MINI PROJECT

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AI JARVIS VOICE ASSISTANT

Mid-Term Progress Report

Institute of Engineering & Technology

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Abstract

In the Modern Era of fast moving technology we can do things which we never thought we could do before but, to achieve and accomplish these thoughts there is a need for a platform which can automate all our tasks with ease and comfort.

Thus we humans developed applications like Personal Voice Assistant having the ability to inter act with the surroundings just by one of the materialistic form of human interaction i.e .HUMAN VOICE.

The most famous application of android mobile phone is “Google Assistant”, “Google Voice Search” which is developed by the Google .Various applications like Microsoft Cortana, Amazon Alexa is also used as an voice assistant .The voice 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. We are going to develop a web application were the voice assistant would be available for a particular desktop user. It can change the way of inter actions between user and the system. The Application is being designed in such a way that all the services provided by the system are accessible by the desktop user on the user's voice commands.

Introduction

Objective

As we know Python is a suitable language for script writers and developers. Let's write a script for Personal Voice Assistant using Python. The query for the assistant can be manipulated as per the user's need.

The implemented assistant can open up the application (if it's installed in the system), search Google, Wikipedia and YouTube about the query, calculate any mathematical question, etc by just giving the voice command. We can process the data as per the need or can add the functionality, depends upon how we code things. We are using Google speech recognition API and google text to speech for voice input and output respectively.

Also, for calculating mathematical expression WolframAlpha API can be used.

Playsound Package is used to play the saved mp3 sound from the system.

What is AI JARVIS VOICE ASSISTANT SYSTEM?

A voice assistant or intelligent personal assistant is a software agent that can perform tasks or services for an individual based on verbal commands i.e. by interpreting human speech and respond via synthesized voices. Users can ask their assistants' questions, control home automation devices, and media playback via voice, and manage other basic tasks such as email, to-do lists, open or close any application etc with verbal commands.

Let me give you the example of Braina (Brain Artificial) which is an intelligent personal assistant, human language interface, automation and voice recognition software for Windows PC. Braina is a multi-functional AI software that allows you to interact with your computer using voice commands in most of the languages of the world. Braina also allows you to accurately convert speech to text in over 100 different languages of the world.

Technology Used

We used python as our primary programming language as this is very famous among developers nowadays.

One of the library PyQt5 used for developing scientific front-end.

APIs call in the backend with various servers.

All those functionality which gives response from internet are based on API call & those functionality which give response from local system are based on libraries.

Requirements

Hardware Requirements

- Personal computer with internet connection
- i3 Processor Based Computer or Higher
- Memory: 2 GB RAM(Minimum)
- Hard Drive: 5 GB(Minimum)

Software Requirements

- Technology: Python 3, Different Libraries
- Platform: Jupyter Notebook, Pycharm
- Operating System: Windows 7, 8, 9, 10, XP

Methodology

Project Research

The implementation, understanding and testing stage are primarily the most important part because we analyse here and set the road ahead for the entire project.

Firstly, we understand the process that how AI Jarvis Voice Assistant System works for which we're creating a voice assistant system and generate ideas for how it's GUI should look like and function.

System Implementation

Installation of Python

Installation of Jupyter Notebook

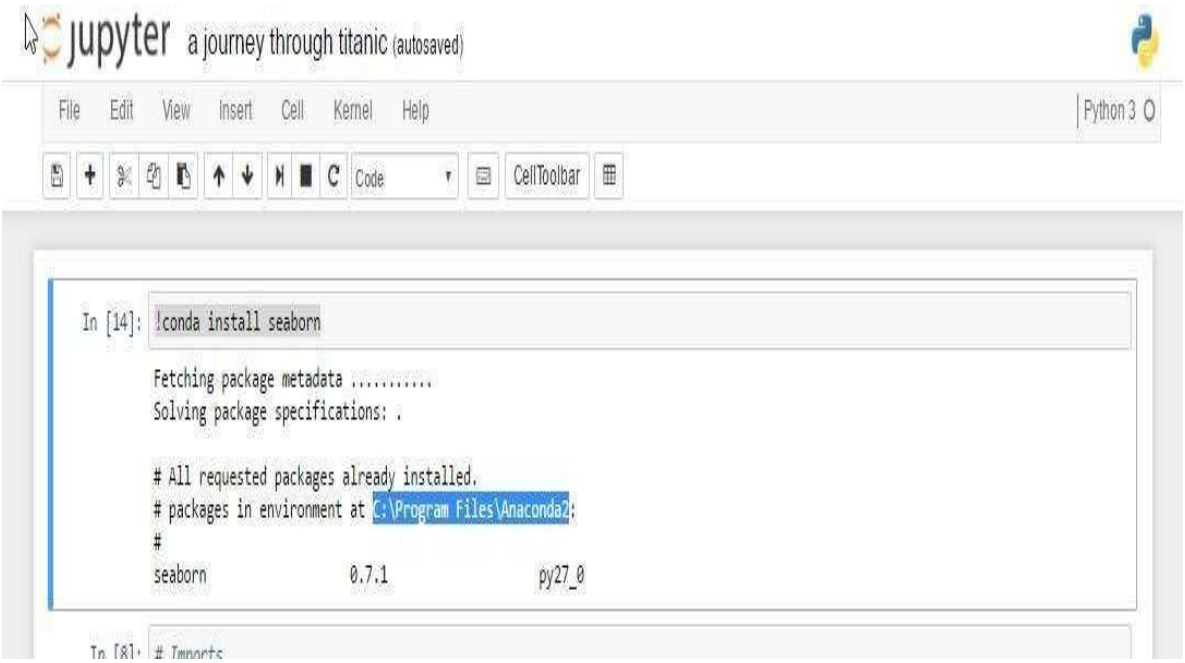
Use the following installation steps:

- Download Anaconda. We recommend downloading Anaconda's latest Python 3 version (currently Python 3.7).
- Install the version of Anaconda which you downloaded, following the instructions on the download page.
- Congratulations, you have installed Jupyter Notebook. To run the notebook:

As an existing Python user, you may wish to install Jupyter using Python's package manager, pip, instead of Anaconda.

