DESKTOP'S VIRTUAL ASSISTANT USING PYTHON

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Abstract

Virtual assistants are programmes that run on digital devices and listen for and respond to spoken commands. A user can ask the voice assistant, "Who the Dhoni?" and the voice assistant will respond. They could say, "Tell me a story," and the assistant would immediately begin telling one. The user could even say, "Play my favourite songs," and the songs would start playing! Voice assistants are so simple to use that many people overlook the fact that they work. How do voice assistants comprehend what we say? Is it a spell? A complicated code system? Is that a real person on the other end? The answer is less complicated than you might think. The app functions similarly to Siri, Google Assistant, and others. The application's U.I. is self-explanatory and minimal. It accepts voice input. The system is being designed in such a way that the end user can access all of the services provided by mobile devices using voice commands. Virtual assistants are programmes that use Artificial Intelligence. They are intelligent computer programmes that recognise human natural languages via voice commands or text and perform tasks for the user. In this project, we will use a Python library to create your own voice assistant.

Keywords: Virtual Assistant, UI, Artificial Intelligent, Python Library.

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1. Introduction

Almost all tasks are now digitalized in today's world. Voice searches have surpassed text searches. Web searches conducted via mobile devices have only recently surpassed those conducted via computer, and analysts predict that 50% of searches will be conducted via voice by 2024. Virtual assistants are turning out to be smarter than ever. Allow your intelligent assistant to handle your email. Detect intent, extract critical information, automate processes, and provide personalized responses. In recent years, several researchers have become interested in the recognition of human activities. The desktop's virtual assistant in Python is a software programme that assists you with day-to-day tasks such as showing the weather report, creating reminders, making shopping lists, and so on. They can respond to commands via text (as in online chat bots) or by voice. This system is intended for use on desktop computers. Virtual assistant software boosts user productivity by managing routine tasks and providing information from online sources. In this project, we propose a voice recognition system that recognizes human activities by utilising an NLP algorithm. Voice is a form of communication in which users can communicate with one another. Automatic Speech Recognition (ASR), also known as voice recognition, recognizes spoken words and phrases and converts them to computer-readable formats. It accepts user input in the form of voice or text, processes it, and provides feedback to the user in a variety of ways, such as the action to be taken or the search result. As a result, distinguishing spoken words from background noise in audio is an additional challenge.

Literature Survey

[1] Ravivanshi` Kumar Sangpal [1] et al. Proposed a module named JARVIS with the combination of Artificial Intelligence interfaced to the platform Google along with the markup language inorder to convert the text format into speech. It illustrates its subsistence and its reutilisation and highlighted its future scope atlast. [2] Emad S. Othman presented a personal voice assistant using the microcontroller like Raspberry Pi where it manages several obligations for the ease of the users. He provided the information regarding the substructure configuration of the personal voice assistant and performs best at its space time complexity. [4] Ankit Pandey designed a smart voice assistant which makes notes, exchanges emails, and adjusts meetings in the calendar. This was created such that the customers can monitor the appliances through the speech commands and collects the required information. [5] Subash. S implemented an AI based virtual assistant which can apt for desktops and mobile phones. In this the spoken content is translated in to human readable data and then the required information is converted in to speech by importing the module pyttsx3. [3] Yash Mittal el al. implemented a Smart home automation system. It is a specific gadget which performs according to the user's voice commands and controls the domestic home appliances. In this module, an Arduino microcontroller is used for processing the instructions provided and also controls the specific equipment present in the home using the voice popularity. [6] RahulKumar designed a power efficient smart home with voice assistant. Now days digital assistants are widely used in many grounds such as institutional practices, home automation, and public sector and most importantly it also helps visually impaired individuals. This is achieved using a hardware module named raspberry pi which possess 40 general purpose input output pins and it is a small sized computer using some connectors and output devices, it is plugged into a monitor. Using this user can get the required inbuilt information by speech. [7] Jianliang Meng Et al provided an

