

PERSONAL VOICE ASSISTANT FOR VPKBIET

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Abstract:-The voice assistant technology is widely growing and change the path of lifestyle of people. In this era personal voice assistant is very much useful to humans. They made peoples living much comfortable and relaxing. These are less time consuming and can perform task much faster than humans. By using voice assistant we save our efforts and make our time useful in other important activities. Some Virtual Assistants like Google assistant, Amazon Alexa, Microsoft Cortana, Apples Siri e.t.c. These all IT companies uses dialogue system methods to make number of VPAs and increase their interaction between human and computers. The voice assistant first discovered in our smart phones and as time goes it spreads on all over the world. Like Microsoft Cortana we all make our personal voice assistant for our institute. It gives all detailed information about institute like exam section, admission process, canteen, staff, and department e.t.c. It is a voice assistant that uses speech recognition for text to speech conversion and Pyaudio library for voice output. It can interact with humans in easier way. We include various python libraries for various operations

.Keyword extraction is done by FuzzyWuzzy algorithm. In this report we explain the working of this project and methods used without using cloud services which is much useful in the future.

Keywords: -Personal Assistant, Speech recognition, Internet, Artificial Intelligence, speech engine.

I. INTRODUCTION

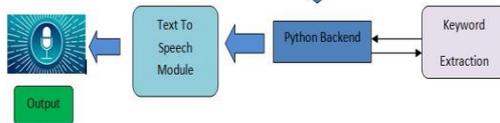
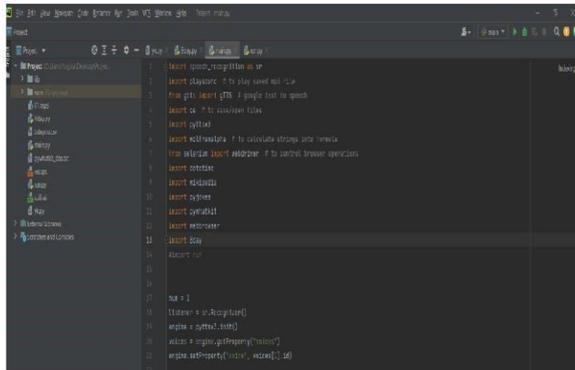
Now a day's voice assistance is used in each and every filed. Artificial intelligence based personal voice assistant is much useful and helpful in IT Software fields, HR Fields, in Hotels and in domestic and professional field also. The project is based on the virtual assistant. This voice assistant is a combination of many different new technologies such as speech recognition, keyword extraction process using natural language processing algorithm or It is a software to perform basic operations such as opening YouTube, predicting date and time, wishing birthday, telling jokes and many more. It using query as voice input and accurate answer as voice output. A voice assistant

may be a computer program specialist that can perform assignments for a person based on verbal commands i.e. by hearing human command and take it by means of synthesized voices. Let me provide you the illustration of Braina (Brain Artificial) which is an personal voice assistant, human dialect interface, mechanization and voice acknowledgment computer program for Windows PC. Braina is a multi-functional AI software that permits you to stay connected along with your computer utilizing voice commands in mostof the dialects of the world. Within the same way our project is based on this concept but only difference is that it contains the information about vpkbiet institute that's why its title is Personal Voice Assistant for VPKBIET.

II. LITERATURE SURVEY

[1] The paper name is Artificial Intelligence based Voice Assistant published on October 26, 2020 at 6:34:23 UTC from IEEE Xplore. This paper presents the complete knowledge related with intelligent assistant. It is able to understand the voice given by the user through vocal media and microphone. This project contains the GTTS Engine package. It also uses ASR which is main principal behind the success of AI based voice assistant. Speech recognition technology is used for converting text to speech process. Explain about comparison of voice assistance from last 2 years. It can perform operations such as showing current news, searches any location e.t.c. Python coding language is installed and run in software of PyCharm integrated development environment (IDE). VAs is utilized to searching song on YouTube platform. [2]The Author Vishal Kumar Dhanraj publishes a research paper named desktop voice assistant on 16 February 2022.This paper contains a virtual assistant in windows using python uses Artificial Intelligence Technology For project. They have prepared a voice assistant which can make any type of task asked by the user. It uses various python libraries like GTTS, System Calls, Content Extraction, API Calls Python Backend, Speech Recognition, Wolfram Alpha, JSON, Date time, Wikipedia, Webbrowser, Pyaudio e.t.c. It contains features such as predicting whether condition, appointment fixing, and scheduling

travelling plan. Playing music, movies and predicting date and time, opening apps, manage mails, and many more.



[3]The paper name is personal virtual assistant for windows using python published by Anjali Fapal, Trupti Kanade, Bharati Janrao , Mrunalini Kamble and Megha Rule on 07 July 2021. This paper presents the flexibility to contract for quick service which is user need. The project uses various python libraries, various interaction entity and cloud entity. It sends output of the backend methods as a response. NLP is used for equal user text or query as voice input in query to run the commands.

