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Voice Assistant ZIA using HDG algorithm

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Abstract: ***In this computerized world, machine human interaction system was more common. For that kind of interaction, we achieve this voice assistant using machine learning and artificial intelligence. Using this we deploy executable code which works according to the user's voice command. Voice assistants are the kind of software that use voice recognition technology, natural language processing and AI to response humans. using this technology, the device synthesizes the user's message, breaks it down, evaluates it, and offers a meaningful response in return. So far google assistance, apple's siri, amazon's alexa, microsoft's cortana were being well known assistance but they were all developed for specific platforms. We developed a software that can be bridge with all the platforms, as we did for the windows machine because we mainly concentrated to achieve some more features to give better experience. The purpose of this paper is to build the voice assistant with the speech recognition algorithm, interactional graphical interface and has a voice cloning technology to perform a task.***

Keywords: Artificial intelligence, Machine learning, Natural language processing, Speech Recognition, Graphical user interface, Voice cloning.

I. INTRODUCTION

Voice Assistance is a software application that understands natural language voice command it gets voice command from the user. User gives queries to the application through microphones voice command by pyttxs module it converted into text, then text is to be check with the wakeup command and predefined function, and throws the results. We are proposing a virtual voice assistance using a python programming language and its libraries. Artificial intelligence and machine learning used to optimize the virtual voice assistant. it has the ability to do tasks as we command. Were it works with Speech Recognition algorithm to convert audio format to text format under Natural language processing (NLP) and it uses a pyttxs3 algorithm to convert text format to audio format, After the text is to be compared with the assigned strings in the definition and execute the task until user terminate. Also, we implementing the voice cloning methods. And it has a graphical interface. Voice assistants are incredibly valuable to humans nowadays. It simplifies human life by allowing users to run PCs or laptops using only voice commands. Voice assistants take up less time. We save time and contribute to other projects by using a voice assistant. Voice assistants are usually cloud-based applications that require internet access. Start with the fundamentals of Python to create a virtual assistant for your computer. Task-oriented voice assistants the ability of a voice assistant to comprehend and carry out requests. Voice assistants are computer programs that recognize vocal and written orders and carry out tasks for clients. Synthesized voices enable voice assistants to recognize and respond to human speech. There are various voice assistants on the market, including Siri for the Apple TV remote, Google Assistant for the Pixel XL smartphones, Alexa as a smart speaker built on the Raspberry Pi, and Microsoft Cortana for Windows 10. We designed a voice assistant for Windows in the same way we did for all other voice assistants. Use Python as a programming language since it has a large number of libraries. This software employs a microphone as an input device for receiving user voice requests and a speaker as an output device for delivering the output voice. This method combines numerous technologies, including voice recognition, voice analysis, and language processing. Natural Processing language is used by voice assistants to match user text or voice input to executable commands. When a user instructs their voice assistant to complete a task.

II. LITERATURE SURVEY

TITLE 1: A Review on Voice Assistance using Python
AUTHOR: Subhash Mani Kaushal, Megha Mishra
YEAR: 2020
DESCRIPTION: When it comes to day-to-day life, Artificial Intelligence has shown to be extremely useful. AI research is defined in computer science as the study of smart agents. Every Today, computer-based information processing technology intrudes in practically every direction, whether the human is aware of it or not. Our way of life has already been altered by artificial intelligence (AI). AI gadget that perceives its surroundings and takes steps to increase its chances of reaching its objectives. A database of users and goods can be used as input to the recommendation algorithm, and the output will be recommendations. The user provides voice

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or text input to the system. This study introduces a novel method for smart search. In general, many individuals utilize assistants around the world. The paper discusses virtual assistant applications that aid in offering opportunities for mankind in a variety of fields. This study also discusses the use of virtual assistant technology for provocation.

