



IJEAST

INTERNATIONAL JOURNAL
OF ENGINEERING APPLIED SCIENCE
AND TECHNOLOGY



VOLUME : 8 ISSUE : 02 Print / Issue Publication Date: 21-Aug-2023



ISSN : 2455-2143



DOI : 10.33564/IJEAST.2023.v08i02.053

Indexed In



WWW.IJEAST.COM

editor@ijeast.com



VIRTUAL ASSISTANT USING ARTIFICIAL INTELLIGENCE

Mayank Raj, Ashish Devang, Satya Chanchal
School of Computer Science and Engineering
Greater Noida, India

Abstract: Voice assistants are programs on digital devices that listen and respond to verbal commands. A user can say, "What's the weather?" and the voice assistant will answer with the weather report for that day and location. They could say, "Tell me a story," and the assistant will jump into a tale. Many devices are becoming smarter in their own way to interact with human in an easy language. The Desktop based voice assistant are the programs that can recognize human voices and can respond via integrated voice system. Voice assistants are the great innovation in the field of AI that can change the way of living of the people in a different manner. The voice assistant was first introduced on smartphones and after the popularity it got. We use artificial intelligence python as a programming language because it have a major libraries which is use to execute commands. By using python installer packages our personal virtual assistant recognize the user voice and process on it. It takes voice as input. The system is being designed in such a way that all the services provided by the mobile devices are accessible by the end user on the user's voice commands. We reviewed studies that used voice assistants for various tasks in this context. Our study highlighted the usability measures currently used for voice assistants. This paper will define the working of a voice assistants, their main problems and limitations. In this paper it is described that the method of creating a voice assistant without using cloud services, which will allow the expansion of such devices in the future.

Keywords: Artificial Intelligence, python, voice recognition.

I. INTRODUCTION:

An intelligent virtual assistant (IVA) or intelligent personal assistant (IPA) is a software that can perform specific tasks or services for anyone based on commands or requests as in the real-world tasks of a personal assistant. In simple terms, it is a series of programs that perform their own tasks, reducing the user's work at the machine to a series of commands. There are various types of virtual systems in the industry for general use, social media, marketing, etc. Virtual assistants offer an extra interactive platform. Advanced NLP strategies and different complicated algorithms are used.

Using Speech Recognition, we going to transform person voice instructions into phrases and device carry out obligations primarily based totally on key-word from the ones transformed texts. After appearing the assignment the end result is transformed into speech the usage of gts (Google Text-to-Speech) library. What can you expect from your virtual personal assistant? As technology advances, the list continues to grow. The smart assistant can search the internet for information, arrange your calendar and schedule appointments, display a variety of notifications and reminders, activate apps while driving, and interact with other smart devices like IoT electronics. Virtual assistants used to be supported by primitive systems that could only do basic voice recognition. These assistants now use advanced artificial intelligence and natural language processing technology. These allow the assistant to understand natural speech and respond in a human-like manner.

II. LITERATURE REVIEW:

Entrepreneurship all-consuming nature has drove many a mind insane. Every entrepreneur, sooner or later, understands that they require professional assistance in order to expand their company. Virtual personal assistants support you with the day-to-day tasks that are essential to your success. Booking plane tickets, responding to emails, and other non-productive tasks are necessary to keep life running, but they may eat up a lot of your time. Hire someone to undertake the mundane routine duties and relieve the stress of a growing to-do list.

Hiring a virtual personal assistant is, without a question, the most effective approach to manage your expanding business and assign non-essential work while you focus on your main competencies. Delegate dull and repetitive but crucial chores to your personal VA so you can concentrate on your company's development and growth. Thanks to your VA, you'll be astonished at how much more work you can get done in a day. While the digital world appears to add to our daily responsibilities and make focus more difficult, it also provides a solution: the intelligent virtual assistant.

