

Artificial Intelligence (INT404)

Voice Based personal Assistant using python

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Voice Based Virtual Assistant for Windows

Amy

A virtual assistant is an application that can understand voice commands and complete tasks for a user. Virtual assistants are available on most smartphones and tablets, traditional computers, and, now, even standalone devices like the Amazon Echo and Google Home.

They combine specialized computer chips, microphones, and software that listens for specific spoken commands from you and usually answers back with a voice that you select.

The Basics of Virtual Assistants

There are five primary virtual assistants on the market (others exist but aren't as popular):

- Alexa
- Siri
- Google Assistant
- Cortana
- Bixby

Virtual assistants like these can do everything from answer questions, tell jokes, play music, and control items in your home such as lights, thermostats, door locks, and smart home devices. They can respond to many voice commands, send text messages, make phone calls, set up reminders. Anything you do on your phone, you can probably ask your virtual assistant to do for you.

Even better, virtual assistants can learn over time and get to know your habits and preferences, so they're always getting smarter. Using artificial intelligence (AI), virtual assistants can understand natural language, recognize faces, identify objects, and communicate with other smart devices and software.

The power of digital assistants will only grow, and it's inevitable that you'll use one of these assistants sooner or later (if you haven't already). Amazon Echo and Google Home are the main choices in smart speakers, though we expect to see models from other brands down the road.

Types of virtual assistants

Though this definition focuses on the digital form of virtual assistants, the term *virtual assistant*, or virtual personal assistant, is also commonly used to describe contract workers who work from home doing administrative tasks typically performed by executive assistants or secretaries.

Virtual assistants can also be contrasted with another type of consumer-facing AI programming, called smart advisers. Smart adviser programs are subject-oriented, while virtual assistants are task-oriented.

Requirements

Hardware Requirements:

Minimum System Requirements

- Processors: Intel Atom® processor or Intel® Core™ i3 processor.
- Disk space: 1 GB.
- Operating systems: Windows* 7 or later, macOS, and Linux.
- Python* versions: 2.7.X, 3.6.X.

Software Requirements:

- Python IDLE
- Tkinter module
- Pytsx3 module
- SpeechRecognition Module
- Wolfram Alpha module
- OS module
- Webbrowser module
- Wikipedia module
- Datetime module
- Roman module
- Python programming language.

Modular Representation

Tkinter

Tkinter is a Python binding to the Tk GUI toolkit. It is the standard Python interface to the Tk GUI toolkit, and is Python's de facto standard GUI. Tkinter is included with standard Linux, Microsoft Windows and Mac OS X installs of Python.

Pytsx3

pytsx3 is a text-to-speech conversion library in Python. Unlike alternative libraries, it works offline and is compatible with both Python 2 and 3. An application invokes the `pytsx3.init()` factory function to get a reference to a `pytsx3`.

Speech Recognition

Speech Recognition is an important feature in several applications used such as home automation, artificial intelligence, etc. It can be used on microcontrollers such as Raspberri Pi's with the help of an external microphone.

Wolfram alpha

The Wolfram Alpha Webservice API provides a web-based API allowing the computational and presentation capabilities of Wolfram Alpha to be integrated into web, mobile, desktop, and enterprise applications. Wolfram Alpha is an API which can compute expert-level answers using Wolfram's algorithms, knowledgebase and AI technology. It is made possible by the Wolfram Language.

Roman

Small helper library to convert arabic to roman numerals.

OS

The OS module in python provides functions for interacting with the operating system. OS, comes under Python's standard utility modules. This module provides a portable way of using operating system dependent functionality. The `*os*` and `*os.path*` modules include many functions to interact with the file system.

Wikipedia

Wikipedia is a Python library that makes it easy to access and parse data from Wikipedia. Search Wikipedia, get article summaries, get data like links and images from a page, and more. Wikipedia wraps the MediaWiki API so you can focus on using Wikipedia data, not getting it.

