

# VIRTUAL MASTER USING PYTHON

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## ABSTRACT

Virtual Master is a virtual assistant or a software agent like 'Ok Google', 'Hi Alexa' or 'Hello Siri' who can understand natural language voice commands and complete the specified task for the user. This paper is a technical brief on Virtual Master and its applications. Major modules needed for this Virtual Master are also described.

## CONTENT

A Virtual Master can tell the current date, current time, responds back with a random greeting, can return information on a person and many more things. To perform these tasks, Virtual Master must have three basic skills:

1. Word Processing Skill
2. Good Oral communication
3. Quick thinking and effective decision making

This is really an interesting thing and it is possible using Python, because Python offers a good major library. Using Python version 3.9.0 and PyCharm IDE commands will be given to the system.

**The modules needed for this Virtual Master are as follows:**

1. *PyAudio (version 0.2.11):*

PyAudio is a basic Python library which is used to play and record audio. It provides Python bindings for PortAudio, the cross-platform audio I/O library. Command to install this module:

**pip install PyAudio**

2. *SpeechRecognition (version 3.8.1):*

It is used to convert audio into text for processing. Command to install this module:

**pip install SpeechRecognition**

### 3. gTTS (version 2.2.1):

gTTS is the Google Text to Speech API which converts the text into audio and can be saved as a mp3 file. Command to install this module:

**pip install gTTS**

### 4. Wikipedia (version 1.4.0):

It is a Python library that makes it easy to access and parse data from Wikipedia. Command to install this module:

**pip install Wikipedia**

#### **Full Procedure:**

- Create a new project file in PyCharm IDE in virtual environment.
- *Import the libraries:*

1.import speech\_recognition as sr

2.import os

3.from gtts import gTTS

4.import datetime

5.import warnings

6.import calendar

7.import random

8.import Wikipedia

- *Ignore any kind of warning messages:*  
warnings.filterwarnings('ignore')

- *Record audio and return it as a string:*

```
def recordAudio():  
  
    r=sr.Recognizer()  
    with sr.Microphone() as source:  
        print('say something...!')  
        audio= r.listen(source)  
  
    data = ''  
    try:  
        data = r.recognize_google(audio)
```

```

print('You said: '+data)
except sr.UnknownValueError:
print('Google Speech Recognition could not understand audio,
unknown error')
except sr.RequestError as e:
print('request results from Google Speech Recognition Service
error'+ e)
return data

```

- *Get the response of the Virtual Master:*

```

def assistantResponse(text):

print(text)

#convert text to speech
myobj = gTTS(text= text, lang= 'en', slow=False)

#save converted audio
myobj.save('assistant_response.mp3')

#play the converted file
os.system('start assistant_response.mp3')

```

- *A function wake word:*

```

def wakeword(text):
    WAKE_WORDS=['ok computer', 'okay lappy']

    text = text.lower()
    for phrase in WAKE_WORDS:
    if phrase in text:
    return True

    return False

```

- *Give current date:*

```

def getDate():

    now = datetime.datetime.now()
    my_date = datetime.datetime.today()
    weekday = calendar.day_name[my_date.weekday()]
    monthnum =now.month
    daynum = now.day

    month_name=['January', 'February', 'March', 'April', 'May', 'June', '
July', 'August', 'September', 'October', 'November', 'December']
    originalnum =
    ['1st', '2nd', '3rd', '4th', '5th', '6th', '7th', '8th', '9th', '10th', '
11th', '12th', '13th', '14th', '15th', '16th'
, '17th', '18th', '19th', '20th', '21st', '22nd', '23rd', '24th', '25th'
, '26th', '27th', '28th', '29th', '30th', '31st']
    return 'Today is '+weekday+' '+ month_name[monthnum-1]+'
'+originalnum[daynum-1]+'.'

```

- *Get back a random greeting:*

```

def greeting(text):
    greeting_input = ['hii', 'hello', 'hey']
    greeting_response = ['hii', 'hello', 'hey there']
    for word in text.split():
    if word.lower() in greeting_input:

```

```

return random.choice(greeting_response) + '.'

return ''

```

- *Get details about a famous person:*

```

def getPerson(text):
    wordlist = text.split()

    for i in range(0, len(wordlist)):
        if i+3 <= len(wordlist)-1 and wordlist[i].lower() == 'who' and
wordlist[i+1].lower() == 'is':
            return wordlist[i+2] + ' ' + wordlist[i+3]

```

```

while True:

```

```

    text = recordAudio()
    response = ''

```

- *Check for response if wake word is spoken:*

```

if(wakeword(text) == True):

```

```

    response= response + greeting(text)

```

```

#Virtual Master will response if 'date' word is spoken.

