Using AI (Hey Buddy)

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Abstract **- Voice Assistants (VA) are becoming going to be more popular among the general population like Alexa, Siri, Google Assistant Cortana, and Bixby. The individual method of doing the tasks, Services, and interaction with organizations, is constitutionally simulated by the VA (Voice Assistants). They have extensive economic and social potential. Ingenious mode of interactivity, the VA (Voice Assistant) has as a source advanced AI (Artificial Intelligence), specialist systems, speech recognition, and natural language processing. A huge literature on the title is currently available. Because of the rapid advancement of technology, we can now accomplish things we never believed we could before. The concepts platform is required, which is necessary may easily and comfortably automate all of our tasks. Consequently, we must create a VA (Voice Assistant) with outstanding deduction skills and the capacity to engage with the environment simply via one of the human relationships that are purely materialistic, i.e., VOICE. The audio is recorded by the hardware. requests made via a microphone are processed so that the apparatus can react to the person utilizing the builtin speaker module. For instance, if you inquire, "What's the Date today?" Open the YouTube? It searches the web using its inherent abilities.**

Keywords **- Deep Learning, Voice Assistant, Artificial Intelligence, Speech recognition, Virtual Assistant**

I. INTRODUCTION

A (Virtual assistant) is used to operate devices like laptops and PCs at your discretion. A virtual assistant application software that can carry out user requests by understanding natural language and voice instructions. Users can interact with their assistants by asking questions, using home automation equipment, and playing media using voice commands, managing other everyday activities including email and to-do lists, opening and closing any application, sending messages to any WhatsApp user, etc. Virtual assistants are now incredibly helpful to people [1]. The ability to run PCs or laptops using solely voice commands simplifies life for people. It takes less time to use a virtual assistant. By using a virtual assistant, we can save time and help with other projects. The majority of the time, virtual assistants are cloud-based programs that need internet-connected gadgets. The freedom to only hire a virtual assistant for the services they require. Start with the fundamentals of Python to create a virtual assistant for your computer. Virtual assistants are focused on their tasks. The capacity of a virtual assistant to comprehend and carry out instructions. Virtual assistants are pieces of software that carry out tasks given by clients and comprehend spoken and written instructions. The basic idea of taking an artificial voice assistant into the picture is that it is a voice robot, which is somewhat different from the natural human voice and reacts according to the command. It is no longer a human who learns to communicate with a machine, but a machine learns to communicate with a human, prospecting his actions, habits, behavior, and trying to become his personalized assistant. Worldwide, 15% of the population has some form of disability, of which 24% have significant difficulties with their functioning. The task of using a website can seem trivial to most people, but it can be extremely difficult for people with disabilities [2].

As a result, we wanted to develop a way that would allow different types of people to access the internet in a unique way. The freedom to only hire a virtual assistant for the services they require. Start with the fundamentals of Python to create a virtual assistant for your computer. Virtual assistants are focused on their tasks. The capacity of a virtual assistant to comprehend and carry out instructions. Software known as a virtual assistant can comprehend both written and spoken commands. Virtual helpers can understand human speech and reply with synthesised voices [3]. Many voice assistants are available on the market, including Siri for the Apple TV remote, Google Assistant for the Pixel XL smartphone, Alexa, a smart speaker built using the Raspberry Pi, and Microsoft Cortana for Windows 10. We have developed a virtual assistant for Windows, much like all other virtual assistants. For this project, we make use of artificial intelligence technology. This Voice enabled personal assistant can be implemented by using technologies like Speech-to-Text and Text-toSpeech, and can be integrated with other functionalities as well, depending on our requirement [4].

II. RELATED WORK

An Android application that demonstrates the usage of natural language was created as an Intelligent Voice Assistant system for the Android platform. Processing that facilitates message sending and even use voice to access the built-in mobile application commands [5]. To determine how best to use this system, calendar and mailing services that allowed users to send mail can also use voice commands to create their event. Internet of Things-based technology for home automation things have been shown to function satisfactorily by attaching straightforward devices to it and the appliances used by applications were successfully managed remote access over the internet [6]. The intended system does not solely keep track of sensor data such as temperature, gas, motion and light sensors, but also starts a process based on the specifications. For example, lighting up as soon as it gets dark. Additionally, it promptly stores the sensor parameters in the cloud. This would enable the user to assess the state of many metrics in the home from anywhere at any time [7].