Digital assistants powered by means of synthetic intelligence (ai) have won substantial popularity in latest years. Those intelligent systems are designed to understand and respond to consumer queries, provide relevant statistics, carry out tasks, and offer personalised experiences. This literature assessment



aims to discover the present studies and improvements within the discipline of virtual assistants the use of ai, highlighting their programs, demanding situations, and destiny prospects. The literature review gives a comprehensive evaluation of the improvements and challenges in virtual assistant technology the use of artificial intelligence. It highlights the development made in natural language processing, system studying, personalization, multimodal interfaces, and user enjoy. The review also emphasizes the ability programs of digital assistants throughout various domains and outlines the destiny directions for studies and improvement in this field.

III. EXISTING SYSTEMS:

This phase gives a general assessment of virtual assistant era, such as its evolution, key additives, and architectural design. It discusses the position of ai in allowing digital assistants to understand herbal language, manner records, and have interaction in meaningful conversations with customers.

Timeline of Mainstream Voice Assistants



IV. METHODOLOGY:

Natural language processing and know-how: The focal point of this section is on the improvements in natural language processing (NPL) and know-how techniques used by virtual assistants. It explores numerous strategies along with

semantic evaluation, sentiment analysis, rationale popularity, and named entity reputation. The assessment additionally discusses the demanding situations associated with language ambiguity, context knowledge, and multilingual assist. Virtual assistants use NPL to match consumer text or voice enter to executable instructions. While a person asks a question to personal assistant to perform a venture, then natural language audio signal is converted into executable command or digital statistics that can be analysed the software program. Then this facts is as compared with a information of the software to find a suitable solution. Virtual assistant is used to run machines on your personal commands. For making virtual assistant we use a few python installer packages like-

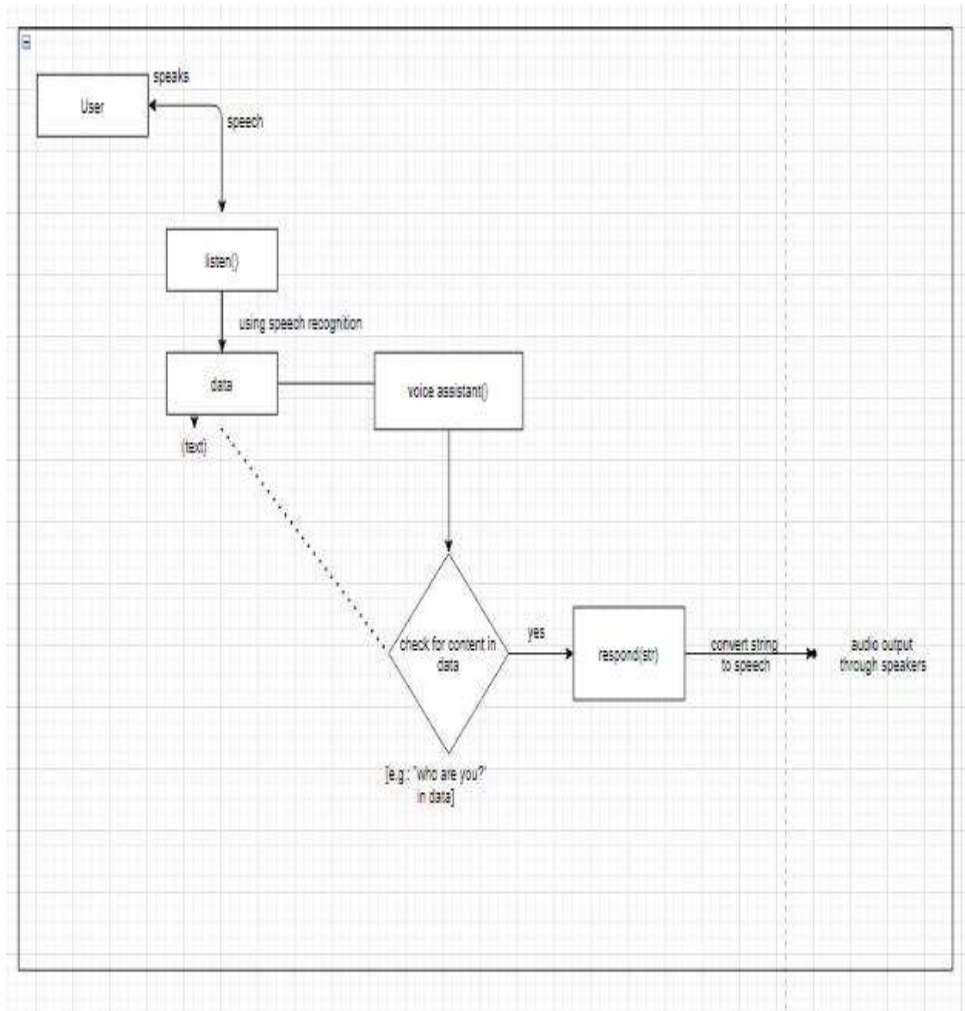
- **Speech recognition**
The system is using of google's online speech popularity device for changing speech enter to text. Through this the customers can speak and reap the textual content in exchange of voice input from the unique corpora prepared on computer community server on the facts middle from the microphone that is briefly stored in the device after which sent to google cloud for speech reputation. The same text is then received and sent to the voice assistant program.