First, ensure that you have the latest pip; older versions may have trouble with some dependencies:

pip3 install --upgrade pip



Then install the Jupyter Notebook using:

pip3 install jupyter

Dependencies and requirements:

Install all these python libraries :

pip install
SpeechRecognition pip
install beautifulsoup4 pip
install vlc pip install
youtube- dl pip install
pyowm pip install
wikipedia

1. Search anything in wikipedia.

The user can search anything on wikipedia just by saying “anything wikipedia” or “wikipedia anything”. For example : “shah rukh khan wikipedia” will search for shah rukh khan an tells you the first two line about it.

How it works : If you have said the phrase “anything wikipedia” or “wikipedia anything” in your command then it will replace the word “wikipedia” with the empty space and search for the word “anything” on wikipedia and tells you the first 2 lines about it.

2. Open any website in the browser.

You can open any website just be saying “open website_name”. For example: “Please open facebook” or “Hey, can you open google” like this you can ask Jarvis to open any website for you.

How it works : If you have said the word open in your command then it will search for website name in the user command using re.search(). Next, it will append the website name to https://www. and using web browser module the complete URL gets opened in the browser.

3. Send Email.

You can also ask your desktop assistant to send the email.

How it works : If you have said the word email in your command then the bot will ask for recipient, If my response is rajat, the bot will use python smtplib library.

The smtplib module defines an SMTP client session object that can be used to send mail to any Internet machine with an SMTP or ESMTP listener daemon. Sending mail is done with Python's smtplib using an SMTP server. First it will intiate gmail SMTP using smtplib. SMTP(), then identify the server using ehlo() function, then encypting the session starttls(), then login to your mailbox using login(), then sending the message using sendmail().

4. Launch any system application.

Say "launch notepad" or "can you please launch vs code" etc, and Jarvis will launch that system application for you.

How it works : If you have said the word launch in your command then it will search for application name(if it is present in your system) in the user command using re.search(). It will then append the suffix ".app" to the application name. Now your application name is for example say calender.app(In macOS the executable files end with extension .app unlike in Windows which ends with .exe). So the executable application name will be launched using python subprocess's Popen() function. The subprocess module enables you to start new applications from your Python program.

5. Tells you the current time.

"Jarvis can you tell me the current time ?" or "what is the time now ?" and Jarvis will tell you the current time of your timezone.

How it works : If the keyword "time" is in your query then it will search for the current time and tell you.

6. Greetings/ leave

Say " **hello Jarvis**" to greet your voice assistant or when you want the program to terminate say something like "**shutdown Jarvis**" or "**Jarvis please shutdown**" or "**bye bye jarvis**" or "**quit jarvis**" or "**bye jarvis**" or "**leave jarvis**" etc.

How it works : If you have said the word **hello** in your command, then depending on the time of the day, the bot will greet the user. If the time is more than 12 noon, the bot will respond "Hello Sir. Good afternoon", likewise if the time is more than 6 pm, the bot will respond "Hello Sir. Good evening". And when you give command as shutdown, sys.exit() will be called to terminate the program.

7. Tells you latest news feeds

Jarvis can also tell you the latest news update. The user just has to say "Jarvis what are the top news for today?" or "tell me the news for today".

How it works : If you have said the phrase "news for today" in your command then it will scrape data using Beautiful Soup from Google News RSS() and read it for you. For convenience I have set number of news limit to 2.

8. Google anything you ask.

Your bot can fetch details of almost anything you ask her. Like “jarvis google about Salman khan” or “google semiconductors”. So as you can see you can ask about almost anything.

How it works : If you have said the phrase “google anything” in your command then it will search for the keyword in the user command using re.search(). Using pythons wikipedia library it will search for that topic and extract first 500 characters(if you don’t specify the limit the bot will read the whole page for you). Wikipedia is a Python library that makes it easy to access and parse data from Wikipedia.

9. Play you a song on VLC media player

This feature allows your voice bot to play your desired song in VLC media player. The user will say “jarvis play me a song” or “play music” or “refresh me” or “ do anything” the jarvis will randomly play a song from the list of saved song.

Contribution Summary

Prathmesh Kumar Saini: API setup & backend integration

Latesh Kumari : System design & adding up functionalities.

Suryansh Naugraiya : Front-end design of UI

Work Done

- Search anything in wikipedia
- Open any website in the browser
- Send Email
- Launch any system application
- Tells you the current time
- Greetings/ leave
- Tells you latest news feeds
- Google anything you ask

Work Left

- Tells you the current weather and temperature of almost any city
- Tells the stock price of AMAZON
- Tells the joke
- Tells you the city or state location

References

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