TITLE 2: Desktop voice Assistance
AUTHOR: Ujjwal Gupta, Utkarsh Jindal, Apurv Goel, Vaishali Malik
YEAR: 2013
DESCRIPTION: Artificial intelligence (AI) is a popular technology that aims to achieve natural human-machine communication. Various IT-based firms have also leveraged conversation networks technology to produce a variety of Virtual Personal Assistants centered on their goods and areas for growing human-machine contact, such as Alexa, Cortana, Google's Assistant, Siri, and others. We created a virtual assistant that, like the Microsoft voice assistant 'Cortana,' does simple activities depending on instructions given to it on the Windows platform using Python. Python is utilized as a scripting language because it contains a vast library that may be used to execute commands. A personalized virtual assistant identifies and processes the user's voice using Python libraries. Voice assistants are a remarkable achievement in the field of Artificial Intelligence that has the potential to change people's lives in several ways. The voice-activated assistant was first offered on cellphones and immediately became popular. It was universally acknowledged. Previously, voice assistants were mostly found in smartphones and laptops, but they are now rapidly being found in smart speakers and other home automation systems. Many technologies appear to be becoming wiser in their own right, allowing them to communicate with people in basic terms. Desktop voice assistants are programs that can recognize and respond to people's speech using an integrated speech system. This paper will explain how various voice assistants work, as well as the major issues and constraints they face. This paper discusses how to create a voice-based assistant without the use of cloud services, which would help the device's future growth.

TITLE 3: AI Based Voice Assistant Using Python
AUTHOR: Deepak Shende, Ria Umahiya, Monika Raghorte, Aishwarya Bhisikar, Anup Bhange
YEAR: 2022
DESCRIPTION: Artificial intelligence technologies are starting to be actively utilized in human life, thanks to the Internet of Things' debut and widespread distribution (IOT). Autonomous gadgets are growing more intelligent in their interactions with humans and with one other. New capabilities led to the development of various solutions for integrating smart items into Internet of Things Social Networks. The science of recognizing a human's natural language is one of the most important trends in artificial intelligence. New insights into this area could lead to new forms of natural human-machine interaction, in which the computer learns to understand and engage with human language. Voice assistant is one of these tools, and it can be integrated into a variety of different intelligent systems. The basics of voice assistant operation are outlined in this paper, as well as the major flaws and limitations. The approach for establishing a local voice assistant without needing cloud services is explained, allowing future application of such devices to be considerably expanded.

III. EXISTING SYSTEM

Voice assistants are usually cloud-based programs that work with internet-connected devices and/or apps. Siri, Ok Google, Alexa, and Cortana are already well-known projects. Siri on Apple devices, Cortana on Microsoft devices, and Google Assistant on Android devices are three examples. The wake word "Cortana" is used to activate the Microsoft virtual assistant, Cortona. which are usually simple language requests like "what is the weather today?" or "play pop music." To personalize the efficiency of their virtual voice assistants, these systems require a large amount of data. They have their own servers that handle and store the queries that users request. In these existing projects, we could do things like open application, send messages, set alarm or reminder, play music and answer generic questions. We have different privacy concerns linked with them, such as always listening, stored data used for marketing purpose. and the virtual voice assistant didn't know who is interacting (authorized person or not).

A. Existing System Disadvantage

- The existing system will work when device is connected to internet.
- It has no graphical user interface.
- Cannot terminate a task using command.

IV. PROPOSED SYSTEM

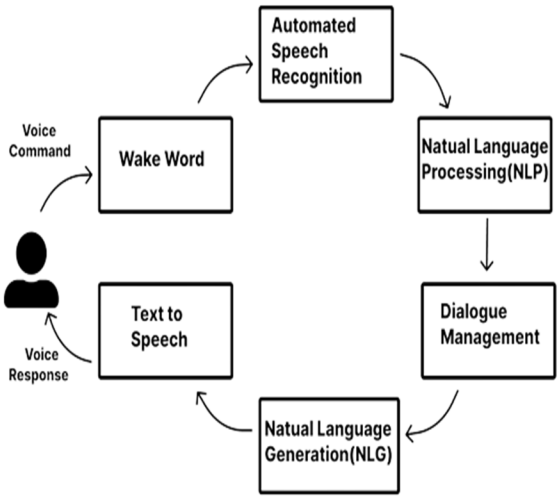
To strengthen security and provide extra features for simpler access, we proposed a virtual voice assistant. When the user is offline, data is stored locally in a safe mode, and when the user is online, important data is uploaded to personalize the voice assistant according to the user's preferences. Users are identified and security access controls are created using voice verification technology. If a virtual voice assistant had access to the camera, it could use face and object recognition technologies to detect the frame and increase privacy.

