Develop Voice Guide Using Artificial Intelligence

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Abstract

As we can see today's generation growing up day by day we can also find that there is so drastic change in technology. Nowadays in every field man's work is replaced by Artificial Intelligence. The applications of these things are Chat bot, Generative AI, Chatgpt, Google Bard, Gemini, Face recognition-based Attendance management systems, fingerprint based attendance management systems, and many more. Nowadays many people are developing their interest and working in the artificial intelligence field. It is in higher demand. It also saves the time of the people and boosts their productivity. Previously if we can see in the working sectors we can find the maximum investment of the money on the labors itself as compared to the other factors. It also allows us to do multipurpose tasks within a time. We can perform any task easily just by orally speaking the command. As we can also see people just want to access anything in the easiest way possible which leads to the discovery of the voice assistant. Using voice assistants we can do various tasks only by just speaking the commands easily and then it will perform the tasks as per your instructions. Voice assistant helps us in saving time. It increases your productivity. It also helps physically challenged people. Using voice assistants you can play songs, YouTube search, check the date and time, google search, tell jokes, Wikipedia search, set an alarm, send WhatsApp messages, send emails, check the weather and temperature of the place, set reminder, sleep, perform operations like start, open, shutdown and restart, write notes, read selected text, copy, cut and paste the texts, create a to-do list, translate Hindi to English, create a shopping list, can make new pdf files, notes list, perform YouTube operations like pause, restart, mute, skip, back, full screen and film mode, Hindi to English translator, chrome operations like close, open new tab, open new window and history, open and close the apps like YouTube, chrome, telegram, code and Instagram, access top news, screenshot, download video, remember the things and launch websites whatever we want.

Keywords: Artificial Intelligence, Chatbot, Generative AI, ChatGPT, Google Bard, Gemini, Face recognition, Attendance management system, Fingerprint-based attendance management system, Productivity, Time-saving, Multipurpose tasks, Voice assistant, Commands, Physically challenged, Music playback, YouTube search, Date and time, Google search, Jokes, Wikipedia search, Alarm, WhatsApp messages, Email, Weather, Reminder, Operations (start, open, shutdown, restart), Notes, Text manipulation (copy, cut, paste), To-do list, Translation (Hindi to English), Shopping list, PDF files, YouTube operations (pause, restart, mute, skip, back, full screen, film mode), Hindi to English translator, Chrome operations (close, open new tab, open new window, history), App management (YouTube, Chrome, Telegram, Code, Instagram), News, Screenshot, Download video, Website launch.

Introduction

We can find the application of voice assistant and its collaboration with artificial intelligence in various places. Its maximum use is witnessed in between the age group of people between 14-50. Its use by people depends on people of what age. For children, it is used for doing homework, accessing information, notes, alarms, playing songs, downloading videos, and reminders. For teenagers and elder people it is used for creating notes, shopping and notes lists, performing YouTube operations, computer operations, switching tabs, file operations, creating PDF files, reading the file data, sending emails and WhatsApp messages, getting the top news and also for downloading the video. It saves the time of the people and increases their efficiency and productivity. Previously for a particular task, we took around 1 weak manually. Using voice assistant it is completed within a minute and even in seconds on just a fingertip. It allows people to do multiple tasks at a time. It makes our every task so easy and there is no need to maintain any data for it. We can easily access any data and perform tasks just by giving instructions. We just need to speak the instructions and commands. In the past, there were various voice assistants discovered like Siri and Alexa.

In our voice assistant, there are various features like you can play songs, YouTube search, check the date and time, google search, tell jokes, Wikipedia search, set an alarm, send WhatsApp messages, send emails, check the weather and temperature of place, set reminder, sleep, perform operations like start, open, shutdown and restart, write notes, read selected text, copy, cut and paste the texts, create to-do list, translate Hindi to English, create a shopping list, can make new pdf files, notes list, perform YouTube operations like pause, restart, mute, skip,

