VIRTUAL ASSISTANT USING AI

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Abstract –
We have developed a voice assistant which would make our day to day life easier by listening to our queries and responding to them by giving solution. So, taking motivation from Cortana we have also tried to build an application which will run on windows platform which will be very user friendly and will be able to automate various tasks like sending mails, changing background, telling jokes and reading news etc. We have designed it in such a way that user interface of it is very easy to understand and is user friendly

*Key Words***:** Voice Assistant, Python's Speech Recognition, Python text-to-speech library pyttsx3, Python3.9

1. INTRODUCTION

We all have knowledge regarding many virtual assistants which are build to fulfill the needs of users in various operating system platforms. So, taking motivation from them we have also tried to design an application which will run on windows platform. This application aims at developing a virtual assistant for windows-based systems. Users can interact with the assistant through voice commands. The main aim of it is to takes voice commands from users and find a most perfect solution to the problem asked by the user. It will be easy for most of the task of the user as a complete work can be completed in a effective command. It will be very task specific, user friendly and will be able to automate various tasks like sending mails, reading news, etc. which are not available in the current version of Cortana.

2.WORKFLOW

It uses natural language processing to match user input given either in form of text or voice from user side to execute the command to get apt solution.When user ask question from a personal virtual assistant then natrual language process is the one which plays major by converting audio commands into executable commands that can be interpreted by the software.
We have used following python installer packages for making virtual assistant-

1. Speech Recognition

This process involves the conversion of acoustic speech into a set of words and is performed by soft component. Accuracy of speech recognition systems differ in vocabulary size and confusability, modality of speech (isolated, discontinuous, or continuous speech, read or spontaneous speech), task and language constraints. The system consists of five modules: feature extraction, phone model training, dictionary preparation, grammar estimation and sentence decoding.pyttsx3, speech recognition, date time, Wikipedia etc
Libraries of python are used for this process.

2. Python Backend
It makes work very easy The python backend gets the result from the speech recognition
Module and then identifies the the speech Output.

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3. API Calls

API stands for Application Programming Interface it makes work Easy. In simple words Application Programming Interface transfers request to the provider and delivers response back to the requester.

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4. Context Extraction

Context extraction (CE) is the task of automatically extracting structured information from unstructured and/or semi-structured machine-readable documents. In most of the cases this activity concerns processing human language texts by means of natural language processing (NLP). Recent activities in multimedia document processing like automatic annotation and content extraction out of images/audio/video could be seen as context extraction RESULT
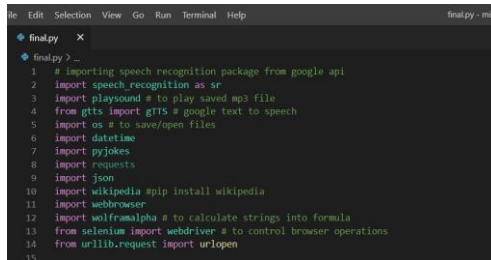
5. System Calls

In computing, a system call is the programmatic way in which a computer program requests a service from the kernel of the operating system it is executed on This may include hardware-related services creation and execution of new processes, and communication with integral kernel services such as process scheduling. System calls provide an essential interface between a process and the operating system.

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6. Text-To-Speech

Text-to-Speech (TTS) refers to the ability of computers to read text aloud A TTS Engine converts normal language text into speech. Synthesized Speech can be created by concatenating pieces recorded speech that are Stored in a database The output is given in the form of speech TTS engines with different languages, dialects specialized vocabularies are available through third-party publishers.

PROPOSED SYSTEM ARCHITECTURE:

1. **JSON-** It's full form is JavaScript Object Notation. JSON is a not heavy.It is used
   for storing and transporting data. JSON is easy to understand

2. **Speech recognition-**
   It is ability of machine to understand what human is speaking.We have used Google
   Speech for recognizing the voice command we have installed the Pyaudio python package by pip install pyaudio command.

3. **Datetime-**
   It is built-in python to showcase the date and time.

4. **Wikipedia-** Wikipedia is a great and huge source of knowledge To get knowledge on various topics and get significant information we have used Wikipedia in our project. We have used pip install wikipedia to install wikipedia module.

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   5.Webbrowser-. This module comes built-in with Python to perform searches to get significant answers to our query.

6. Pyjokes-

It is used to add jokes in your project it makes project interesting ,It is collection of various funny jokes.

7. Pyaudio-It is used to play audio across all the cross platform and various different types of operation system. It can be installed by pipwin install pyaudio.

8. Smtplib- It is a built in module in python used for sending emails,we do not need to install it .It is used when user gives voice command to send a email ,It uses Simple Mail Transfer Protocol (SMTP). .