III. RESEARCH METHODOLOGY

The information is retrieved from Google, research books, and published papers e.t.c. Each paper is 4-5 pages long. The virtual voice assistant using python paper presents the methods of voice comparison of voice technology and brain technology. contain methods of natural language understanding (NLU) and Text-To-Speech (TTS) methodology, Named Entity Recognition. Minimum 5 to 6 research papers uses same technologies such as speech recognition, voice recognition, python libraries and python modules which is installed using pip files from search engines. Automatic Speech Recognition (ASR) is used by 6 to 7 projects and all are based on Artificial Intelligence domain. Nearly few research papers use raspberry pi model B+ hardware and robot components for making report, PPT and all documentation we use Microsoft power-point presentation tool and overleaf latex. Research

papers are huge source to collect data. For data collection we use IEEE research papers and some references for the gaining knowledge of how personal assistance is work? What are the methodologies used in every research papers? What are the components, functions, libraries, Modules used in Virtual Assistant? Which software is used for implementation? What are the goals, objectives, algorithms are used in papers.

IV. SYSTEM IMPLEMENTATION

1. Pyttsx3
Pyttsx3 may be a text-to-speech change library in Python. Not at all like other libraries, it works offline and is consistent with both Python 2 and 3. An application conjures the pyttsx3. It can support sapi5, nsss, espeak platform.
2. Google-Text-To-Speech
GTTS is a python library and CLI tool which changes over the content entered, into sound which can be spared as a mp3 file.
3. Pyjokes
Pyjokes is utilized for collection of Python Jokes over the Web. To introduce this module sort the Commands within the terminal.
4. Date time
Date and Time is utilized to appearing Date and Time. This module comes built- in with Python.
5. Os
This module may be a standard library in python and it gives the work to associate with working system.
6. Wolfram alpha
It is an API which can compute expert-level answers to queries asked by the user based on knowledge base and externally stored data.
7. Play sound
It is a cross platform which is used for playing audio

files in python code.

8. Wikipedia

We all are familiar with the Wikipedia. It is a huge collection of information or data and working for Wikipedia search. It is similar as GreeksForGreeks or other resources. To install this use pips install Wikipedia.

9. Web-browser

It is used to search web and this module comes builtin format with python.

10. Pyaudio

Pyaudio is a set of Python Programming for Port Audio. It is a Cross-Platform C++ library interfacing with audio drivers.

11. FuzzyWuzzy String Matching

In Python for finding string that accurately matches pattern we are using FuzzyWuzzy Algorithm. FuzzyWuzzy String Matching is also called as Approximate String Matching which is defined as detecting strings that correctly matches pattern. It is used for Keyword Extraction Process in this project. This method has some applications such as

1. Plagiarism detection
2. Spelling-check
3. Spam Detection e.t.c.

VI. ALGORITHM USED

1) FuzzyWuzzy Algorithm

It uses Natural Language Processing (NLP) FuzzyWuzzy is a python library that uses Levenshtein distance method to calculate. It is used for string matching purpose. FuzzyWuzzy is developed by SeatGeek. There are four well known types of fuzzy logic supported by Fuzzy-Wuzzy package:

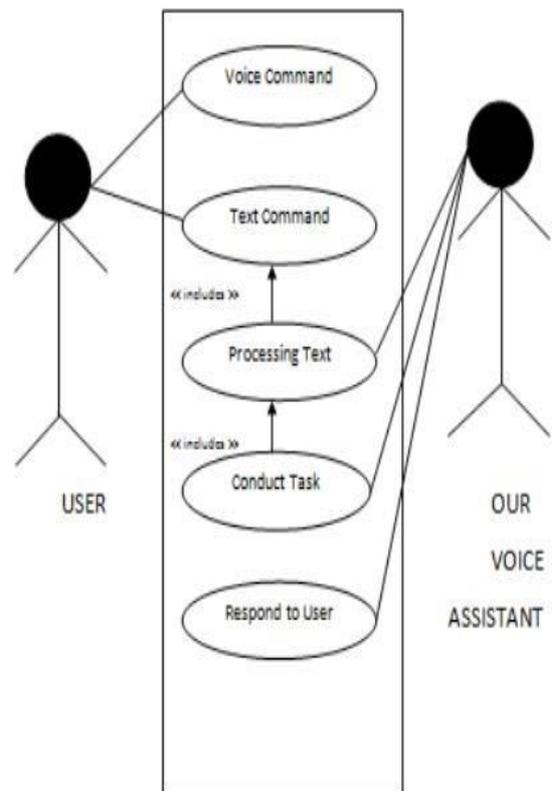
A) Ratio: uses Levenshtein Distance matching