back, full screen and film mode, Hindi to English translator, chrome operations like close, open new tab, open new window, and history, open and close the apps like YouTube, chrome, telegram, code and Instagram, access top news, screenshot, download video, remember the things and launch websites whatever we want. You can use voice assistants in any language as per your desire. It also supports emotional support in case users want any support or encouragement. You can communicate freely with the voice assistant as a person. If you feel lonely you can talk to them and sometimes it will also help in enhancing your mood. They have the capability of becoming your friend in case you don't have any friends. It ensures an eco-friendly environment and makes sure the safe environment. It makes sure that there should not be any interruption in the task. You can complete your tasks before the deadline and on time. You don't have to use multiple spaces and don't have to store the data in the form of large amounts of files and folders. It also helps us create a more innovative mind as much as possible and motivates us to add unique and best features we can add as per our want. Sometimes it helps you in giving emotional support and supports the mental health of the people. It helps you in your mental well-being. Sometimes it makes your mood happy and try to enhance your mood. They can become your partner when you don't have anyone to communicate with. Using experiences and research you can add more and more features in the voice assistant. Also while making voice assistant we used anaconda navigator under which we created an environment named voice assistant by setting the Python particular version and then once it was created we developed a code and then ran that particular code under that environment. Code consists of different modules and functions for which we need to import modules using pip and command in Anaconda prompt. Make sure to keep an updated version of the pip and module you are using. Since as pip version and module version keep updating after some time if you want to run the code it may show an error so you have to make sure that the module and pip version are updated and mostly the same as you want. It is preferable to use the conda command since sometimes the pip version doesn't work. You need to check modules and then choose the conda install command first to install the module. In case it doesn't work you need to use pip to install the module. Also, make sure to use the API key properly while fetching the data from the website using the API key. Also, use the correct and trending websites to ensure security and correct data extraction. Always stay up to date while making voice assistant and add features as much as possible while making voice assistant. Go through research papers to collect the data as much as possible and in addition, you can add your functions as per your innovation. It helps in increasing your imagination and makes your mind more and more innovative day by day. You can also change the voice assistant if you want a male voice you need to select the value 0 while setting the engine voice part and then if you want to set a female voice you need to set the value to 1 of the engine voice part.

AI and Voice Assistant

Al plays a vital role in voice assistant development. It acts as an interface between machine and user. It basically fulfill all the needs of the user just by the oral commands on the fingertip within a second. It also uses nlp, various python modules and also the generative AI to gives us the vital information and fulfill our needs. We can do various tasks by sitting at one place and also don't have to move our hands, we just have to say instructions to instruct the voice assistant. Also it will bridge the gap between voice assistant and its users. It uses speech recognition, api calls, backend work and nlp processing. It basically uses the principle of voice to text conversion. It also ensures security to the system and makes sure that there is no threat and damage to the system. It keep track of any potential breaches possible to the system. It also has great effect on the people. People now a days basically wants to complete their tasks as early as much as possible and they also want short cut method for everything. They search for effective method in everything. It helps the people in interacting with the ai concepts and do advancements in technology. For this we have to make sure that response time should be low. It makes sure to create an eco-friendly working environment. You can modify the voice assistant and use in whatever language you want as per your wish. It also appreciates the people to make their mind and thinking innovative which leads to interests of maximum people in the machine learning and Al concepts related studies. It also ensures data privacy, transparent and it also follows all the rules and regulation needed to make a voice assistant. It also supports multi-modal interaction and provides accessibility and flexibility. While making voice assistant you also come to learn so many new things and you get a lot of experience. You can also gather feedback from the user and enhance the performance of the voice assistant. You can make changes to the voice assistant as per users want and make that user friendly. Voice assistant helps you in giving recommendations and suggestions as derived data from experience. It always try to get historical data and try to get the best version from that version. It helps in problem solving and making decisions. It helps you in doing multitasking tasks. You can keep voice assistant in backend and then do the other tasks without any interruption.

Invention of Voice Assistants

The journey of voice assistants began long before the advent of modern smart speakers. Here are some key milestones:

IBM Shoebox (1961): IBM introduced the first voice assistant, known as the "Shoebox." Although primitive, it could recognize 16 words and 9 digits.

Pre-Modern Natural Language Assistants: In the pre-modern era, voice and virtual assistants became available to consumers. Notable developments include: Dragon: Dragon's speech recognition software paved the way for competent voice recognition and transcription.

Clippy: Microsoft's text-based virtual assistant, Clippy, taught us valuable lessons about natural language interaction.

