International Journal for Research Publication and Seminar
ISSN: 2278-6848 | Vol. 16 | Issue 1 | Jan-Mar 2025 | Peer Reviewed & Refereed Refereed
Special Edition : SPARK 2025 : XXI National Conference on Emerging Technology Trends in Engineering & Project Competition

Survey on Virtual Assistant Using Python

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Abstract: **-** Advancement of technology in this digital world, daily life has become smarter and easier. This also includes virtual assistants who can help with many simple tasks by teaching them to do it. Here the command is given as input, The output is the result of the work in the form of speech or displayed on the screen and sometimes on the screen. Input is provided by the microphone (Bluetooth cable already installed). There are many famous virtual assistants such as Amazon - Alexa, Apple – Siri, Microsoft - Cortana, Samsung - Bixby. Used by humans and some. Although it supports many languages. A virtual assistant is a combination of speech recognition. (Convert text to speech), command and various functions time, extra time, alarm clock, etc. The virtual assistant can chat with people (chatbot), daily schedule, reminders, notes, calculator, jokes, web content, alarm clock, open and close applications and documents, etc. It also connects to the Internet to provide results for user queries.

Keywords: **- Python, Speech Recognition, API Integration, NLP.**

INTRODUCTION: In recent years, there has been an increase in the use of virtual assistants (VA) to perform various tasks for users. VA is designed to assist users with tasks like scheduling appointments, setting reminders, sending messages, and more. The rise of artificial intelligence and natural language processing (NLP) has led to the development of the virtual assistant (VA), which can instantly understand and respond to the user's commands. An AI virtual assistant is a computer- based programmer that uses Python extensions to harness the power of AI and NLP to understand and respond to user commands. Programmers are designed to be skilled helpers who can perform many tasks for users. The AI-powered virtual assistant is designed using Python extension files and provides advanced algorithms to analyze user commands and provide accurate and instant responses. Programmers aim to learn and adapt to user behavior over time; Therefore, the more users interact with it, the better the user learns about their likes and personas. AI-powered virtual assistant is a powerful tool that helps programmers save time and increase productivity in their daily lives. It follows the user's needs, making it versatile and useful for anyone who wants to simplify their daily work. Most voice assistants like Siri, Ok Google, and Cortana were created in 2016. So, I created my new virtual assistant called "MY_ASSISTANT".[3]

LITERATURE REVIEW: Voice assistant has participated in many major competitions over the years and has a long history. Voice assistants for speaking, searching, and commands are becoming the norm on smartphones and wearable's. [1] In order to provide general information (thoughts and opinions) about voice control, virtual assistants, application areas and other topics, this study is based on an incomplete information analysis.[8] There are now many smart programs on the market that can fulfill natural language in any roles in daily life. Bell Laboratories created the first speech recognition system, Audrey, in 1952[9]. Audrey is illiterate and has a limited ability to understand only ten numbers spoken by some people (Pieraccini, 2012).[2] About ten years later, IBM developed and introduced the shoe machine.16 different expressions, including all ten numbers from "0" to "9" and counting such as "more" and "more" Verifies that the "signature" is known from the device and> area. The Shoebox Machine only recognizes and responds to 16 words spoken in English by the speaker, including the ten digits "0" through "9".[4]These limitations later became problematic and raised questions about language skills. Hidden Markov Models (HMM) were introduced in the 1970s. (Rabiner, 1989).HMM is transforming many ways of generating speech recognition. Using HMMs, speech recognition begins to calculate the probability that a sound represents a word. Since this method can increase the number of messages to thousands, there will now be the possibility of knowing an unlimited number of messages Almost any type of data can be modeled thanks to options for distributing observations at each model level. Apple Inc. In 2011, the launch of the Siri virtual assistant introduced the first widely used voice command. (Bostic, 2013). [5]Siri is an intelligent bot that has become an integral part of Apple's mobile devices and is considered a core feature. Siri is a personal assistant that uses voice commands to answer questions and submit tasks to web services, which are then executed on behalf of the user. Similarly, Zabaware Inc. created a chatbot HAL as a virtual Assistant for computer users.[3] In order to prepare the information given to it, the robot also uses natural language processing algorithms to communicate with the user and record what the user says. IBM invested heavily in this area and created Watson, a system designed to compete on Jeopardy! Television presenter.[6] This system defeated two of the most talented participants in the demonstration, demonstrating the current capabilities of intelligent machines with good language skills. Chatbot Kari is a stark contrast to her position as a virtual girl. The system interacts with users and attempts to initiate conversations with them using techniques similar to natural language processing. The software aims to match individuals and replicate human relationships as much as possible using algorithms designed to help programmers learn from ideas.[7] With several significant breakthroughs over the years, voice assistants have a long history. [8]On smartphones and wearable technology, voice assistant for dictation, search, and voice commands has become a standard function. In order to offer general information (theory and concepts) concerning voice control, virtual assistants, fields of application, and other topics, the study is based on an incomplete review of the literature.[9]

METHODOLOGY: Speech recognition is the technology used by virtual assistants to convert voice input into commands. All audio signals converted into executable commands or digital files that software can execute when the user wants to help complete a task. The next step is to find the responses received and compare the information with the software documentation. You can use your own commands to operate the machine from Virtual Assistant. Speech recognition, Wikipedia, web browsers, pysttx3 etc. We use many Python installation packages such as. to create virtual help. You can convert audio to text using speech recognition. Next these to find an acceptable response, data are compared with software data. Machines can be operated using your own commands by using a virtual assistant. We employ a variety of Python installer packages, such as Speech recognition, Wikipedia,

web browser, pysttx3, etc., to create virtual assistants. Using speech recognition, audio can be turned into text.