Overview on the Speech Recognition Technology This paper involves the vocal input as the research object in which the machine robotically recognizes and notices the voice input provided by the user in his query through the recognition pattern module along with the speech signal processing. [8] Deepika Sherawat implemented voice activated desktop assistant. A Digital Assistant which possess some in-built commands within the system, from that already provided data the user can get the required information regarding the user query such as Groovy, firefox, music player, notepad and some other commands. [9]Prof. Emad S. Othman implemented a Voice Controlled Personal Assistant Using Raspberry Pi the proposed module acts as a surveillance model that detects the human understandable input which is spoke out from the outside of door, and also this model entertains the blind people. Also, helps in providing the predicted information. [10],[13] N Vignesh has proposed Comparative Study on Voice Based Chat Bots. In this, the comparison between the virtual assistants and the chatbots has been shown. The chatbots doesnot exist in various languages so that their exists lot of issues. In this, they approached a using Ontology where it uses mapping technologies which are connected to the RDBMS. The usage of RDBMS is to store the data such that it can be reused.[11][12] Ankit Pandey, Vaibhav Vashist, Prateek Tiwari, Sunil says that their VA is capable of sending emails, updating to-do-lists and also opening web services tasks. They told about the connection of microphone with the whole VA in this paper. Their future plan is to connect it with cloud so that it can be easily used for multiple user concept.
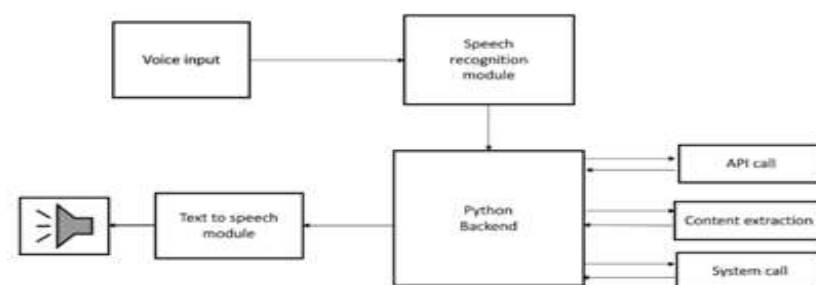
Proposal Method

Fig.1: Block diagram of Desktop's virtual assistant using python

The above block diagram describes the steps undergone in the desktop's virtual assistant using python. When the user provides a voice input as a command and speech recognition module takes the voice as an input and listen to the spoken words and identify them with its ability and converts spoken words into text. An API call is the method in which a requested data will be retrieved from the program by sending a request using client application and delivers it to the client webpage. Content extraction extracts the related information from the webpage and avoids the irrelevant info like ads. Syscall, in which a computer program requests a service from the kernel of the operating system on which it is executed. API call, system call, content extraction is interconnected to the python backend and from python backend, the information is passed to the text to speech module which converts the text data into speech. And the

speech is returned to the user on his requirements using speakers.

2. Results

Wish me Program
In this program...as soon as the virtual assistant activates it greets the user operating her according to the time i.e. day or evening or night, after whishing this module starts listening and recognizing while translating speech to text.

Fig 2. Wish me program

Opening Website

Fig 3. Opening website

Desktop's virtual assistant can open any websites just by saying its name. As soon as it listens it will open required website and present on screen.

Fig 4. Google search

Google Search
Activating google search we need to speak out 'google search' code. Then Desktop's VA ask the query and performs what the user gives the query.

Fig 5. YouTube search

YouTube search

Activating YouTube search we need to speak out 'YouTube search' code. Then VA ask the query and performs what the user gives the query**.**

Fig 6. Opening and Closing apps

Opening Apps and Closing Apps

Desktop's VA can open all the application in the system just by giving commands to open 'appname' and the opened apps can also be closed with the key command close 'appname'.