Modern Era and Smart Speakers:

Siri (2011): Apple's Siri was the first voice assistant to reach a wide audience. It integrated voice interaction with smartphones.

Google Now (2012): Google's voice assistant followed suit, offering personalized information based on user context.

Amazon Alexa (2014): Amazon introduced Alexa, along with the Echo smart speaker. This marked the birth of the smart speaker revolution.

Microsoft Cortana (2015): Microsoft's virtual assistant joined the fray, integrating with Windows devices.

Smart Speaker Revolution and Beyond

The rise of smart speakers, led by Amazon Echo and Google Home, transformed how we interact with voice assistants. These devices brought voice technology into our homes, enabling tasks like setting reminders, playing music, and controlling smart devices.

Looking ahead, we anticipate an ambient voice revolution. Voice assistants won't be confined to standalone devices; they'll seamlessly blend into our environments. Imagine interacting with voice assistants in our cars, workplaces, and public spaces.

Ease of Use

Here in voice assistant, you can change the voice of the voice assistant as you want. It works in more than 100 languages. It is user-friendly and you can handle it very easily. It doesn't require any maintenance. You can easily perform any function just by giving instructions. You have to just teach the voice assistant at once after which it will perform all the instructions at your convenience. It saves your time, and money, increases efficiency, boosts productivity and you don't have to maintain your data here and there. You don't have to install many apps for different purposes. Its functions are also easily understood by anyone and people of any age can use it.

Literature Survey

Voice assistant works on the system from speech to text recognition. It is used by some popular companies like Google, Microsoft, and Apple with their personalized voice assistants and their different specialized features which make them unique. It also depends on what system are you using and also what is the time and space complexity of the system. Its main aim is to enhance the experience of users and increase their efficiency and productivity. You can also change the voice assistants as you want. You can add as many as features you want. In case you want to add generative AI features in voice assistant for which you don't need GPU which is a challenging task. It is possible and even seen in the voice assistants created and used by the people working in an office, or workspace and if you can afford it you have to buy a GPU to make voice assistants. For creating you should know the modules that are used for adding features in voice assistants and also you should have a proper idea of what features you want to add. You should be clear about the structure of the voice assistant. You can use API and also research the previous voice assistants developed in the past by the company and you can also go through the various projects and take ideas from that. You can also use research papers for reference. Using voice assistant you can use maps, open websites, perform computer operations, set reminders, and alarms, play music, download videos, weather and temperature check, language translation, you can perform mathematical calculations, access top news, access Wikipedia, and open and close apps. Voice assistants are central to technology, functioning through contemporary speech-to-text recognition systems and embraced by major companies like Google, Microsoft, and Apple, each with their distinct features aimed at enhancing user interactions. The effectiveness of a voice assistant hinges on the complexity of the system and its efficiency in both time and space, all aimed at boosting user productivity and effectiveness. Customization is pivotal, enabling users to select voice assistants that align with their preferences and requirements, including the integration of features such as generative AI, which, though challenging without a GPU, is still attainable, as demonstrated in office and workspace settings. Developing a voice assistant demands a grasp of relevant modules and a clear comprehension of desired features and structure. Resources like APIs, past projects, research papers, and practical usage scenarios can inform the development process. Functionalities span map navigation, web browsing, computer operations, reminders, music playback, video downloads, weather checks, language translation, mathematical computations, news access, Wikipedia inquiries, and app management. Furthermore, voice assistants may integrate with IoT devices, possess contextual awareness, adapt interfaces, ensure compatibility across platforms, integrate with wearable technology, offer marketplaces for additional skills, deliver personalized recommendations, continuously enhance through learning algorithms, enforce privacy controls, and enable multi-modal interaction for a versatile user experience. Voice assistants provide a wide range of capabilities aimed at enhancing user interactions across various domains. They utilize natural language understanding (NLU) to accurately interpret user queries, incorporate sentiment analysis to tailor responses based on emotional context and employ voice biometric for secure user identification. Supporting continuous conversation, these assistants enable seamless dialogue, while also offering accessibility features for users with disabilities. Integration with social media platforms facilitates effortless interaction, and assistance with virtual shopping simplifies online purchases. Additionally, they serve as remote controls for smart home devices, track health and fitness metrics, and aid in language learning. Furthermore, they assist with business tasks, deliver educational content, and offer real-time translation services. Offline functionality ensures usability in areas with limited internet access, and features for personal finance management aid in budgeting and expense tracking. Interactive storytelling, home automation sequences, and live event updates further enrich the user experience. Integration with virtual assistant platforms extends their capabilities through third-party skills and integration, making voice assistants indispensable tools for modern living.