SCOPE:

General: As artificial intelligence gets better and voice technology becomes more recognized, voice assistants will not only become more but also more integrated into many modern devices. Additionally, speech will become more natural based on human interaction, which will begin to make many tasks more difficult. More and more people are using voice assistants; Early 2019 estimates show that 111.8 million people in the US will use voice assistants at least once a month, up 9.5% from last year. In the future, devices will be more integrated with voice and it will be easier to make calls using voice. For example, Amazon released a wall clock that supports Amazon Alexa, so you can ask it to set the time or tell you the time. Although these devices are not full-fledged voice assistants, they still show a lot of promise in the coming years. Using commands we will operate our devices by speaking. 5.1.1. More integration: In the future, devices will integrate more voices, and making calls using voice will become easier. For example, Amazon released a wall clock that supports Amazon Alexa, so you can ask it to set the time or tell you the time. We will see a change with voice assistants in everyday products. Instead of users delaying and waiting for the voice assistant to catch up, we will be able to chat with the voice assistant.

WORKING PRINCIPLE:

The working of a Virtual Assistant uses the following principles:

1. Natural Language Processing: using a natural language such as English.

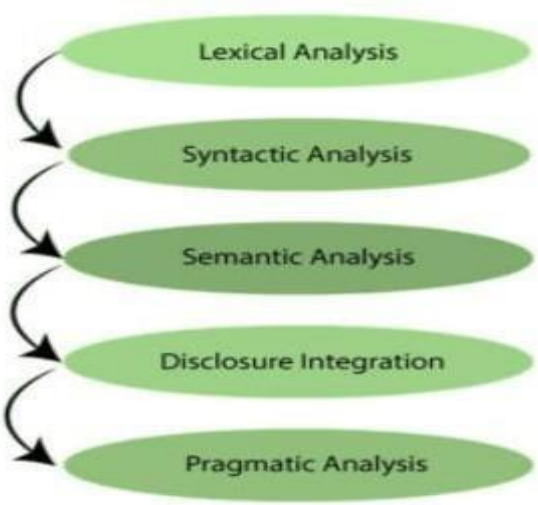

Fig. Natural language processing

2. Automatic Speech recognition: To understand commands according to the user's input.

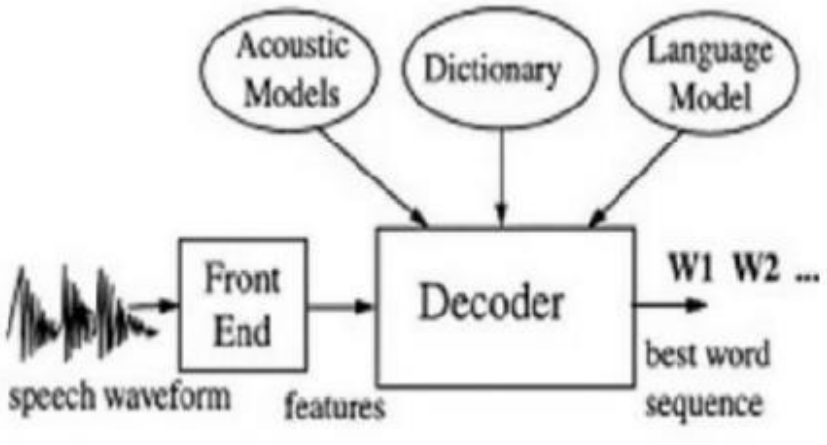

Fig. Automatic Speech recognition block diagram

3. Artificial Intelligence: To learn things from the users and to store all information about the behavior and relations of users.

CONCLUSION: A virtual personal assistant is a great way to organize your plans. There are now many smart personal assistants on the market for different platforms. These new software applications work better than PDA devices because they provide everything from a smartphone. VPAs are also more reliable than personal assistants because VPAs are portable and you can use them whenever you want. Because they are connected to the Internet, they have more information than other assistants. In this article, we talk about creating a personal virtual assistant for Windows using Python. Virtual assistants make people's lives easier. Have the freedom to hire virtual assistants to provide the services they need. We also use Python to create virtual assistants for all versions of Windows, such as Alexa, Cortona, Siri, and Google Assistant. We used artificial intelligence technology in this research. Use a virtual personal assistant to manage or plan your events. Personal assistants are more reliable because they are more mobile and always available. Our virtual assistants will learn more about you and give you advice and instructions. The vehicle will always be on. A virtual personal assistant is a great way to organize your plans. There are now many smart personal assistants on the market for different platforms. These new software applications work better than PDA devices because they provide everything from a smartphone.

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