```

```

if('date' in text):
    get_date = getDate()
    response = response + ' ' +get_date

```

```

#Virtual Master will response if 'time' word is spoken.

```

```

if('time' in text):
    now=datetime.datetime.now()
    meridian =''

```

```

if now.hour>=12:
    meridian = 'p.m'
hour = now.hour - 12

```

```

else:
    meridian= 'a.m'
hour=now.hour

```

```

if now.minute<10:
    minute= '0'+str(now.minute)

```

```

else:
    minute= str(now.minute)

```

```

    response = response + ' ' +'It is '+str(hour)+ ':' +
minute+ ' '+meridian+' .'

```

```

#Virtual Master will response if the word 'who is' is spoken.

```

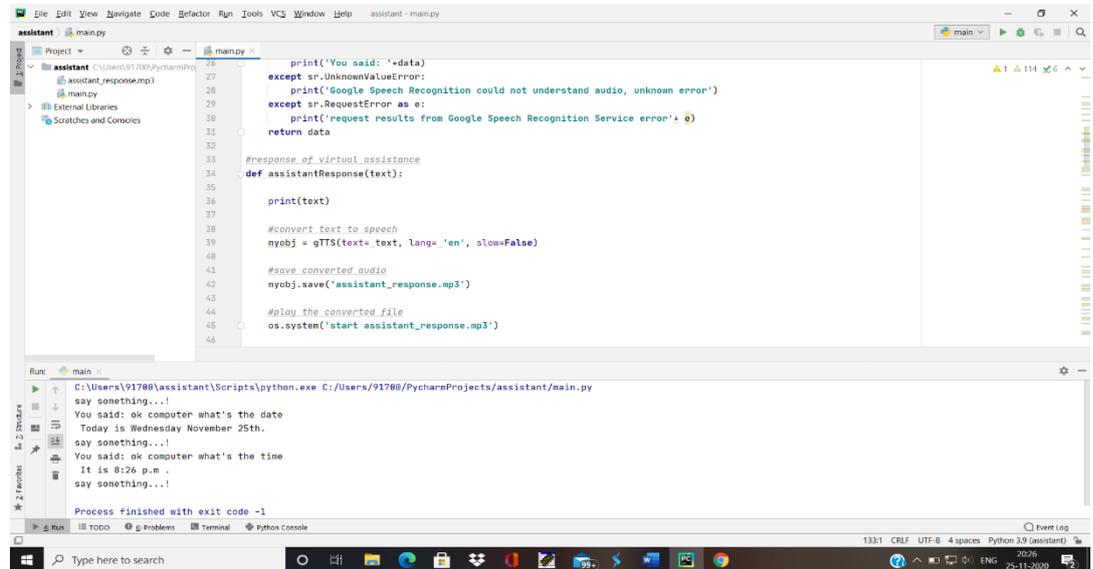
```

if('who is' in text):
    person=getPerson(text)
    wiki = wikipedia.summary(person, sentences=2)
    response = response + ' ' + wiki

```

assistantResponse (response)

- After this, save the program and run it.
- Pictorial Demonstration of Virtual Master:



The screenshot shows a Python IDE with a project named 'assistant'. The main.py file contains the following code:

```
26 print('You said: '-data)
27 except sr.UnknownValueError:
28     print('Google Speech Recognition could not understand audio, unknown error')
29 except sr.RequestError as e:
30     print('request results from Google Speech Recognition Service error'+ e)
31 return data
32
33 #response of virtual assistance
34 def assistantResponse(text):
35
36     print(text)
37
38     #convert text to speech
39     myobj = gTTS(text= text, lang= 'en', slow=False)
40
41
42     #save converted audio
43     myobj.save('assistant_response.mp3')
44
45     #play the converted file
46     os.system("start assistant_response.mp3")
```