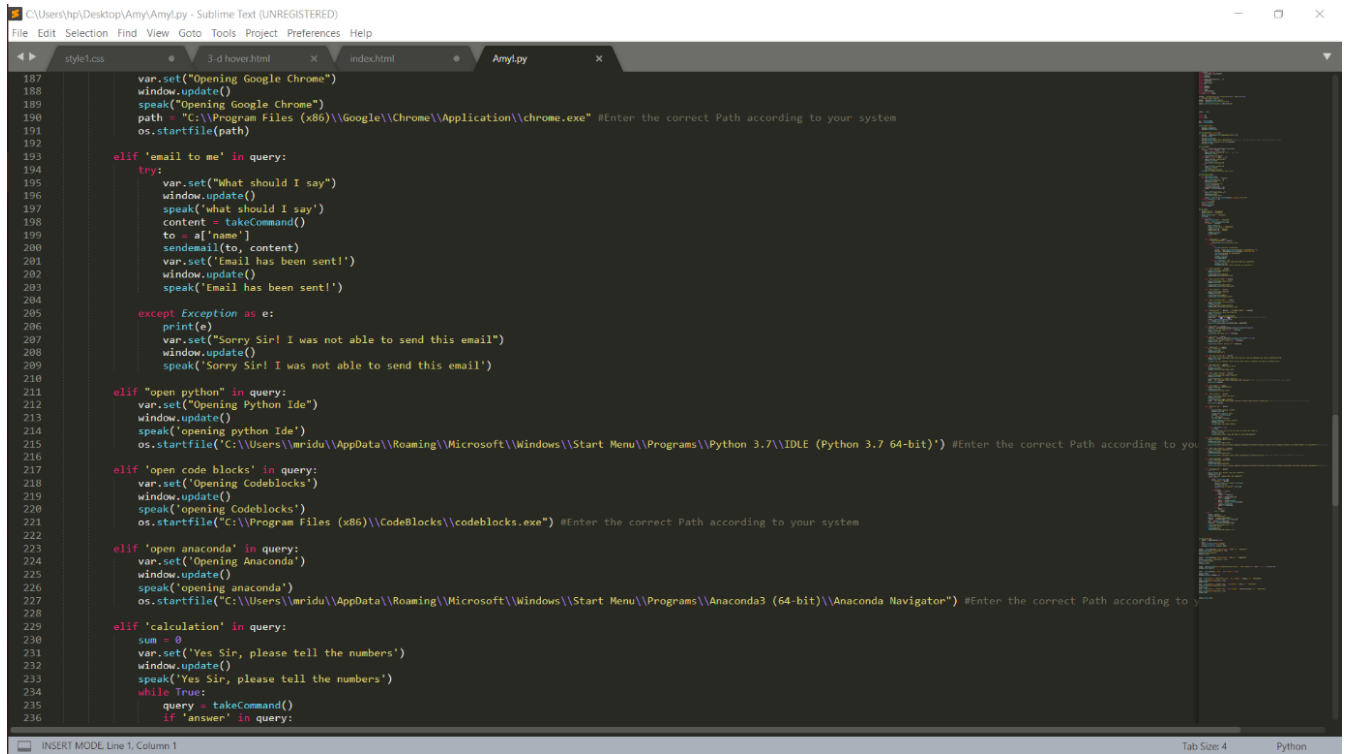
Web browser

In Python, **webbrowser module** provides a high-level interface which allows displaying Web-based documents to users. The webbrowser module can be used to launch a browser in a platform-independent manner.