Homey is a voice-activated hub for home automation developed by Dutch firm Athom. It includes a multiplatform Smartphone app and may simultaneously communicate with a variety of devices with various configurations. It speaks several languages, including English, Dutch, Spanish, and French. Numerous smart home items that can be controlled by apps are compatible with it [8]. Alexa, a "Virtual-Assistant" from Amazon, succeeds in standing apart. Alexa is centralized within specific, in-home Amazon products, most notably the Amazon Echo, an always-on, always-listening Internet-connected speaker, in contrast to mobilebased virtual assistants like Siri. Here are some of Alexa's features [9].

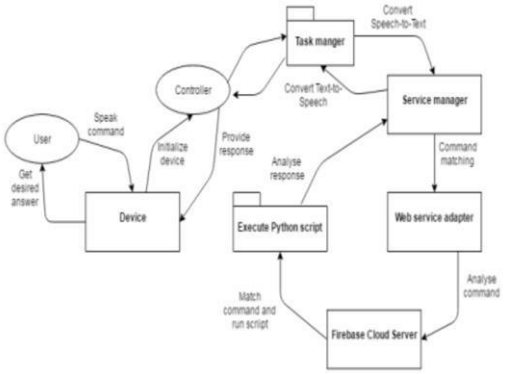

Fig.1 Working of Virtual Assistant

III. OVERALL PROCESS

When evaluating the accuracy of thematic maps created from remotely sensed data, representativeness is closely related to the quantity and quality of training data. A classification that results from an inaccurate determination of the class border may be compromised by outlier and mixed pixels, which can be found by doing a quality analysis of the training data [10].

3.1 SYSTEM ARCHITECTURE

The steps of the overall system design are as follows:
Voice-activated data collecting.

- Voice analysis and text conversion
- Data processing and storage
- Creating voice from the result of text processing

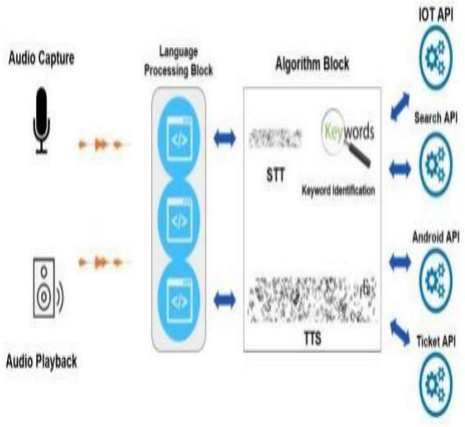

Fig.2 System Architecture of Voice-Controlled Personal Assistant

3.2 SYSTEM ELEMENTS

a. IoT BOX

The IoT box is utilized to carry out tasks for linking electronic devices [11]. The info communication occurs through a Wi-Fi network.

The task modules used in the IoT box are:

- Servo motors for mechanically moving things like curtains. Here, we're utilizing this module to demonstrate how the curtain operates with voice-activated opening and closing.
- To demonstrate the transformation of light and regulate its brightness, Neo-Pixel rings are used as lights.
- An LED display that serves as a screen and shows the data.

b. FIREBASE CLOUD SERVER

The user may easily and from any location share his individual data using an Android application. The network adapter-built APIs are used for data transport and processing. The main system can access the created data since it is saved in firebase cloud storage [12]. These jobs are all being completed concurrently. The primary system has access to and may obtain and handle all

data stored on the Firebase cloud server as needed. Parallel to the ongoing data retrieve from the server, the requirement for the provided data is also processed. Figure 2 depicts the architecture of a Firebase cloud server [13].

3.3 DATA FLOW SEQUENCE

Device Initialize: Device initialization is accomplished by invoking the device's name.

- Task manager: Task Manager handles Text-toSpeech and Speech-to-Text conversion
- Service Manager: Command analysis and cloud server and web service adapter matching.
- Execute Command: After determining whether the command is a match, launch the corresponding Python script.