A. Proposed System Advantage

- Perform task device without network connection.
- It has a graphical user interface.
- Stores various information
- Recognizes voice commands
- Controls various applications of device
- Provides services regarding your locations

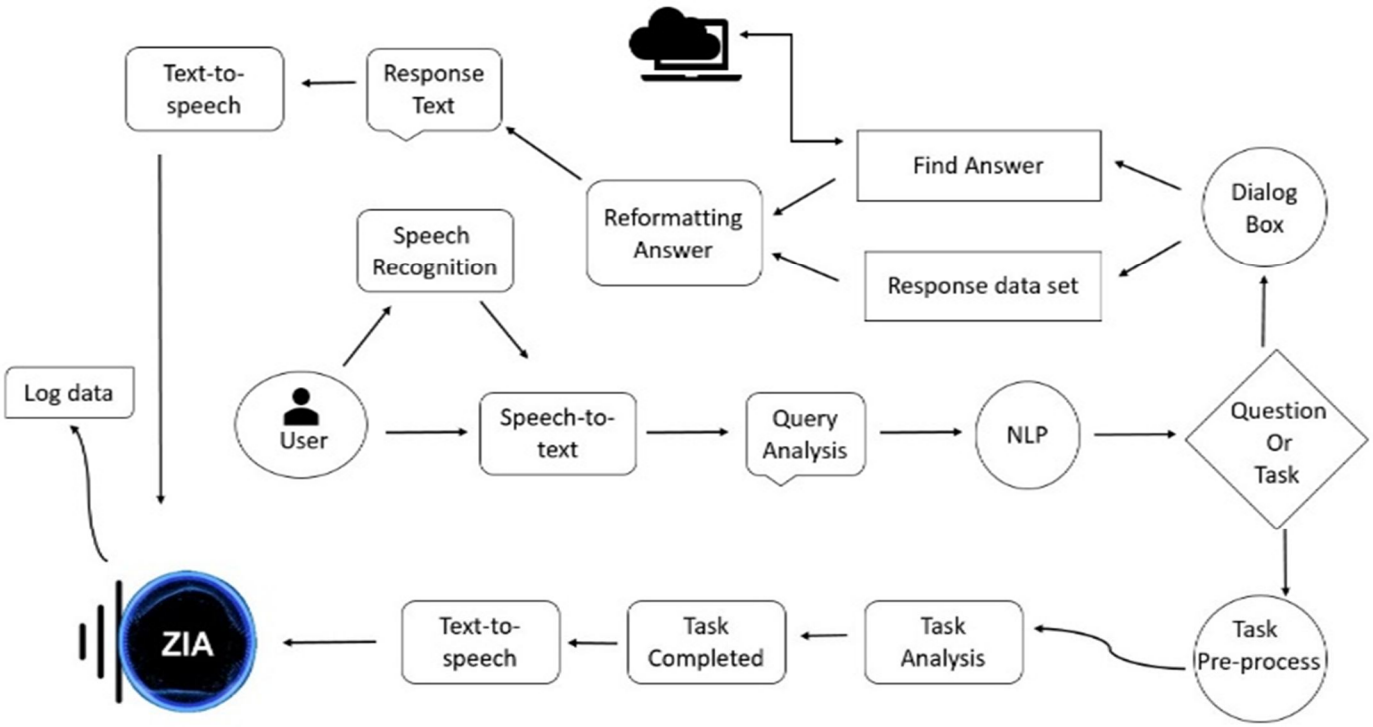
V. METHODOLOGY

All voice assistants are created in programming languages, and they listen to the user's commands and respond accordingly. To create the AI-based voice assistant in this project, we employed the Python programming language. When the voice assistant detects a pause, it knows that the user has completed their request, and it transmits the request to its database to be searched.



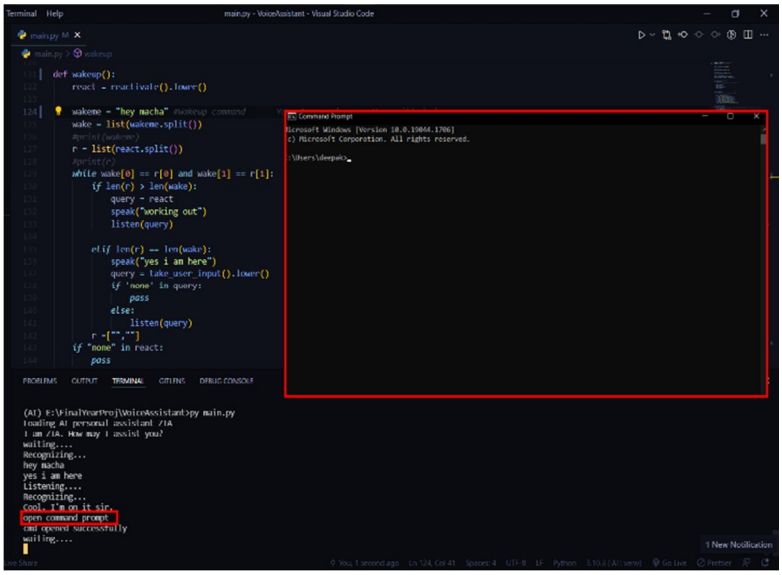
- The system will continue to listen for orders, and the length of time it spends listening is adjustable to meet the needs of the user.
- If the system is unable to obtain information from the user's input, it will prompt the user to repeat the process until the desired number of times has been reached.
- According on the user's preferences, the system can have both male and female voices.
- Features supported by our Voice Assistance include playing music, sending emails, sending SMS, searching Wikipedia, launching system-installed apps, launching any website, and so on.
- (e)The system will continue to listen for orders, and the length of time it spends listening is adjustable to meet the needs of the user.
- If the system is unable to obtain information from the user input, it will prompt the user to repeat the process until the desired number of times has been reached.
- Depending on the needs of the user, the system can feature both male and female voices.

