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## AI BASED VOICE ASSISTANT

### FINAL REVIEW REPORT

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## **ABSTRACT**

To create an artificial intelligence voice assistant using python that can take voice commands and return the output for the specified query's like computational and geographical questions, opening any application or file, opening websites ,doing Wikipedia searches ,sending an email and also playing music.

The voice assistant uses an AI knowledge base to perform all the action using several processing algorithms.

Using voice assistants is an intuitive way to help answer customer queries that offer the convenience of talking to a person in a natural language. Customers can talk to the voice assistants just as they would with a live agent to seek support. All without the need for constant human intervention for repetitive questions.

Voice assistants can be deployed to answer queries and assist customers with making informed decisions around the clock. They can pick up from previous conversations and devise personalised answers and resolutions that fit the user query the best. Users can access AI voice assistants at any time to get query resolutions instantaneously. This does away with the wait times and support queues creating happier customer experiences.

## **INTRODUCTION**

Voice assistants are devices/apps that respond to voice commands through Wi-fi or Bluetooth devices. AI-based voice assistants are AI technology, natural language processing and ML models, to respond to humans. Using the technology, the device synthesizes the user's message, breaks it down, evaluates it, and offers a meaningful response in return.

The voice assistant is design to make the work easier of the user. As user can give command to them without making visual access to the screen. The biggest disadvantage of this system is that confidential data can be accessed by unauthorized user so the privacy can be breached. Due to this, the confidentiality, integrity and availability (CIA) of user data is affected.

It has recently become accessible to the mass market-to both law enforcement and private consumers.

## **USES**

➤ More convenience to users: -

Using voice assistants is an intuitive way to help answer customer queries that offer the convenience of talking to a person in a natural language.

Customers can talk to the voice assistants just as they would with a live agent to seek support. All without the need for constant human intervention for repetitive questions.

➤ Faster and tailored resolutions: -

Voice assistants can be deployed to answer queries and assist customers with making informed decisions around the clock. They can pick up from previous conversations and devise personalised answers and resolutions that fit the user query the best. Users can access AI voice assistants at any time to get query resolutions instantaneously. This does away with the wait times and support queues creating happier customer experiences.

➤ Reduced handling time: -

One of the most important metrics in customer support is the average handling time or AHT. AI voice assistants can help reduce the average handling time drastically. Why is that? Because voice input and output time is lesser than the time needed to type out a query and read the response on a Chabot. This eases the load off your support staff and results in quicker resolution cycles.

➤ Lowered costs: -

An AI voice assistant can answer multiple users at the same time without training and equipping support staff to help manage high support ticket

volumes. The reduced need for human resources can save you a lot of money in the long run.

➤ Precision and accuracy: -

Voice assistant are powered by artificial intelligence which constantly learns from previous interactions. This makes voice assistant better at answering a higher volume of search queries every time. Built on sharp AI algorithms, voice assistants are extremely precise and accurate with their answers.

➤ More conversions: -

An AI voice assistant can boost conversions by engaging with users before they abandon their carts. It can quickly ask and gauge the user's requirements to come up with a directed solution best for their use case.

## LITERATURE REVIEW

| <b>Authors</b>  | <b>Paper</b>  | <b>Summary</b>  |
|---|---|---|
| <u>Saadman Shahid Chowdhury; Atiar Talukdar; Ashik Mahmud; Tanzilur Rahman (2018)</u> | <b>Domain Specific Intelligent Personal Assistant with Bilingual Voice Command Processing</b>                       | Intelligent Personal Assistants (IPA), like Siri and Alexa, are created to assist their users with simple digital tasks                 |
| <u>J. Iso-Sipila; M. Moberg; O. Viikki (2016)</u>                                     | <b>Multi-Lingual Speaker-Independent Voice User Interface For Mobile Devices</b>                                    | This paper presents a multi-lingual speaker-independent voice user interface (UI) that has been implemented for Nokia S60 mobile phones |
| <u>Khawir Mahmood; Tauseef Rana; Abdur Rehman Raza (2018)</u>                         | <b>Singular Adaptive Multi-Role Intelligent Personal Assistant (SAM-IPA) for Human Computer Interaction</b>         | Intelligent Personal Assistance are poised to become the primary and most significant Human Computer Interface in the near future       |
| <u>J. Iso-Sipila; M. Moberg; O. Viikki (2018)</u>                                     | <b>Monitoring Eating Behaviors for a Nutritionist E-Assistant Using Crowdsourcing</b>                               | The authors describe Lucy, a digital assistant that monitors eating behaviors to help users lose weight                                 |
| <u>Veton Këpuska; Gamal Bohouta (2018)</u>  | <b>Next-generation of virtual personal assistants (Microsoft Cortana, Apple Siri, Amazon Alexa and Google Home)</b> | One of the goals of Artificial intelligence (AI) is the realization of natural dialogue between humans and machines                     |