The Run console shows the following output:

```
C:\Users\91788\assistant\Scripts\python.exe C:/Users/91788/PycharmProjects/assistant/main.py
say something...!
You said: ok computer what's the date
Today is Wednesday November 25th.
say something...!
You said: ok computer what's the time
It is 8:26 p.m .
say something...!
Process finished with exit code -1
```

## APPLICATIONS

Virtual Master can be integrated into many types of platforms. The list of some platforms where this Virtual Master are used and can be used are as follows: -

- In appliances, cars and wearable technologies.
- In devices like smart speakers such as Amazon Echo, Google Home, etc.
- Built into a mobile operating system (OS) as Apple's Siri, in desktop OS Microsoft's Cortana and in smartphones independent of OS as Samsung's Bixby.
- Used for instant messaging apps like Facebook.
- Within mobile apps such as Dom from Domino's pizza.

## CONCLUSION

In this paper, main idea of Virtual Master or Virtual Assistant and modules required for this are described. Then the procedure, how to make this Virtual Master and its application that providing opportunities in various domains are discussed. Thus, efforts are continuously made to use the benefits of this technology as far as possible.

## REFERENCES

- [www.geeksforgeeks.com](http://www.geeksforgeeks.com)
- [www.wikipedia.com](http://www.wikipedia.com)
- [www.outsourceworkers.com](http://www.outsourceworkers.com)

- [31]Akbarzhon Madaminov, "Recommendation Systems", Engpaper Journal
- [32]Aathi oli.S , "REVIEW PAPER ON PHISHING ATTACKS", Engpaper Journal
- [33]Rania Fernando, "IoT based – Street Light Controlling System", Engpaper Journal
- [34]K. SAI BHARGAV, V. RAJENDRA, "Study on Data Structures for Machine Learning", Engpaper Journal
- [35]Brundha P, Guruprasad K N, Amith V Hiremath,Sirisha R, Chandrakanth G Pujari , "Face Detection Based Smart Attendance System Using Haar Cascade Algorithm", Engpaper Journal
- [36]Afsana Nadaf , "RFID BASED LIBRARY MANAGEMENT SYSTEM", Engpaper Journal
- [37]Mr. Vedant Thube, Neha Thakur, Mr. Siddhesh Balsaraf,Ms. Priyanka Hanchate, Dr. S. D. Sawarkar , "Accident Prevention using Eye Drowsiness & Yawning Detection", Engpaper Journal
- [38]Abhishek A Hishobkar, Rutuja Gaonkar, Jagdish Chintamani , "DIGITAL DIARY", Engpaper Journal
- [39]Pooman Suryavanshi, Aryan Ghadge, Manali Kharat , "TAXI SERVICE for VISUALLY IMPAIRED", Engpaper Journal
- [40]Mr. Pankaj yadav, Shila Jawale, Mr. Ashutosh Mahadik, Ms. Neha Nivalkar, Dr. S. D. Sawarkar , "NEWS ARTICLES CLASSIFICATION", Engpaper Journal
- [41]Rahul Chavan, Manvee Bhoir, Gaurav Sapkale, Anita Mhatre, "Smart Tourist Guide System", Engpaper Journal
- [42]Rutik Desai, Akash Jadhav,Suraj Sawant ,Neha Thakur , "Accident Detection Using ML and AI Techniques", Engpaper Journal
- [43]Anagha Vishe,Akash Shirsath, Sayali Gujar, Neha Thakur , "Student Attendance System using Face Recognition", Engpaper Journal
- [44]Ms.Sayali Patekar, Shila jawale, Ms.Pranali Kurhade, Mr.Shubham Khamkar , "Smart Classroom Application", Engpaper Journal
- [45]DOSHI SAKSHI, DEVYANI CHAUDHARI, POOJA GAIKWAD, RUTUJA CHABUKSWAR,MRS. SUJATA KOLHE, "TOURISM SIMPLIFIED THROUGH VOICE", Engpaper Journal
- [46]Afreen Fathima,Samreen Jameel, Pathan Ahmed khan , "ACCIDENT DETECTION AND ALERTING SYSTEM", Engpaper Journal