Block Diagram

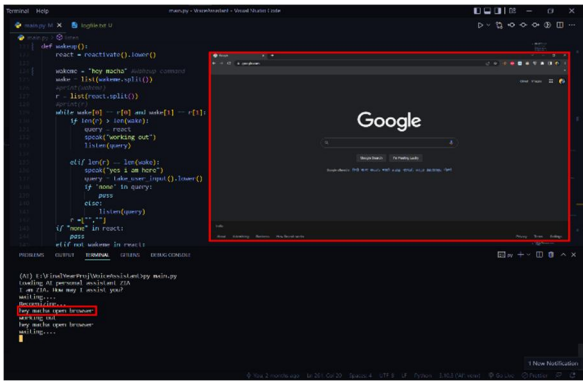


VI. RESULT AND ANALYSIS

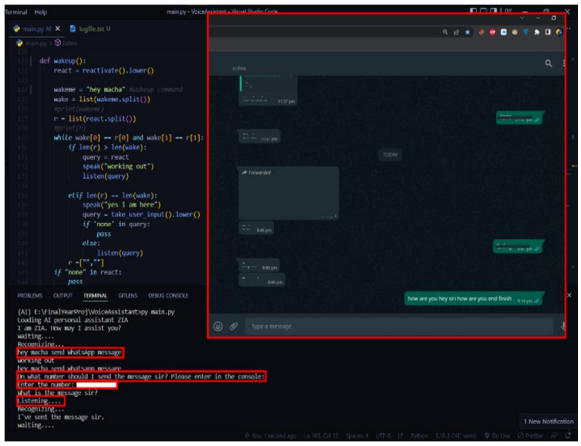
This section provides a summary of our findings based on the comparison and analysis of our suggested work. We used Python, Machine Learning, and AI to implement this concept. Our primary goal is to assist consumers in completing their chores via voice commands. This may be accomplished in two stages. To begin, using the Speech Recognition API, take the user's audio input and transform it to an English sentence. Second, looking for the job the user wants to do We designed a voice assistant that can perform task when the device not connected to the internet and also can terminate the task that started by it and it can recognize the user by the voice modulation to access the personalized application or data and for the security purpose this voice assistant asks for the log file monitoring storage and has a graphical user interface for easy and visual interaction.



When starting up the application it greets the user by saying “Loading AI personal assistant ZIA, I am ZIA. How may I assist you?” and the wait for the user command tasks. To wake ZIA just call “hey ZIA” and to perform tasks like open application or close application say “hey ZIA open command prompt” or “hey ZIA open cmd” to open the window command prompt and to close command prompt, say “hey ZIA close command prompt” or “hey ZIA close cmd”. Likewise, every time to perform task call hey zia + task.



To open browser say “hey ZIA open browser” this command opens a web browser and to terminate process just say “hey ZIA close browser” this command will close the browser.



To Send whatsapp message just say “hey ZIA send whatsapp message” then voice assistant ZIA says “working out, on what number should I send the message sir? Please enter in the console:” just type the receiver’s whatsapp number in the console and hit enter button. Then it asks for the message, speak the message. Once the speech is recognized and it will be typed in the text field of whatsapp messenger, then it will send to the receiver. After that say “hey ZIA close browser” to terminate the process. Also, can delete the user log file by saying “hey ZIA trash log” or “hey ZIA delete log”, this may help to stop tracking and recommendation things and protect personal requests.