|   |  |   |
|---|--|---|
| Laura<br>Burbach; Patrick<br>Halbach; Nils<br>Plettenberg; Johann<br>es<br>Nakayama; Martina<br>Zieffle; André<br>Calero Valdez<br>(2019) | <b>"Hey, Siri", "Ok, Google", "Alexa". Acceptance-Relevant Factors of Virtual Voice-Assistants</b> | Today, virtual voice-assistants are used for manifold purposes. Besides their promising potential |
|---|--|---|

## **PROBLEM DEFINITION**

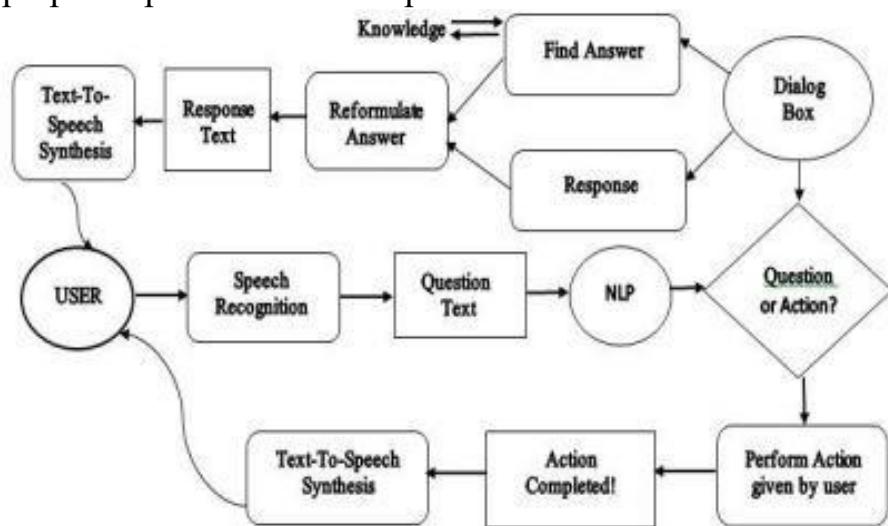
We're going to create a chatbot framework and build a conversational model for an online shop, in this case a gadgets company. Although, this chatbot is suitable for any small business which needs to handle simple questions like hours of operation, reservation options and so on. We aim to be able to make it so that we only need to change one file, namely an *intents JSON (JavaScript Object Notation) object*, so that it can be used in different contexts from answering FAQs on a website to just being a casual conversational bot.

## **PROBLEM STATEMENT**

The voice assistant is designed to make the work easier of the user. As user can give command to them without making visual access to the screen. The biggest disadvantage of this system is that confidential data can be accessed by unauthorized user so the privacy can be breached. Due to this, the confidentiality, integrity and availability (CIA) of user data is affected. It has recently become accessible to the mass market-to both law enforcement and private consumers.