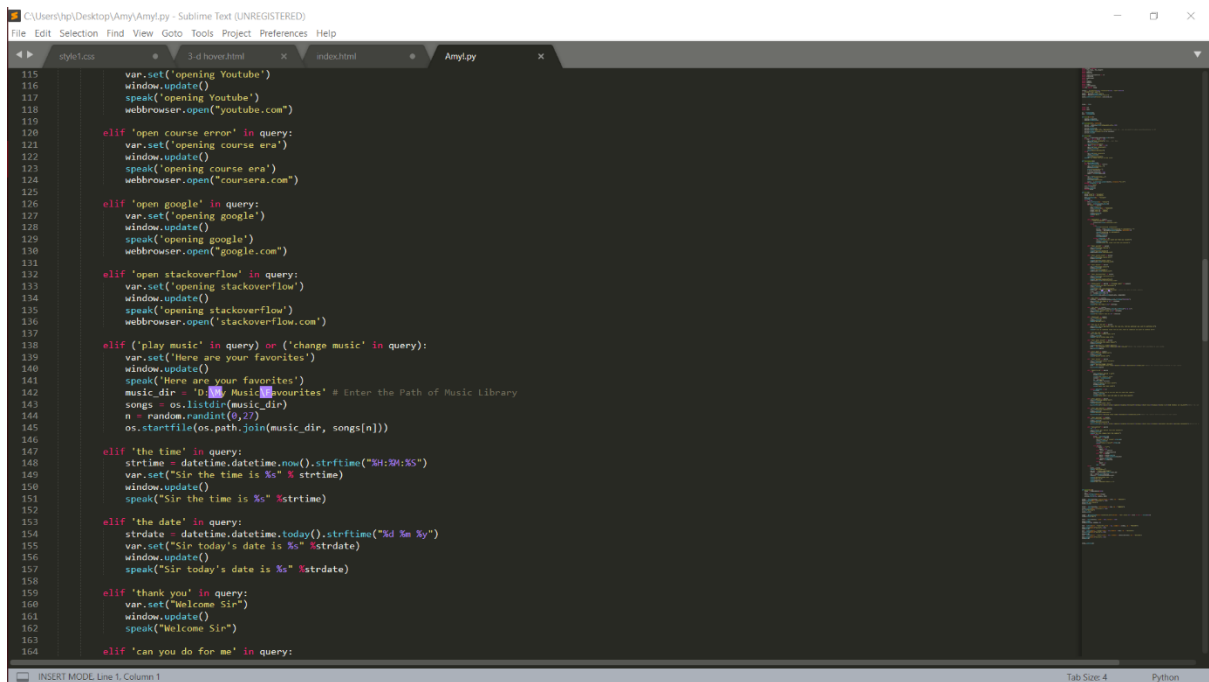
Datetime

In Python, date and time are not a data type of its own, but a module named datetime can be imported to work with the date as well as time. Datetime module comes built into Python, so there is no need to install it externally.

Implementation



```
187 var.set("Opening Google Chrome")
188 window.update()
189 speak("Opening Google Chrome")
190 path = "C:\\Program Files (x86)\\Google\\Chrome\\Application\\chrome.exe" #Enter the correct Path according to your system
191 os.startfile(path)
192
193 elif 'email to me' in query:
194     try:
195         var.set("What should I say")
196         window.update()
197         speak('what should I say')
198         content = takeCommand()
199         to = a['name']
200         sendemail(to, content)
201         var.set('Email has been sent!')
202         window.update()
203         speak('Email has been sent!')
204
205     except Exception as e:
206         print(e)
207         var.set("Sorry Sir! I was not able to send this email")
208         window.update()
209         speak('Sorry Sir! I was not able to send this email')
210
211 elif 'open python' in query:
212     var.set("Opening Python Ide")
213     window.update()
214     speak('opening python Ide')
215     os.startfile('C:\\Users\\Amriddu\\AppData\\Roaming\\Microsoft\\Windows\\Start Menu\\Programs\\Python 3.7\\IDLE (Python 3.7 64-bit)') #Enter the correct Path according to your system
216
217 elif 'open code blocks' in query:
218     var.set('Opening Codeblocks')
219     window.update()
220     speak('opening codeblocks')
221     os.startfile('C:\\Program Files (x86)\\CodeBlocks\\codeblocks.exe') #Enter the correct Path according to your system
222
223 elif 'open anaconda' in query:
224     var.set('Opening Anaconda')
225     window.update()
226     speak('opening anaconda')
227     os.startfile('C:\\Users\\Amriddu\\AppData\\Roaming\\Microsoft\\Windows\\Start Menu\\Programs\\Anaconda3 (64-bit)\\Anaconda Navigator') #Enter the correct Path according to your system
228
229 elif 'calculation' in query:
230     sum = 0
231     var.set('Yes Sir, please tell the numbers')
232     window.update()
233     speak('Yes Sir, please tell the numbers')
234     while True:
235         query = takeCommand()
236         if 'answer' in query:
```