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Fig. 3 Data flow sequence

Table 1: Comparative study of research done to date

S.NO	Name	Year	Author	Review
1.	Jarvis, Digital Life Assistant [16]	2013	Khobragade S.	This paper illustrates how the author's idea, which is essentially a speech recognition program, leverages voice as a communication method. Speech technology is based on two fundamental ideas: synthesizer and recognizers. Speech synthesizer's take input and output it as an audio stream, whereas speech recognition systems receive input as an audio stream and output it as text transcription.
2.	Virtual assistant for the visually impaired [17]	2020	Iyer V., Shah T.K., Sheth S., Kailas D.	In this, the author describes how he created software that adds a new level of accessibility and control over any website.
3.	AI Based Voice Assistant Using Python [18]	2019	Shende D., Umahiya R., Raghorte M., Bhisikar A., Bhange A.	The design and execution of digital assistance are covered in this essay. The project is made up of open-source software modules that have the support of the PyCharm community and can be updated in the near future. This project's modular design increases its flexibility and ease of adding new features without affecting existing system functionality.
4.	Research Paper on Desktop Voice Assistant [19]	2022	Dhanraj K.V., Kriplani L. and Mahajan S.	In this study, establishing natural communication between humans and robots is a crucial goal of AI. Voice assistants are fantastic advances in artificial intelligence that have the potential to completely transform how people live. Since being included to smartphones, voice assistants have gained widespread acceptance. Desktop voice assistants are software applications that can identify human voices.

5.	Virtual Assistant Using Python [20]	2021	Damarla K.	The project in this article uses voice input, outputs by speech, and displays text on the screen. By using a microphone, the voice help captures the user's vocal input, translates it into computer-understandable English, and then provides the requested solutions and answers. To deliver answers that the user has questioned, this aid connects to the internet.
6.	Empowering people with disabilities through AI [21]	2018	Smith B., Shum H.	In this paper, the advantages of providing work opportunities to persons with disabilities go well beyond enabling them to participate in society and lead respectable lives devoid of assistance or direction. People with impairments are said to be exceptionally loyal and driven at work, which results in very low turnover rates. With the use of this observation, we were able to come up with a plan to suggest a model that may increase these people's confidence.
7.	Desktop Voice Assistant for Visually Impaired [22]	2020	Yadav A., Singh A., Sharma A., Sindhu A., Rastogi U.	There is a need for a voice assistant that can not only take commands through voice but also execute the desired instructions and give output either in the form of voice or any other means. This paper presents a personal voice assistant that takes commands according to the individual. This is implemented via a synchronous process
8.	Artificial intelligence and disability: too much promise, yet too little substance [23]	2020	Peter S., Smith L.	The proposal primarily focuses on developing and implementing an assistive system for people with visual impairments to use Android smartphones with ease, and the suggested system is utilized to aid people with visual impairments in accessing the most crucial aspects of the phone. The goal is to create a low-cost, high-performing assistive tool for visually impaired people to use in their daily lives.
9.	Working Together: People with Disabilities and Computer Technology [24]	2012	Burgstahler S.	This resource explains the challenges faced by those with disabilities as well as the tools they employ.
10.	Voice based email system for blinds [25]	2015	Shabana T., Anam A., Rafiya A., Aisha K.	The main goal of this paper is to create an email system that makes it simple for even someone who is blind to communicate. The user will only be able to utilize the mouse and speech recognition with this system, not the keyboard. Furthermore, because it is solely dependent on interactive voice answers, anybody may use it, including people who are illiterate.

V. CONCLUSION:

Users benefit from Voice Assistant's hands-free voice control of their system. A new kind of communication between people and machines is made possible by speech recognition technology. People who are physically handicapped benefit greatly from it. By

utilizing several custom layouts and text to speech, ARA improves the quality of the system while assisting those who are visually challenged in accessing the most crucial functionalities. It not only responds to human orders, but also to questions that are posed or phrases that are stated by the user, such as opening tasks and operations.

To create a smart assistant that can handle IoT applications and even resolve user inquiries utilizing online searches, voice controlled personal assistant systems will employ natural language processing and can be coupled with artificial intelligence techniques. It may be made to require less work from people when interacting with numerous different subsystems than would otherwise be necessary if done manually. The system will improve the quality of human existence by achieving this. More precisely, this system is made to communicate intelligently and operate other subsystems, such as Internet of Things (IoT) devices or gadgets that receive news from the Internet, provide other information, or receive previously saved personal data. The Android app should allow users to add information like calendar entries, alarms, or even reminders.

The system will consist of the following phases: voice data collection; voice analysis and text conversion; data storage and processing; and speech production from the output of the text processing. Every phase generates data, which may be utilized later to identify trends and provide user suggestions. Artificial intelligence devices that learn and comprehend people may use this as a primary foundation. Thus, based on a review of the literature and an analysis of the current system, we have determined that the suggested system would not only make it easier to interface with other systems and modules but will also keep us organized.

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