## SYSTEM DEVELOPMENT

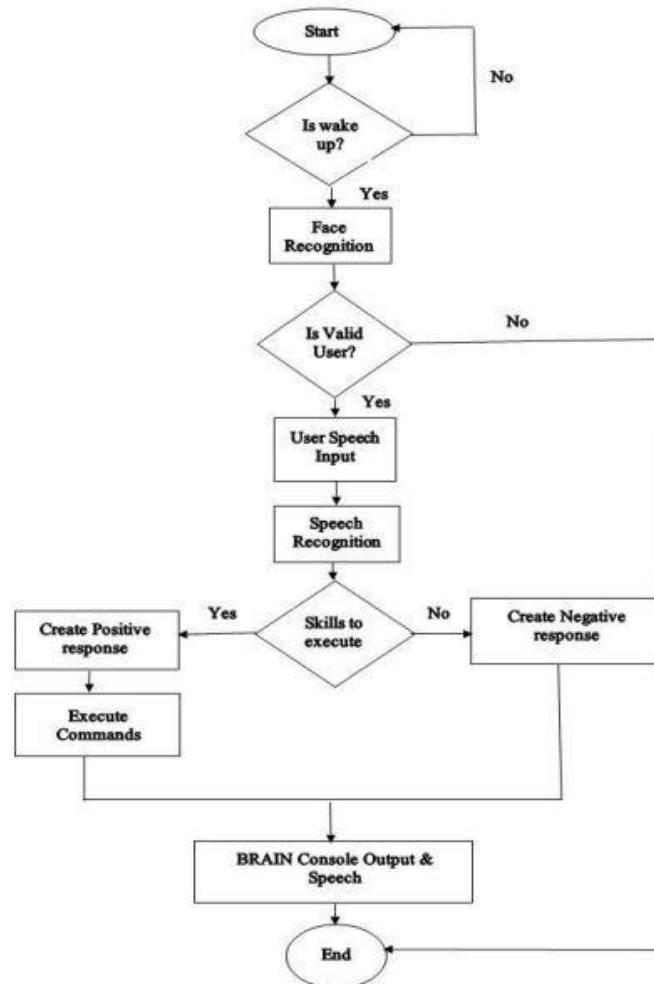
- AI: artificial intelligence can analyse past weather patterns to predict future events, much more efficiently. The simple, data-based A.I. model can simulate a year's weather around the globe much more quickly and almost as well as traditional weather models, by taking similar repeated steps from one forecast to the next.
- MACHINE LEARNING: ML is implemented for pattern recognition and detection through linear regression.
- Python: Python is used for general purpose programming which is free to use and high level language. Python is a interpreted, interactive, object-oriented and beginner's language. Python can runs on Linux kernel.
- Laptop or a personalised computer.



## **PROPOSED SYSTEM FEATURE**

- Python provides a large standard library which includes areas like internet protocols, string operations, web services tools and operating system interfaces. Many high use programming tasks have already been scripted into the standard library which reduces the length of code to be written significantly.
- Python has clean object-oriented design, provides enhanced process control capabilities, and possesses strong integration and text processing capabilities and its own unit testing framework, all of which contribute to the increase in its speed and productivity. Python is considered a viable option for building complex multiprotocol network applications.
- A text-to-speech (TTS) system converts normal language text into speech. Synthesized speech can be created by concatenating pieces of recorded speech that are stored in a database. The output is given in the form of speech.
- This Voice Assistant can benefit large number of users with universal eyes free and hands free voice control of their mobile devices. Its framework may help to shape future voice control devices

