018). An Introduction to Voice Computing in Python. Boston; Seattle; Atlanta:

NeuroLex Laboratories

3. Beginning Programming with Python® For Dummies®, 2nd Edition Published by: John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030-5774, [www.wiley.com](http://www.wiley.com) Copyright © 2018 by John Wiley & Sons, Inc., Hoboken, New Jersey

4. Image Classification, Object Detection and Face Recognition in Python --- **Jason Brownlee**