Proposed System Architecture

Basically you want to create first research on the features of voice assistants. Then once you get an idea about the structure of the voice assistant and what features you should add to that make a note of it. Also after that go through the Python modules and API you need to run that function and perform that specific function. Then you can install the platform to run the code and make your voice assistant. You can use Python ide, Visual Studio Code, pycharm, anaconda and sypder. In my case, I used Anaconda to run and make my project for voice assistant I first created my virtual voice assistant environment named voice where I set the version of Python as 11. 0. As it is a voice assistant project so I didn't choose R. After that once the environment is created you will make a folder in the directory of your choice preferably the one with a large available space and don't use C drive for that. After that create one folder and open that folder in Anaconda in Visual Studio Code. After that start writing your code. Note that you will first create a listener variable where your voice command can listen to your command and then reply or perform functions as per your query. After that, one by one add your functions and check them. Run the terminal using your virtually created environment. In case you find an error, debug it and run that code again and again until the function starts working properly. After one function is created properly then only go for the other functions. While creating the voice assistant we added and used various modules for performing functions and used API like pyttsx3, tkinter, polytube, speech recognition as sr, web browser, by wikiHow, pywhatkit, Wikipedia, google trans, os, pyautogui, psutil, gtts, pypdf2, datetime. keyboard, pyjokes, web browser, wikipedia, pyjokes, os, requests, playsound, fpdf, smtplib, platform, subprocess, time, beautiful soup and wolfarmalpha.

Using our voice assistant you can play the songs, YouTube search, check date and time, google search, tell jokes, Wikipedia search, set alarm, send whatsapp messages, send emails, check the weather and temperature of the place, set reminders, sleep, perform operations like start, open, shutdown and restart, write notes, read selected text, copy, cut and paste the texts, create a to-do list, translate Hindi to English, create a shopping list, can make new pdf files, notes list, perform operations like pause,

restart, mute, skip, back, full screen and film mode, Hindi to English translator, chrome operations like close, open new tab, open new window and history, open and close the apps like youtube, chrome, telegram, code and Instagram, access top news, screenshot, download video, remember the things and launch websites whatever we want.

Working Principle

NLP: It stands for natural language processing. It is used by the user to make an interaction between the voice assistant and the user. It helps us in the communication. It makes sure that the voice assistant should hear the inputs clearly and gives the correct inputs as expected by the user.

It involves five steps that we should keep in mind while working with NLP for making the voice assistant project:

1. Lexical Analysis

Here at this step, we will take the input and break it into sentences, paragraphs, and words. After that, we will break down the sentences and paragraphs we get to the words. After this, we will make a collection of the words along with their respective definition and meanings. It will also include the analysis of morphemes which include the affixes. It will create a dictionary containing the words in alphabetical order with their proper definition and meaning.

2. Syntax Analysis

Here at this stage, we will arrange the words we got in the first step which is lexical analysis to create grammatically correct statements. Then we will check the role of each word in the sentences like whether they are verbs or nouns. After that, we will understand the overall grammatical structure of the text which helps us in knowing the proper structure of the paragraphs. We will also analyze and identify the subjects and phrases of the sentence. After that, we will finally come up with the correct sentence.

3. Semantic Analysis

Here at this stage, we will extract the meaning of each sentence and its purpose. It involves checking the grammatical structure and finding the relationship between the words. We will understand the meaning of each word so that we can check what is the purpose and what the user wants to say so that we can give them proper output. It involves extracting the meaning of the unstructured data on its own. It is used by large companies to gain more benefits and take their company to greater heights. Also as we know each word has different meanings so it will give you the most relevant meaning of the word.

4. Discourse Analysis

In this stage, we are analyzing how each word is connected and finding the relationship between them. It tries to check the details of the author to know in what context they are giving the inputs. It will identify the patterns and structure of the sentence to know in what context they want to convey the message. After that, it will also go through the social norms and disciplinary things. After that, it will try to communicate and interpret with the user.