Fig 7. Chrome Automation

Chrome Automation

A very best feature is that this virtual assistant can automate chrome. We coded in such a way that it can open a new tab, new widow, and new incognito widow also.at the same time it can close them just by giving command to it.

Fig 8. YouTube Automation
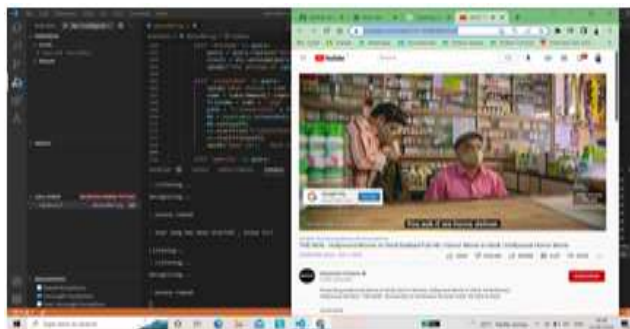
Fig 8. YouTube Automation

YouTube Automation

Another best feature of this VA is it can even automate YouTube .it can pause, skip, playback, replay, full screen mode theatre mode action by giving suitable commands.
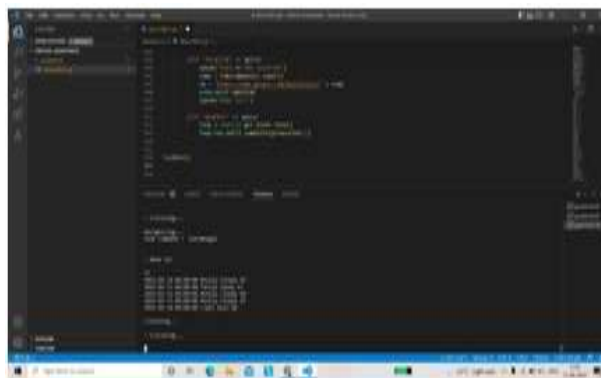

Fig 9. Weather

Weather Report

Desktop's VA can able to find out the weather conditions in any location throughout the world by using open weather map service. You just have to ask the location and report will be out displayed on the screen.
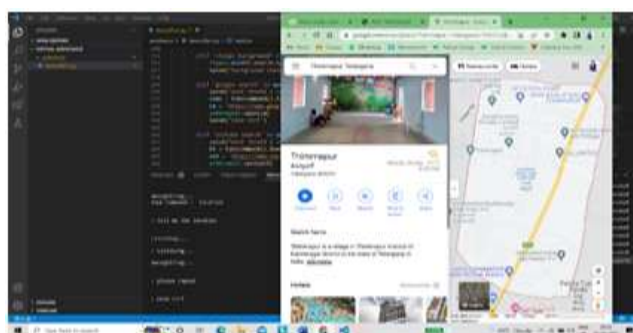

Fig 10. Location

Location

Desktop's VA can able to get you any location by taking your command and present the results on your screen with its map and details.
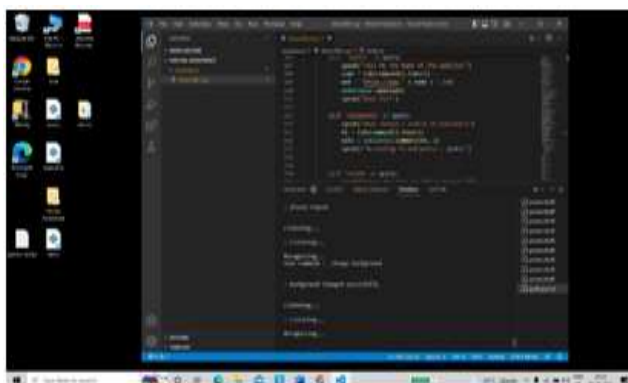
Desktop Background

Fig 11. Desktop Background

VA can change the desktop background of your chosen picture. The picture should chose before and type its name in the program VA can tell you unlimited jokes every time you ask.