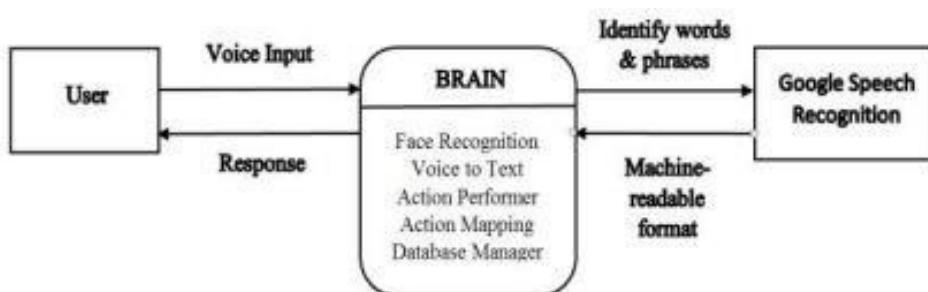
## SYSTEM FLOWCHART



## DATA FLOW DIAGRAM

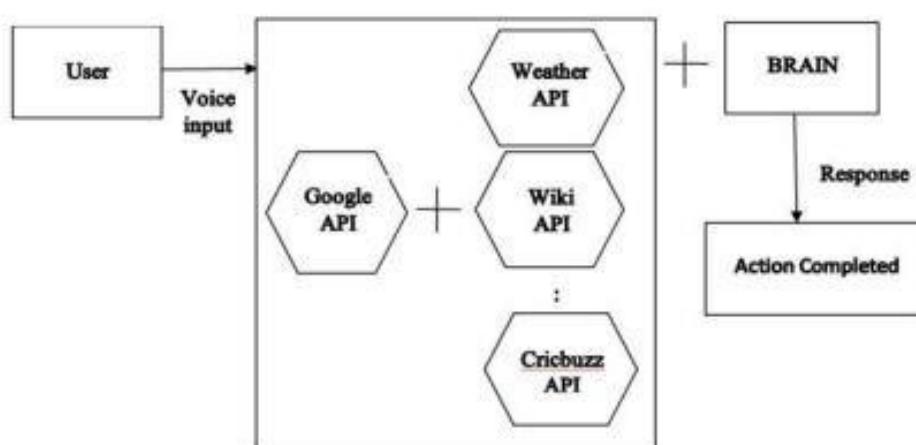
### Level 0 DFD:-

The user gives the input in the form of voice; this voice command is recognized by the application. Then it will check whether it is the authorized user, then action is performed as per the command given by the user. Command given is compared as a form of action and question and response with the dialog box or search through the knowledge base.



### Level 1 DFD:-

Input is given by user in the form of voice. GoogleVoiceAPI will convert this voice data in text form and then the action is performed by the voice assistant according to the command given by the user by comparing with the dialog box and knowledge base.



## IMPLEMENTATION

### PACKAGES:-

```
1  from ast import Break
2  from asyncio import subprocess
3  from gtts import gTTS
4  import pyttsx3 #pip install pyttsx3
5  import speech_recognition as sr #pip install speechRecognition
6  import playsound
7  import datetime
8  import wikipedia #pip install wikipedia
9  import webbrowser
10 import os
11 import smtplib
12 import sys
13 import wolframalpha
```

### FUNCTION DEFINITIONS:-

Basic function definition to use pyaudio and pyttsx3 to define a function that the AI voice assistant can use to speak

```
17 engine = pyttsx3.init('sapi5')
18 voices = engine.getProperty('voices')
19 # print(voices[1].id)
20 engine.setProperty('voice', voices[1].id)
21
22
23 def speak(audio):
24     engine.say(audio)
25     engine.runAndWait()
26
```

Function for the voice assistant to take note of the time and wish the user

```

28  def wishMe():
29      hour = int(datetime.datetime.now().hour)
30      if hour>=0 and hour<12:
31          speak("Good Morning!")
32
33      elif hour>=12 and hour<18:
34          speak("Good Afternoon!")
35
36      else:
37          speak("Good Evening!")
38
39      speak("I am broly Sir. Please tell me how may I help you")
40

```

Function for the AI voice assistant to use to take user inputs in form of speech and recognize them and return an output

```

41  def takeCommand():
42      #It takes microphone input from the user and returns string output
43
44      r = sr.Recognizer()
45      with sr.Microphone() as source:
46          print("Listening...")
47          r.pause_threshold = 1
48          audio = r.listen(source)
49
50      try:
51          print("Recognizing...")
52          query = r.recognize_google(audio, language='en-in')
53          print(f"User said: {query}\n")
54
55      except Exception as e:
56          # print(e)
57          print("Say that again please...")
58          return "None"
59
60      return query

```

Function to open a notepad and write something in it

```

61  def note(audio):
62      date=datetime.datetime.now()
63      file_name=str(date).replace(":", "-")+"-note.txt"
64      with open(file_name,"w") as f:
65          f.write(audio)
66      subprocess.Popen(["notepad.exe",file_name])
67