5. Pragmatic Analysis

At this stage, we will try to find the meaning of the sentences. It involves translating the language and checking the social and other factors one person can keep in mind while giving input to the voice assistant. After which it will try to improve communication and understanding.

Automatic Speech recognition:

It involves giving input to the user. After which it will go for the perprocessing. Then it will extract all the properties of the voice input like frequency, duration, and amplitude. It will further check the pattern and structure of the input and then break the phrases into words. It will further decode the inputs and send the signals to find the proper sequence of the words that perfectly match the input and further postprocessing which includes correcting the errors and giving the users the desired output. It will generate waveform after which it will accept the next new sequence of the input.

Features

1. Voice assistants convert the spoken words to text to understand the input as given by the user.

2. They can interpret each word, phrase, and sentence to give us a proper output.

3. It gives us output in the form of natural language.

4. It gives us a response within a second. Its response time is fast as compared to the other voice assistants.

5. It is easy to use and can be easily understood by everyone irrespective of their age.

6. You can personalize the features. You can also add the features as per your want or in case you want to modify or delete the features you can delete or modify it.

You can perform operations like you can play songs, YouTube searches, checking dates and times, google searches, telling jokes, doing Wikipedia searches, setting alarms, sending WhatsApp messages, sending emails, checking the weather and temperature of the place, setting reminders, sleeping, perform operations like start, open, shutdown and restart, write notes, read selected text, copy, cut and paste the texts, create a to-do list, translate Hindi to English, create a shopping list, can make new pdf files,

notes list, perform YouTube operations like pause, restart, mute, skip, back, full screen and film mode, Hindi to English translator, chrome operations like close, open new tab, open new window, and history, open and close the apps like YouTube, chrome, telegram, code, and Instagram, access top news, screenshot, download video, remember the things and launch websites whatever you want.

7. You can get information from the voice assistant. It will also help in doing research work in the future.

8. It will increase your productivity and save you time.

9. It will also try to enhance the communication between the system and the user.

10. It provides security and flexibility to the users.

11. It is a very user-friendly voice assistant.

12. You can use the English language to instruct the voice assistant or to ask queries about the voice assistant.

13. You need internet for some of the services when you use functions like news, YouTube, Instagram, Google, Facebook, maps, Wolfram Alpha, and when you want to access your location and check the temperature of a place.

14. You can do multiple tasks at a time by keeping them in the background and you can perform performs on it along with the work going on in the background.

15. It will also manage your system in such a way that you don't need to manage any apps or large amounts of files and folders to store the data.

16. You just have to speak and give a query to the voice assistant which will save you time for typing and manual tasking.

Requirements

Software:

Basically in software, you need a compiler to run the code. It can be a Python compiler, spyder, Visual Studio code, and Pycharm. After that, to set the environment you need to use the anaconda to make your code run and work on it more effectively. You can do multiple tasks with your code in only one place. It will also ensure the security of the code. It will also help you to manage the code and help you to complete the project on time. You also need an internet connection to work with the code if you want to access functions like YouTube, google, maps, Wolfram Alpha, Facebook, Telegram, news, temperature, and facilities related to YouTube and Google. You also have to make sure you have proper memory and sufficient space for making a folder having a file for voice assistant where you will keep all the documents related to the project.

Hardware:

For this project, you should have either a laptop, PCS, tablet, or mobile. You should have a proper microphone and speaker for giving input as a voice to the compiler so that we can get the proper output.

Design Methodology

1. It uses speech recognition to convert the text-to-speech form. It helps in giving preferred output as expected from the user while giving the input. It aims to give efficient output to the user and try to meet the needs of the users. It also tries to minimize the response time as much as possible. The less response time the voice assistant has more it will be considered efficient.

2. In the front end you can see what is the code and the functions available in the code. It also includes the features and functions that you can use to get output from the voice assistant.

3. In the backend various functions are going on like system calls, requesting for the data using HTTP requests when the user is trying to access data from the website, making API calls when you want to access the information using the API key, and its respective website.

4. Api calls help us to connect our system with the other systems or say the other devices. It will send requests to a particular device and then ask for output. Once it gets its output it will take that output and give that output to the user within a second.