Jokes

Fig 12. Jokes

Repeat My Word
Desktop's virtual assistant can repeat your word with ease. It will listen you until you stop an then repeat the spoken words exactly.
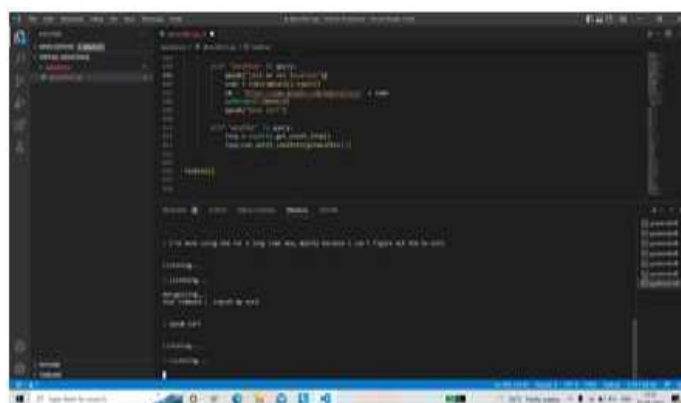

Fig13. Repeat my word

Dictionary (Synonyms, Antoyms, Meanings)

Desktop's virtual assistant can get you synonyms, antonyms, meaning of any word. We have to give command and speak the code word of what you
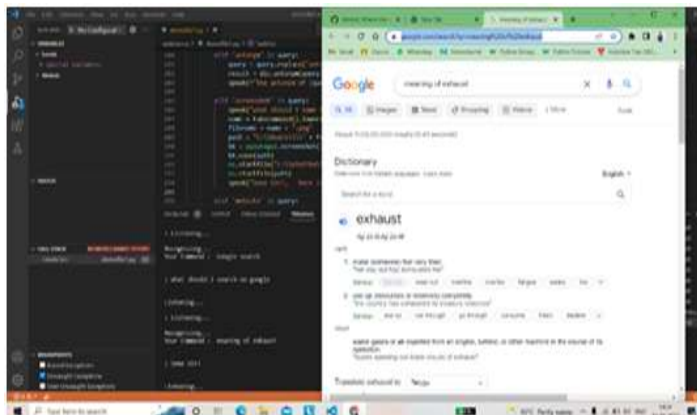

Fig 14.Dictionary such as synonyms, antonyms, meanings

Play Music

Desktop's Virtual assistant plays your favorite music when you provide the required command through the speech. If not found in your pc then it plays from the YouTube
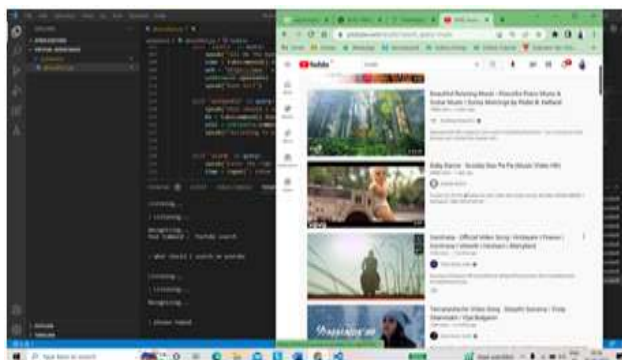

Fig 15. PlayMusic

Screenshot

Desktop's VA takes a screenshot when the command is provided and name the file according to the user requirements.
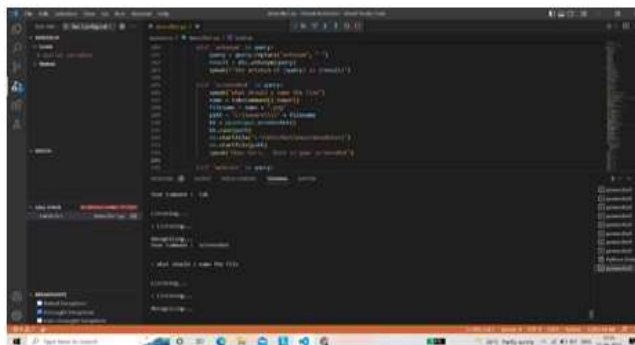