```

Function to send an email

```
69  def sendEmail(to, content):
70      server = smtplib.SMTP('smtp.gmail.com', 587)
71      server.ehlo()
72      server.starttls()
73      server.login('youremail@gmail.com', 'your-password')
74      server.sendmail('youremail@gmail.com', to, content)
75      server.close()
76
```

## FUNCTION MAIN:-

IF and ELSE statements under the main function

```
77  if __name__ == "__main__":
78      wishMe()
79      while True:
80          # if 1:
81          query = takeCommand().lower()
82
83          # Logic for executing tasks based on query
84          if 'wikipedia' in query:
85              speak('Searching Wikipedia...')
86              query = query.replace("wikipedia", "")
87              results = wikipedia.summary(query, sentences=2)
88              speak("According to Wikipedia")
89              print(results)
90              speak(results)
91
92          elif 'open youtube' in query:
93              webbrowser.open("youtube.com")
94
95          elif 'open google' in query:
96              webbrowser.open("google.com")
97
98          elif 'open stackoverflow' in query:
99              webbrowser.open("stackoverflow.com")
100
101         elif 'search' in query:
102             query = query.replace("search", "")
103             webbrowser.open(query)
```

ELIF statements to take photo, play music, opening word doc, notepad and other

```
105 elif "camera" in query or "take a photo" in query:  
106     |     ec.capture(0,"robo camera","img.jpg")  
107  
108 elif 'play music' in query:  
109     |     music_dir = 'D:\\music'  
110     |     songs = os.listdir(music_dir)  
111     |     print(songs)  
112     |     os.startfile(os.path.join(music_dir, songs[0]))  
113  
114 elif 'open word document' in query:  
115     |     speak("opening word document")  
116     |     power = r"C:\\ProgramData\\Microsoft\\Windows\\Start Menu\\Programs\\Microsoft Office 2013\\Word 2013"  
117     |     os.startfile(power)  
118  
119 elif 'open desktop' in query:  
120     |     speak("opening desktop")  
121     |     power = r"C:\\Users\\RMTar\\OneDrive\\Desktop"  
122     |     os.startfile(power)  
123  
124 elif 'open program files' in query:  
125     |     speak("opening program files")  
126     |     power = r"C:\\Program Files"  
127     |     os.startfile(power)  
128  
129 elif 'open folders' in query:  
130     |     speak("opening folders")  
131     |     power = r"C:\\Users\\RMTar\\OneDrive\\Desktop\\folders and docs"  
132     |     os.startfile(power)  
133  
134 elif 'c drive' in query:  
135     |     speak("opening c drive")  
136     |     power = r"C:\\"  
137     |     os.startfile(power)  
138  
139 elif 'd drive' in query:  
140     |     speak("opening d drive")  
141     |     power = r"D:\\"  
142     |     os.startfile(power)  
143  
144 elif 'open ai' in query:  
145     |     speak("opening AI")  
146     |     power = r"D:\\Tarun Docs\\VIT\\winter semester 2nd year\\AI"  
147     |     os.startfile(power)  
148  
149 elif 'open vit' in query:  
150     |     speak("opening vit")  
151     |     power = r"D:\\Tarun Docs\\VIT"  
152     |     os.startfile(power)  
153  
154 elif 'open notepad' in query:  
155     |     speak("opening notepad")  
156     |     power = r"C:\\ProgramData\\Microsoft\\Windows\\Start Menu\\Programs\\Accessories\\Notepad"  
157     |     os.startfile(power)
```

folders.