5. System calls are used when you want to perform any operations and functions using the kernel. It includes processing and scheduling the tasks.

6. Using conda and pip commands you can install the modules as needed by the user to perform the functions and operations to fulfill the needs of the user.

7. In case you want to use the generative AI feature then you have to use GPU for working on the voice assistant since it's not possible to work on the generative AI for voice assistant along with the basic CPU as GPU requires a lot of data load and more power which is not possible for a normal CPU or normal system or device.

Contribution of Voice Assistant to the People

- It can be easily done by physically challenged people and normal people.
- It saves the time of the people and increases your productivity.
- You just have to speak the command for input.
- You will get the output within a second.
- It helps people do multiple tasks at a time.

- You can use it for entertainment purposes, running apps, opening websites, learning and accessing information like knowing about some particular topic and even you can perform calculations.
- It provides the security to the system. It is safe to use.
- Using this you can use WhatsApp features and send emails.
- You can do daily routine and repetitive tasks at a time.
- You can use it for screen reading and control the voice of the device.
- It plays an important role In education, and official areas and can be used by elders.
- You don't have to waste your time in typing and arranging things manually.
- It also saves the space for storing the files and folders.
- You don't have to use multiple apps and websites.
- You don't have to change the tabs again and again tabs for typing and performing different operations and functions. You just have to use voice assistant for performing functions and even using this you can perform operations on YouTube and Google. you can do and enjoy all your activities without any interruption. You just have to say the command whatever you want to perform.
- Voice assistants serve a crucial role in enhancing accessibility for both physically challenged individuals and the wider population.
- They enable users to save time and increase productivity through the use of simple voice commands for various tasks.
- Users can effortlessly multitask, accessing entertainment, educational resources, and information with ease.
- Security measures are in place to safeguard users' systems, ensuring privacy and protection of sensitive data.
- Communication is facilitated through messaging and email functionalities, enhancing connectivity.
- Daily tasks are automated, streamlining workflows and improving efficiency in various aspects of life.
- Screen reading and voice control features offer additional convenience and accessibility for users.
- Widely applicable in educational, professional, and elder care settings, voice assistants simplify tasks and enhance user experiences.
- They eliminate the need for manual input and organization, optimizing storage space and streamlining operations.

- Personalized recommendations, task automation, and remote control capabilities further enhance user convenience and efficiency.
- Users benefit from access to health advice, social interactions, and entertainment options through voice assistants.
- Environmental consciousness is promoted through eco-friendly practices and suggestions.
- Learning and educational support are provided through access to resources and assistance with academic tasks.
- Voice assistants act as personal assistants, aiding users in organizing schedules, managing finances, and tracking goals.
- Safety and security are prioritized, with continuous updates and improvements to enhance user protection and privacy.

Results and Discussion

In the end, we came up with a user-friendly voice assistant, that boosts your productivity and saves your time. We also have various modules as follows:

Googletrans-It is used for translation between languages. You can convert any language to another language as you want.

Datetime-It will check the date and time. It will provide the date and time in the given format as requested by the user.

Wolfarmalpha-It will perform mathematical calculations. It involves all the scientific and calculation operations. . . Time-It will check the time. It will provide the time in the requested format.

Requests will make HTTP requests from websites to make the connections between the website and the voice assistant. It also helps in performing the functions related to internet facilities.

Subprocess runs the command lines and processes their output.

The platform gives you information regarding the system like system version, system name, and everything related to the system.

Smtp-It sends an email with SMTP or SMTP listener daemon.

Webbrowser- It gives an interface for web browsers.

Beautiful soup-It is used to pull the data out of HTML and XML.

Fdf-It helps in generating pdf

Playsound-It helps in creating the voice of the voice assistant.

Os-It helps in interaction with the operating system.

Pyjokes-It help in generating jokes.

Wikipedia helps in Wikipedia search. It gives us the information as requested by the user.

Datetime-It helps in knowing the date and time. It gives us the date and time in the format as requested by the user.

Pywhatkit-It simplifies WhatsApp automation. It helps in performing WhatsApp operations.

Pyttx3-It helps in text-to-speech conversion where our given text is converted to voice form.

Speech Recognition helps in understanding the words spoken by the user to instruct the voice assistant.

Webbrowser-It can perform webbrowser operations.