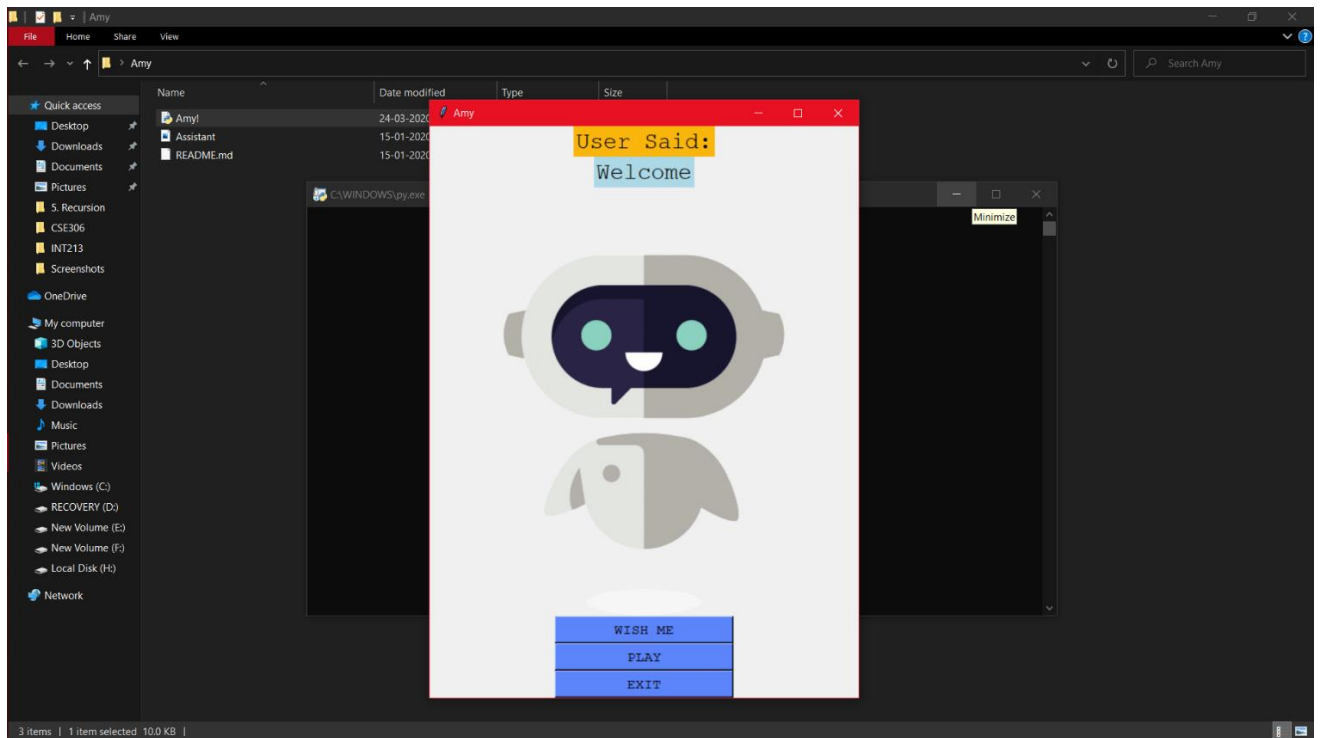


```
115 var.set('opening Youtube')
116 window.update()
117 speak('opening Youtube')
118 webbrowser.open("youtube.com")
119
120 elif 'open course error' in query:
121     var.set('opening course era')
122     window.update()
123     speak('opening course era')
124     webbrowser.open("courseera.com")
125
126 elif 'open google' in query:
127     var.set('opening google')
128     window.update()
129     speak('opening google')
130     webbrowser.open("google.com")
131
132 elif 'open stackoverflow' in query:
133     var.set('opening stackoverflow')
134     window.update()
135     speak('opening stackoverflow')
136     webbrowser.open('stackoverflow.com')
137
138 elif ('play music' in query) or ('change music' in query):
139     var.set('Here are your favorites')
140     window.update()
141     speak('Here are your favorites')
142     music_dir = "D:\\Music\\Favorites" # Enter the Path of Music Library
143     songs = os.listdir(music_dir)
144     n = random.randint(0,22)
145     os.startfile(os.path.join(music_dir, songs[n]))
146
147 elif 'the time' in query:
148     strtime = datetime.datetime.now().strftime("%H:%M:%S")
149     var.set("Sir the time is %s" % strtime)
150     window.update()
151     speak("Sir the time is %s" % strtime)
152
153 elif 'the date' in query:
154     strdate = datetime.datetime.today().strftime("%d %m %y")
155     var.set("Sir today's date is %s" % strdate)
156     window.update()
157     speak("Sir today's date is %s" % strdate)
158
159 elif 'thank you' in query:
160     var.set("Welcome Sir")
161     window.update()
162     speak("Welcome Sir")
163
164 elif 'can you do for me' in query:
```

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C:\Users\hp\Desktop\Amy\Amy.py - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help

style.css 3-d hover.html index.html Amy.py

64 window.update()
65 print("listening...")
66 r.pause_threshold = 1
67 r.energy_threshold = 400
68 audio = r.listen(source)
69
70 try:
71     var.set("Recognizing...")
72     window.update()
73     print("Recognizing")
74     query = r.recognize_google(audio, language='en-in')
75 except Exception as e:
76     return "None"
77 var1.set(query)
78 window.update()
79 return query
80
81 def play():
82     btn2['state'] = 'disabled'
83     btn0['state'] = 'disabled'
84     btn1.configure(bg = 'orange')
85     wishme()
86     while True:
87         btn1.configure(bg = 'orange')
88         query = takeCommand().lower()
89         if 'exit' in query:
90             var.set("Bye")
91             btn1.configure(bg = '#C8F8F8')
92             btn2['state'] = 'normal'
93             btn0['state'] = 'normal'
94             window.update()
95             speak("Bye")
96             break
97         elif 'wikipedia' in query:
98             if 'open wikipedia' in query:
99                 webbrowser.open('wikipedia.com')
100             else:
101                 try:
102                     speak("searching wikipedia")
103                     query = query.replace("according to wikipedia", "")
104                     results = wikipedia.summary(query, sentences=2)
105                     speak("According to wikipedia")
106                     var.set(results)
107                     window.update()
108                     speak(results)
109                 except Exception as e:
110                     var.set("sorry sir could not find any results")
111                     window.update()
112                     speak("sorry sir could not find any results")
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The future of virtual assistants

Virtual assistants are quickly evolving to provide more capabilities and value to users. As speech recognition and natural language processing advances, so too will a virtual assistant's ability to understand and perform requests. And as voice recognition technology improves, virtual assistant use will move deeper into business workflows.