ELIF statement ot stop or pause the voice assistant

```
159 elif 'quit' in query or 'bye' in query or 'stop' in query:  
160     |     speak("quitting")  
161     |     sys.exit()  
162
```

ELIF statement to ask the AI voice assistant to perform computational and

```
162
163     elif 'broly' in query:
164         speak('I can answer to computational and geographical questions and what question do you want to ask now')
165         question=takeCommand()
166         app_id="3PKK7X-P4JWG9YLK"
167         client = wolframalpha.Client('R2K75H-7ELALHR35X')
168         res = client.query(question)
169         answer = next(res.results).text
170         speak(answer)
171         print(answer)
172
```

geographical queries using wolframAlpha API knowledge base

ELIF statement to return the current time and to open python program

```
173
174     elif 'the time' in query:
175         strTime = datetime.datetime.now().strftime("%H:%M:%S")
176         speak(f"Sir, the time is {strTime}")
177
178     elif 'open python' in query:
179         speak("opening python")
180         codePath = "C:\\\\Users\\\\RMAR\\\\AppData\\\\Roaming\\\\Microsoft\\\\Windows\\\\Start Menu\\\\Programs\\\\Anaconda3 (64-bit)\\\\Spyder (anacond"
181         os.startfile(codePath)
182
```

ELIF statement to send an

```
182
183     elif 'email' in query:
184         try:
185             speak("What should I say?")
186             content = takeCommand()
187             to = "rmtarun@gmail.com"
188             sendEmail(to, content)
189             speak("Email has been sent!")
190         except Exception as e:
191             print(e)
192             speak("Sorry i am not able to send this email")
```

## RESULTS

### Output for Wikipedia search

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

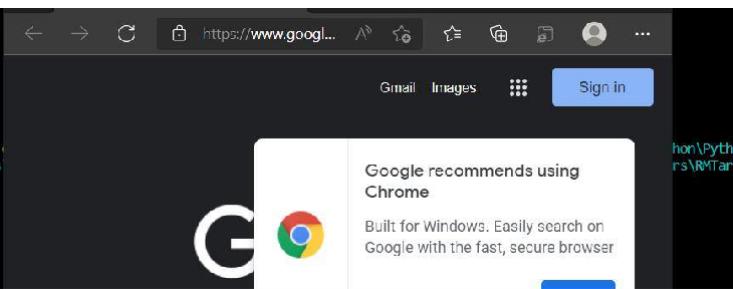
PS C:\Users\RMTar\OneDrive\Desktop\broyly> & 'C:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '64919' '--' 'c:\Users\RMTar\OneDrive\Desktop\broyly\broyly.py'
Listening...
Recognizing...
User said: artificial intelligence Wikipedia

Artificial intelligence (AI) is intelligence demonstrated by machines, as opposed to the natural intelligence displayed by animals including humans. AI research has been defined as the field of study of intelligent agents, which refers to any system that perceives its environment and takes actions that maximize its chance of achieving its goals. The term "artificial intelligence" had previously been used to describe machines that mimic and display "human" cognitive skills that are associated with the human mind, such as "learning" and "problem-solving".
```

### Output for opening google

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Recognizing...
Say that again please...
Listening...
Recognizing...
Say that again please...
Listening...
PS C:\Users\RMTar\OneDrive\Desktop\broyly> c:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '64919' '--' 'c:\Users\RMTar\OneDrive\Desktop\broyly\broyly.py'
Listening...
Recognizing...
User said: open Google

Listening...
```

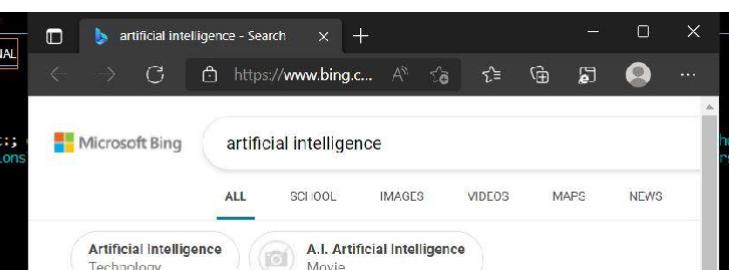
A screenshot of a web browser window showing the Google homepage. The address bar shows 'https://www.google.com'. The page features the classic Google logo and a message from Google recommending Chrome. Below the message, it says 'Built for Windows: Easily search on Google with the fast, secure browser'. The browser interface includes standard navigation buttons like back, forward, and refresh.