Keyboard-It helps in performing shortcut operations of the keyboard just by giving instructions

Pytube-It helps in interacting with YouTube.

Pypf2-It is used for operations of pdf files like creating, accessing, and opening.

Gtts-It is used for text-to-speech conversion where input is given in text form and is converted to speech form.

Tkinter-It is used to create a GUI interface to run the environment.

Pywikihow-It is used for searching information on Wikipedia and getting the information as desired by the user.

Psutil-It runs and retrieves information as requested by the user.

Pyautogui-It is used for shortcut key or hotkeys commands.

At first, we will install all these modules. After that create a listener part using a speech recognition module. You can set the voice of the voice assistant. There are various functions involved in this project:

Speak()-Jarvis will give oral output using speak function

Take_command()-using this Jarvis will take the command from the user

Create_todo_list-create to-do list and save it in a pdf form

Translate_hindi_to_english()-translates speech in Hindi to English

Recognize_speech()-It will recognize the speech and instructions given by the user

Create_shopping_list()-it will create a shopping list and save it in PDF form

Createnew_pdf()=It creates a pdf of the lists given above

Notes_list()-take notes from the user and save them in pdf form

Youtube_auto()-It performs all the YouTube operations just by orally speaking like pause, restart, mute, skip, back, full screen, and film mode

Take_hindi()-it will take the input in Hindi form

Translator()-It will translate your line to another language as desired by you

Sleep_system()-It will put your system in system mode

Chrome_auto()-It will perform your Google Chrome operations like open tab, close tab, open new window, and history.

Open_apps()-It will open apps like YouTube, chrome, telegram, code, and Instagram.

Close_apps()-It will close the apps like YouTube, chrome, telegram, code, and Instagram.

Play_alarm()-It will play the alarm as per the time and schedule specified by the user.

Get_time_from_speech()-get the time from the user as the input.

Get_period_from_speech()-get the periods from the user as the input like morning and evening.

Set_alarm()-it will set the alarm

Get_all_news()-it will give you top news headlines and keep you updated with what's going on around you. It will use API keys and the API of the headlines website.

Screenshot()-It will help in taking a screenshot of the selected screen.

Temp_new()-It helps in knowing the temperature of a place

Download_video()-It will download the video and then save it in your preferred directory.

Choose_directory()-It will help you save the downloaded video in the preferred directory.

Remember()-It helps in remembering the things given by the user

Recall_memory()-It helps you in recall you with your reminders

Wake_up_jarvis()-It helps in waking up Jarvis while it sleeps.

Closer_browser()-It will close the browser

Launch_website()-it will launch the website given as input from the user

Task_execution()-helps in performing tasks as given by the user.

Keyboard. press()-perform shortcut key operations orally.

Youtube_auto()-to perform the youtube operations

Also, there is a map location and know our location function.

It is working properly. It is listening and giving a response within a second. It creates a user-friendly environment that can be used by people of any age group.

You can easily use the device. It is working on the principle of speech-totext recognition. It acts as an interaction between the user and the system. Just by orally speaking the command you can perform operations. It saves you a lot of time and boosts your productivity. It will also encourage more and more people to interact with the technology and also make them concerned about artificial intelligence. It will act as an intermediate between user and artificial intelligence. You don't have to depend on pen and paper, files, folders, or multiple apps to perform any functions. Suppose you are doing something you just have to speak the command to operate and your work won't be interrupted. It also indirectly helps in the storage system of your device.

It supports the security and stability of your system. There are no chances of any security breaches or malware practices.