B) Partial Ratio: This matches based on best substrings

C) Token Sort Ratio: tokenizes the strings and sorts them alphabetically some time recently matching

D) Token Set ratio: tokenizes the strings and compare the intersection and leftover portio. The Levenshtein distance is calculated by using formula

ACTIVITY DIAGRAMME



```

import speech_recognition as sr

r = sr.Recognizer()

with sr.Microphone() as mic:
    audio = r.listen(mic)

text = r.recognize_google(audio)

print(text)
  
```

```

import speech_recognition as sr
import wikipedia

r = sr.Recognizer()

with sr.Microphone() as mic:
    audio = r.listen(mic)

text = r.recognize_google(audio)

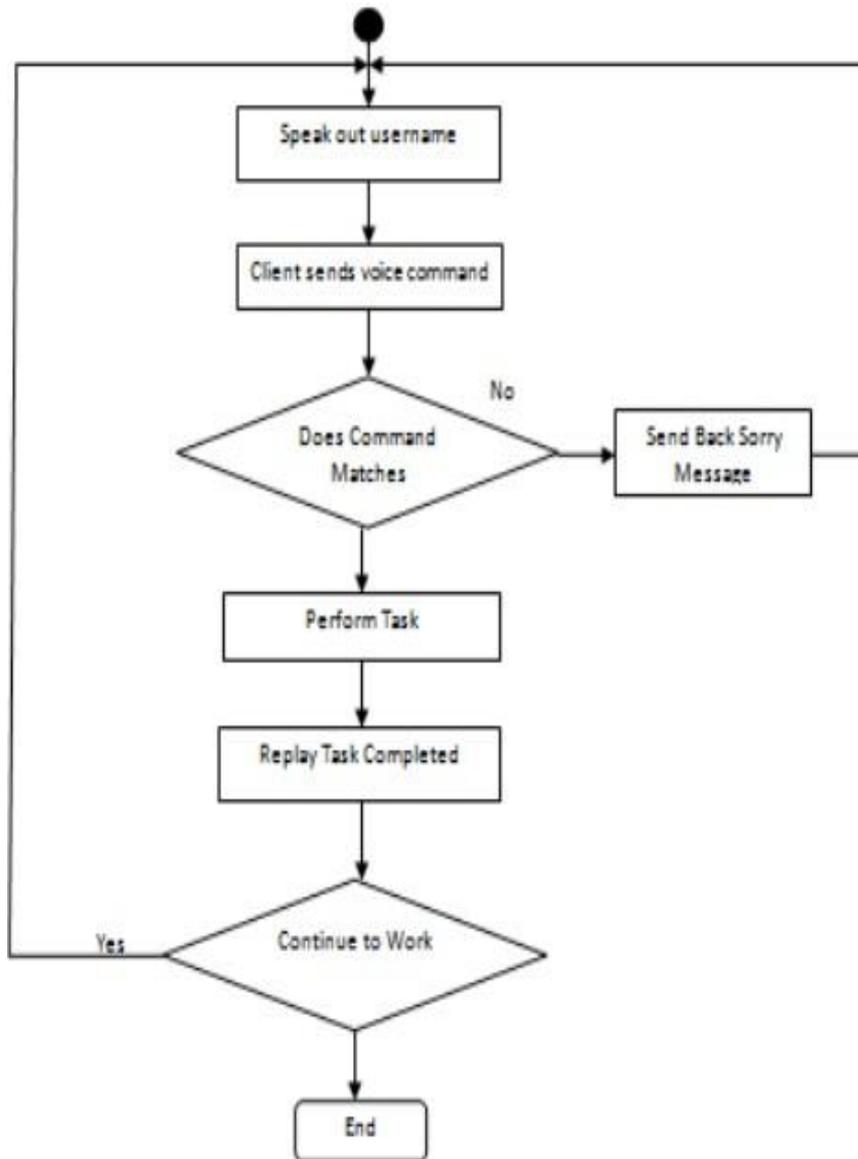
wiki = wikipedia.summary(text, sentences=3)

print(wiki)
  
```

$$(M+1) \times (N+1)$$

Where M and N are the lengths of the 2 words and looping through said matrix using 2 for loops, performing some calculations within each iteration.

VII. UML Diagram



VIII. EXPERIMENTAL RESULTS

The aim of this task was voice reorganization and contextual understanding between users or human and system interactions. This paper describes the experimental results of personal voice assistant for VPKBIET. Also this voice assistant is less time consuming once it is start. Results show that the executed voice assistant can perform the any task assigned by the client such as Exams, Admission process, payment methods and departments, education, faculties, fees structure e.t.c.

IX. CONCLUSION

In this paper, we study the plan and execution of programme. The project uses open source software known as PyCharm for implementation purpose. It works on human instruction and gives relevant output to users query. The complete system works on the client verbal input instead of content one.

X. REFERENCES

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