Fig 16. Screenshot

3. Conclusion

Virtual Assistants for the desktop that use Python are a very effective way to organise your schedule. Today, numerous Smart Personal Digital Assistant applications are available for a variety of device platforms. Because they have access to all of your Smartphone's resources, these new Software Applications outperform PDA devices. Because they are more portable and can be used at any time, virtual assistants are more dependable than human personal assistants. Because they have access to the internet, they have access to more information than any other assistant. The Python-based virtual assistant on the desktop is dependable and provides information in a user-friendly manner.

4. References

1. Sangpal, R., Gawand, T., Vaykar, S., & Madhavi, N. (2019, July). JARVIS: An interpretation of AIML with integration of gTTS and Python. In 2019 2nd International Conference on Intelligent Computing, Instrumentation and Control Technologies (ICICICT) (Vol. 1, pp. 486-489). IEEE.
2. Othman, E. S. (2017). Voice Controlled Personal Assistant Using Raspberry Pi. International Journal of Scientific & Engineering Research, 8(11), 1611-1615.
3. Mittal, Y., Toshniwal, P., Sharma, S., Singhal, D., Gupta, R., & Mittal, V. K. (2015, December). A voice controlled multifunctional smart home automation system. In 2015 Annual IEEE India Conference (INDICON) (pp. 1-6). IEEE.
4. Pandey, A., Vashist, V., Tiwari, P., Sikka, S.,&Makkar, P. Smart Voice Based Virtual Personal Assistants with Artificial Intelligence.
5. Subhash, S., Srivatsa, P. N., Siddesh, S., Ullas, A., & Santhosh, B. (2020, July). Artificial Intelligence-based Voice Assistant. In 2020 Fourth World Conference on Smart Trends in Systems, Security and Sustainability (WorldS4) (pp. 593-596). IEEE.
6. Rahul Kumar, Garima Sarupria, VarshilPanwala, Smit Shah, Nehal Shah (2020), Power Efficient Smart Home With Voice Assistant, Ieee – 49239.
7. Jianliang Meng, JunweiZhang,Haoquan Zhao (2012), Overview of the Speech Recognition Technology, IEEE.
8. Dhiraj Pratap Singh, Deepika Sherawat, Sonia. "Voice Activated Desktop Assistant Using Python". 2020
9. Ass. Prof. Emad S. Othman, Senior Member IEEE - Region 8, High Institute for Computers and Information Systems."Voice Controlled Personal Assistant Using Raspberry Pi". 2017
10. Umapathi N., Sabbani S., Poovarasan S. (2022) Person Location Tracking Using Global Positioning System and ESP8266 with Internet of Things. In: Sivasubramanian A., Shastry P.N., Hong P.C. (eds) Futuristic Communication and Network Technologies. Lecture Notes in Electrical Engineering, vol 792. Springer, Singapore. https://doi.org/10.1007/978-981-16-4625-6_21
11. Ankit Pandey, Vaibhav Vashist, Prateek Tiwari, Sunil Sikka, Priyanka Makkar. "Smart Voice Based Virtual Personal Assistants with Artificial Intelli Umapathi N., Sabbani S. (2022) An Internet of Things (IoT)-based Approach for Real-Time Kitchen Monitoring Using NodeMCU 1.0. In: Sivasubramanian A., Shastry P.N., Hong P.C. (eds) Futuristic Communication and Network

Technologies. Lecture Notes in Electrical Engineering, vol 792. Springer, Singapore. https://doi.org/10.1007/978-981-16-4625-6_4

12. Anusha S, N Vignesh Karthik, Sampada K S. "Comparative Study on Voice Based Chat Bots". 2018