9.Requests- This module is used for making GET and POST requests with the help of python.By using simple API it abstracts the confusing process of making request and makes things simple**.**
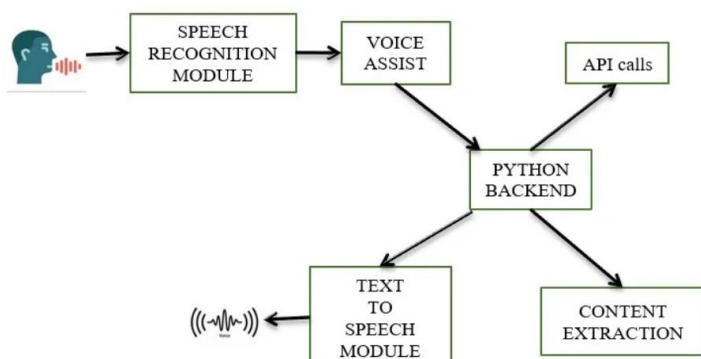

Fig: System workflow diagram

3. FUTURE OF VOICE ASSISTANT

In years to come voice assistant will take over the world by making things easy in day to day life of a user. Reports are predicting voice assistants will soar and that means the tools and technologies behind these devices are shaping the internet of skills. We are talking about the next generation of tools to spark growth in retail, logistics,

healthcare, smart cities, manufacturing, and autonomous vehicles, among many others. According to PWC's survey, the most common tasks people ask of their voice assistants are to search for information on the internet, answering a question, providing weather or the news, playing music, and setting a timer or reminder. In addition, the report shows the slightly less common tasks include sending a text or email and checking traffic. Interestingly, 50% or more of people say they never do include buying or ordering something via their voice assistant and using it to control other smart device. As for growth the stage is set for something significant. But what does this growth mean for chat bots and more? The first hurdle, awareness, has been cleared during the past decade of usage. Now the second hurdle, achieving acceptance and basic use across different demographics, has also been cleared during the same period. The technology has come a long way in a relatively short amount of time too. The next hurdle, though, will have to do with user trust. There is a lot of work that still needs to be achieved yet. We need to be asking ourselves, why aren't people using voice assistants to accomplish more complex tasks? The PWC report shows when it comes to more complex tasks and involve people's hard-earned cash, people prefer to use methods they know and trust. That means voice assistants do not appear on the list just yet. But this isn't true for everybody. A lot of people in this survey, about 50%, say they have made purchases using a voice assistant. Purchases include food (34%), groceries (31%), books (24%), and transportation (21%). But about 25% came out saying they wouldn't even consider using voice assistants to make purchases. The top reason is because folks just don't trust their voice assistants to correctly interpret and process purchases. It's all about stakes. The stakes just aren't that high when you're asking your Google Home mini to play a certain playlist on Spotify or to tell you what the temperature is outside. But if you're asking Amazon Alexa on your echo to buy you a replacement air filter and ship it to your house, you're asking it to spend real money. You're trusting that

AI to understand your request, get the right filter, charge you the right price, and send it to the right house. Even if, in this case, we're talking less than $50, it's still a much greater risk. Gaining consumers' trust is going to be the next big task for voice-assistant tech companies. And shopping is just one example of what people aren't doing. Even fewer people, according to PWC's survey, are using voice assistants to control their smart homes, and this is perhaps the biggest the crux of the problem. In the future, we need to look at what voice assistants will be capable of doing, and it's going to require user trust. For example, one prediction for voice assistants will be their growing use in healthcare scenarios. Voice assistants can help in so many opportunities. The real question now is how long it will take before we really trust voice assistants to do our "bidding" for us.

4. RESULT

Virtual assistant is time efficient. It uses natural language processing to match user input given either in form of text or voice from user side to execute the command to get apt solution .Our voice assistant can search various queries on Wikipedia based on voice input of the user. It means if the query that has been asked by the user contains word Wikipedia, the voice assistant will search it on Wikipedia and will read the first 20 lines of the result found.

Our voice assistant can open several webpages perform searches on that i.e. www.youtube.com, www.google.com, www.stackoverflow.com, www.github.com and many more based on user voice input.

Our voice assistant can open several applications of windows according to the user voice input i.e. open calculator, open control panel, Command Prompt, Open Bluetooth etc. Our voice assistant can send email, locate some addresses on map, play music write a note, read news etc

5. CONCLUSION

Through this voice assistant, we have automated various tasks and services i.e. opening webpages and websites, sending mail, opening various windows applications, and performing functions of several applications of windows using a single voice command. It makes easy various tasks of the user like reading news, searching the from the web, gaining information from Wikipedia by asking various queries. It not only works on human commands but also give responses to the user on the basis of query being asked or the words spoken by the user such as opening tasks and operations. The application will reduce the time to search various queries and getting information from various web pages i.e. Wikipedia, Stack overflow etc. By minimizing the time to perform various tasks like reading news and gathering data from Wikipedia and other web pages, it eases the

work of end-user. It also eases human efforts as it tells time, writes notes, locates address on maps at user's voice. This is a standalone application, which can run on any windows operating system

6. ACKNOWLEDGEMENT

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