- [47]Suman Zareen, Tuba Masood, Pathan Ahmed khan, "E-Commerce Web Application with Augmented Reality", Engpaper Journal
- [48]Lok Shan CHAN, "Selection of Waterfall and Agile Methodologies in Software Testing", Engpaper Journal
- [49]Barve Rutu, "CLOUD COMPUTING SYSTEM FOR GAMING", Engpaper Journal
- [50]Harshvardhan Singh, "Machine Learning: Fake News Blocking", Engpaper Journal
- [51]M.AI Batahari, "SERVERS ROOM MONITORING SYSTEM USING IOT", Engpaper Journal
- [52]AYUSHI ANKITA RAKSHIT, "VIRTUAL MASTER USING PYTHON", Engpaper Journal
- [53]Baldeep Kaur, "REAL TIME SLEEP DROWSINESS DETECTION USING FACE RECOGNITION", Engpaper Journal
- [54]Suchitav Khadanga, "Two Stage CMOS Operational Amplifier From Specification to Design", Engpaper Journal
- [55]nidhi sharma, "Introduction to Remote Sensing", Engpaper Journal
- [56]Rohith N Reddy, "COVID-19 Detection using SVM Classifier", Engpaper Journal
- [57]Swapnil Kole, "COVID-19 Database on Consortium Blockchain", Engpaper Journal
- [58]TejalLengare, PallaviSonawane, PrachiGunjal, ShubhamDhire, Prof.Shaikh.J.N , "Accident Detection & Avoidance System in Vehicles", Engpaper Journal
- [59]Abhishek Pawshekar, Deepti More, Akash Khade, Pratiksha Wagh, Ganesh Ubale, "Augmented Reality: to converting and placing object into 3D model", Engpaper Journal
- [61]Prof.Ubale.G.S, Pranjal Adhav,Pooja Gaikwad, Sushama Nadavade ,Pooja Kale , "Iot based Bridge Monitoring System", Engpaper Journal
- [62]Divya Deewan, Priyanka Maheshwari, Sanjay Jain, "A REVIEW OF BATTERY-SUPERCAPACITOR HYBRID ENERGY STORAGE SYSTEM SCHEMES FOR POWER SYSTEM APPLICATION", Engpaper Journal
- [63]Prof.Ansari.M.B, Pranjal Adhav,Pooja Gaikwad,Sushama Nadavade,Pooja Kale, "Survey on MyHelper IOT based Bridge Monitoring System", Engpaper Journal
- [64]Shreyas.S.J, Saddam hussain, Chaithra E, "COMPARATIVE STUDY ON SEISMIC RESPONSE OF MASONRY INFILLED RC FRAME BUILDINGS AND MIVAN BUILDINGS WITH DIFFERENT PERCENTAGE OF WALL OPENINGS", Engpaper Journal

[65]Yusuf Ali Hassan, “Somali Power-Grid Significant Challenges”, Engpaper Journal

[66]Ahmed N. Elhefnawy, “Refractive IR Objective Optical Design Operating in LWIR band For Military Observation Applications”, Engpaper Journal

[67]S MANJULA, D SELVATHI and SUCHITAV KHADANGA, “Design of low-power CMOS transceiver front end for 2.4-GHz WPAN applications”, Engpaper Journal

[68]Suchitav Khadanga, “Fabrication of MEMS Pressure Sensor on thin film membrane”, Engpaper Journal

[69]Suchitav Khadanga and Dr. K.R.Suresh Nair, “An Introduction to Bluetooth”, Engpaper Journal

[70]Suchitav Khadanga and S. Ahmad, “DESIGN AND FABRICATION OF LOW COST MICROWAVE OSCILLATOR”, Engpaper Journal

[71]Ameen Ahmed, Noushad S, Suchitav Khadanga, K.R.Suresh Nair, P.K.Radhakrishnan, “DEVELOPMENT OF LOW PHASE NOISE SMALL FOOT PRINT SURFACE MOUNT VOLTAGE CONTROLLED OSCILLATOR”, Engpaper Journal

[72]Suchitav Khadanga , “Synchronous programmable divider design for PLL Using 0.18 um cmos technology”, Engpaper Journal

[73]Kavya.G.R, Shivaraju.G.D, Dr. T V Mallesh, S R Ramesh, “PROGRESSIVE COLLAPSE RESISTANCE OF FLAT SLAB BUILDING”, Engpaper Journal



<https://www.engpaper.com>