### Output for searching something in google

```
RUNNING 109 | music_dir = 'D:\\\\music'
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Recognizing...
User said: quit

PS C:\Users\RMTar\OneDrive\Desktop\broyly> c:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '64919' '--' 'c:\Users\RMTar\OneDrive\Desktop\broyly\broyly.py'
Listening...
Recognizing...
User said: search artificial intelligence

Listening...
```

A screenshot of a web browser window showing search results for 'artificial intelligence' on Microsoft Bing. The search bar contains the query 'artificial intelligence'. Below the search bar, there are several tabs: ALL, SCIENCE, IMAGES, VIDEOS, MAPS, and NEWS. The 'ALL' tab is selected. Below the tabs, there are two main search results: 'Artificial Intelligence Technology' and 'A.I. Artificial Intelligence Movie'. The browser interface includes standard navigation buttons and a search bar.

### Output for taking a photo, the voice assistant opens camera

```
REC IS NOT DEFINED 110 | songs = os.listdir(music_dir)
111 | print(songs)
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
rive\Desktop\broyly\broyly.py'
PS C:\Users\RMTar\OneDrive\Desktop\broyly> c:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '64919' '--' 'c:\Users\RMTar\OneDrive\Desktop\broyly\broyly.py'
PS C:\Users\RMTar\OneDrive\Desktop\broyly> c:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '64919' '--' 'c:\Users\RMTar\OneDrive\Desktop\broyly\broyly.py'
Listening...
Recognizing...
User said: take a photo
```

A screenshot of a camera viewfinder. The screen is mostly black, indicating that the camera is active and capturing an image. There is a small, blurry preview of the scene in front of the camera, which appears to be an indoor setting with some furniture and objects.

## Output for opening word file

PS C:\Users\RMTar\OneDrive\Desktop\broly> c:; cd 'c:\Users\RMTar\OneDrive\Desktop\broly'; & 'C:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '58608' '--' 'c:\Users\RMTar\OneDrive\Desktop\broly\broly.py'  
Listening...  
Recognizing...  
Say that again please...  
Listening...  
Recognizing...  
User said: open Word document

Word  
Recent

Search for online templates  
Suggested searches: Business Cards Flyers Letters Education Resumes and Cover Letters Holiday

## Outputs for opening any application or file in This PC

PS C:\Users\RMTar\OneDrive\Desktop\broly> c:; cd 'c:\Users\RMTar\OneDrive\Desktop\broly'; & 'C:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '50651' '--' 'c:\Users\RMTar\OneDrive\Desktop\broly\broly.py'  
Listening...  
Recognizing...  
User said: open desktop

Desktop

File Home Share View  
← → ↑ This PC > Desktop Search Desktop

Quick access Desktop Downloads Documents Pictures Office15 OneDrive

folders and docs 20BC2E2758 Anaconda Navigator (anaconda3) (1) Anaconda Navigator (anaconda3) BUFF Cisco Packet Tracer Crab Game Dev-C++

PS C:\Users\RMTar\OneDrive\Desktop\broly> c:; cd 'c:\Users\RMTar\OneDrive\Desktop\broly'; & 'C:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '50674' '--' 'c:\Users\RMTar\OneDrive\Desktop\broly\broly.py'  
Listening...  
Recognizing...  
User said: open folders

folders and docs

File Home share View  
← → ↑ This PC > Desktop > folders and docs Search folders and docs

Office15 OneDrive spyder-py3

Name Status Date modified Type

All review bid sc

PS C:\Users\RMTar\OneDrive\Desktop\broly> c:; cd 'c:\Users\RMTar\OneDrive\Desktop\broly'; & 'C:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonfiles\lib\python\debugpy\launcher' '50743' '--' 'c:\Users\RMTar\OneDrive\Desktop\broly\broly.py'  
Listening...  
Recognizing...  
User said: open Notepad