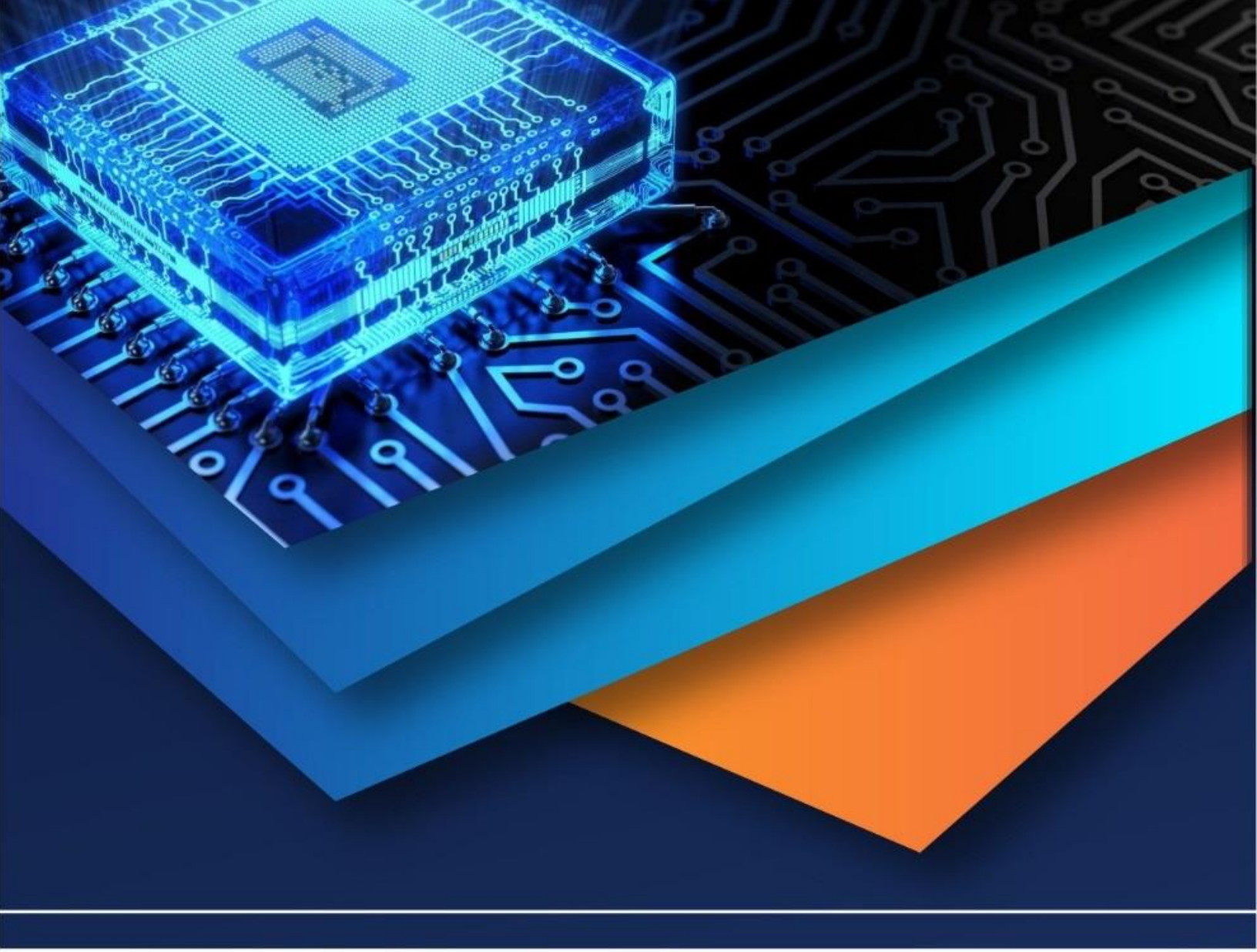
VII. CONCLUSION

This paper is about Voice Assistant for Windows Using Python. Voice assistants make people's life simpler. A voice assistant's flexibility comes from their ability to contract for only the services they demand. Like Alexa, Cortana, Siri, and Google Assistant, we create voice assistants in Python for all Windows versions. Artificial Intelligence technologies are used in this project. Voice Assistants may assist you in properly managing and organizing your time. Because voice assistants are more portable, loyal, and accessible at all times, they are more dependable than real personal assistants. We designed a voice assistant that can perform task when the device not connected to the internet and also can terminate the task that started by it and it can recognize the user by the voice modulation to access the personalized application or data and for the security purpose this voice assistant asks for the log file monitoring storage and has a graphical user interface for easy and visual interaction.

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