Conclusion and Future Enhancements

It helps to every people from children to elders. It also helps to physically challanged people. It helps us to perform any functions like you can play the songs, youtube search, check date and time, google search, tell jokes, Wikipedia search, set alarm, send whatsapp messages, send emails, check weather and temperature of place, set reminder, sleep, perform operations like start, ope, shutdown and restart, write notes, read selected text, copy, cut and paste the texts, create to do list, translate hindi to English, create shopping list, can make new pdf files, notes list, perform operations like pause, restart, mute, skip, back, full screen and film mode, hindi to english translator, chrome operations like close, open new tab, open new window and history, open and close the apps like youtube, chrome, telegram, code and instagram, access top news, screenshot, download video, remember the things and launch websites whatever we want . It boosts your productivity and saves your time. You have to just speak the instructions as per your need. It works on the functions with backend of GUI. It works on the basis of python modules we imported and apis we fetched from the websites. It helps in navigation and operations like setting voice, replay, checking history, pause and play. You can change the setting of the user and give the user input in the language as per you want. Your voice assisstant can become your partner because you can communicate with them and then share the things. It also provides your emotional support and helps you in mentally well being. It helps you in task automation and makes task working very simple. It helps you in interacting with more concepts of ai and make them use in voice assisstant. It helps in making our mind more innovative and makes us learn and introduces with new concepts at each phase of the project. It is widely used by the people because people now a days want shortcut methods and effective methods in working which saves their time and enhance their working time. Also it saves time for manually typing the data as input and then using the data for searching by opening various websites. It also saves time for opening apps and installing it. It also helps in saving the space for files and folders which consumes a lot of space. It also provides eco-friendly. 0 and safe environment and keep it away from the breaches, It always tries to check the patterns of the input as given by the user and then tries to give the desired output. Voice assistants always try to enhance the user's experience by adjusting the settings, themes

And preferences according to users' needs and preferences. It helps in gaining more and more knowledge and helps in the education field. It helps in communication and discussions between the community. Voice assistants serve as versatile tools, aiding in emergencies by guiding users through first aid procedures, contacting emergency services, and notifying designated contacts during critical situations. They also foster skill development through interactive learning experiences, including challenges, quizzes, and puzzles, to enhance cognitive abilities and problem-solving skills. Additionally, they facilitate cultural and linguistic enrichment by providing insights into various cultures, traditions, and languages, promoting cross-cultural understanding, Furthermore, they support remote work and collaboration by facilitating virtual meetings, document sharing, and project management tasks, allowing effective teamwork across distances. By incorporating gamification elements like achievements and rewards, voice assistants motivate users and enhance engagement in diverse activities. Ensuring data privacy and security through encryption and authentication measures, they protect sensitive information from unauthorized access. Continuously monitoring performance metrics such as response time and accuracy, voice assistants refine their functionality over time. Moreover, they offer accessibility features such as voice feedback and screen readers to ensure equal access to technology for users with disabilities or impairments.

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Bibliography

- 1. A. Sudhakar Reddy M, Vyshnavi, C. Raju Kumar, and Saumya, "Virtual Assistant Using Artificial Intelligence" in J ETIR March 2020, Volume 7, Issue 3 ISSN-2349-5162.
- G. O. Young, "Synthetic structure of industrial plastics (Book style with paper title and editor)," in Plastics, 2nd ed. vol. 3, J. Peters, Ed. New York: McGraw-Hill, 1964, pp. 15–64.
- 3. W. -K. Chen, Linear Networks and Systems (Book styl\e). Belmont, CA: Wadsworth, 1993, pp. 123–135.
- 4. H. Poor, An Introduction to Signal Detection and Estimation. New York:Springer-Verlag, 1985, ch. 4.
- 5. B. Smith, "An approach to graphs of linear forms (Unpublished work style), " unpublished.
- 6. E. H. Miller, "A note on reflector arrays (Periodical style—Accepted for publication)," IEEE Trans. Antennas Propagat., to be published
- Ardissono, L., Boella. And Lesmo, L. (2000) "A Plan-Based AgentArchitecture for Interpreting Natural Language Dialogue", International Journal of Human-Computer Studies.
- 8. Nguyen, A. and Wobcke, W. (2005), "An Agent-Based Approach to Dialogue Management in Personal Assistant", Proceedings of the 2005 International Conference on Intelligent User Interfaces.
- Jurafsky & Martin. Speech and Language Processing An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition. Prentice-Hall Inc., New Jersey, 2000.
- Wobcke, W., Ho. V., Nguyen, A. and Krzywicki, A. (2005), "A BDI Agent Architecture for Dialogue Modeling and Coordination in a Smart Personal Assistant", Proceedings of the 2005 IEEE/WIC /ACM International Conference on Intelligent Agent Technology.
- 11. Knote, R. , Janson, A. , Eigenbrod, L. and Söllner, M. , 2018. The What and How of Smart Personal Assistants: Principles and Application Domains for IS Research