Untitled - Notepad

File Edit Format View Help

```
PS C:\Users\RMTar\OneDrive\Desktop\broly> c:; cd 'c:\Users\RMTar\OneDrive\Desktop\broly'; & 'C:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonFiles\lib\python\debugpy\launcher' '50717' '--' 'c:\Users\RMTar\OneD
rive\Desktop\broly\broly.py'
Listening...
Recognizing...
User said: open program files
```

## Output for any computational or geographical query or question

```
PS C:\Users\RMTar\OneDrive\Desktop\broly> c:; cd 'c:\Users\RMTar\OneDrive\Desktop\broly'; & 'C:\Users\RMTar\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\RMTar\.vscode\extensions\ms-python.python-2022.4.1\pythonFiles\lib\python\debugpy\launcher' '56879' '--' 'c:\Users\RMTar\OneD
rive\Desktop\broly\broly.py'
Listening...
Recognizing...
User said: broly

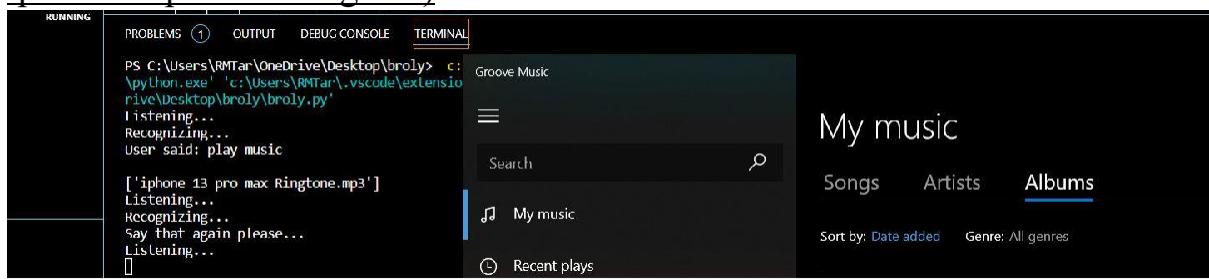
Listening...
Recognizing...
User said: what is the temperature right now in Tokyo

15 °C
(54 minutes ago)
Listening...
Recognizing...
User said: broly

Listening...
Recognizing...
User said: what is 26 + 15

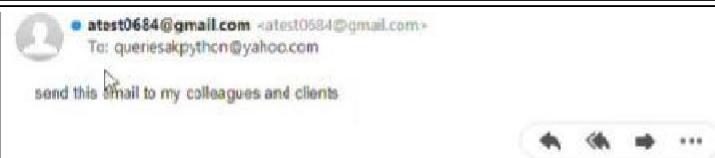
41
Listening...
Recognizing...
User said: quit
```

## Output for playing music(plays music from music directory in this case its iphone 13 pro max ringtone)



Output for sending an email(takes the mail as user input through speech and sends the mail)

```
Clearing background noise...
waiting for your message...
Done recording...
Printing the message...
Your message:send this email to my colleagues and clients
Password for <atest0684@gmail.com>: █
```



## **CONCLUSION AND FUTURE WORK**

This system is designed in such a method wherein the user can accommodate to it effortlessly. The A.I. a personal voice assistant can be implemented using speech recognition module thus makes the system more secure and robust. Speech recognition technology is a key technology which will provide a new way of human interaction with machine or tools. The advantage of voice commands over multi-touch when interacting with a screen non-visually is that it does not require targets to be located and thus avoids the problems with pointing, it saves time. The sending of Email, and reading of News can be possible by the blind people also. This can do variety of tasks like tell you the time, open application, organized files, can gives updates of matches, play game, tell you the location, tell some jokes, open hackathon, do calculation, updates about the stock and the endless tasks for the user. Thus making one's life comfortable and at the same time remotely accessible via voice commands

Using this system as a framework, the system can be expanded to features security. Security is important these days so it can be combined with this system to give more advanced security features. In this, the voice authentication technology can be implemented for more security. More advancement are possible like operating on various tones or accents from different regions that mean it should be able to perform operations on various voice tones and accents.. Further modifications are possible like learning the answer of questions that are not known by the voice assistant and replying whenever next time the same question is put up by the user.

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