- **Google-Text-to-Speech**
Textual content-to-speech is essentially used for conversion of speech from textual content provided through the person. In other words, a tts engine converts written shape of textual content into phonemic illustration, then converts the phonemic illustration to waveforms which ends up in sound. Tts has advanced a lot and springs with distinct languages furnished by the third-celebration publishers.

- **Wikipedia**
We all recognize Wikipedia is a super and large source of expertise much like geeksforgeeks or every other resources we have used the Wikipedia module in our project to get more information from Wikipedia or to carry out a Wikipedia seek. To install this Wikipedia module use pip set up Wikipedia.

- **Speech recognition**
Speech popularity method that when human beings are speak me, a machine is aware it. In our challenge we are using google speech API in python to make software program which is used to run machines on command. We need to put in the audio python bundle for understand the voice commands. Pyaudio is set up using pip set up pyaudio command.

V. WORK PLAN LAYOUT



Virtual assistants are an increasing number of aiming to offer customized stories with the aid of leveraging consumer alternatives and contextual records. This phase explores the strategies hired for person profiling, recommendation structures, and adaptive interfaces. It also discusses the challenges associated with information privateness and moral concerns.

VI. RESULT AND IMPLEMENTATION

Virtual assistants a less tedious. Virtual assistant is a product that comprehends orders and complete undertaking relegated by client. Menial helper uses NLP to coordinate client voice or text input with executable orders. With the assistance of menial helper, you ready to run your machine-like PC or PCs on your own order. It is the quick interaction; in this manner it saves time. Remote helper is working for you at set times, so consistently accessible to you and ready to adjust to changing necessities quickly. Virtual partner will be

accessible to you and, should their responsibility empower, help other people as well, like family and partners.

Voice partners controlled by man-made brainpower (simulated intelligence) have arisen as adaptable devices for human-PC cooperation, altering the manner in which we collaborate with innovation. This paper gives an exhaustive survey of voice collaborator innovation, featuring its basic man-made intelligence calculations, difficulties, and applications. We investigate different parts of voice colleagues, including discourse acknowledgment, normal language handling, exchange the board, and voice blend. Moreover, we examine the development of voice colleagues, from early frameworks to the present status of-the-workmanship models. Also, we present likely future headings for voice collaborator research, for example, further developed logical comprehension, customized client encounters, and upgraded protection and security.

Example Consider the Term “YouTube Video”, where its activity is to open a program to a particular YouTube video.



The arrangement of primary catchphrases is diminished to a solitary primary catchphrase [YouTube]. A succession of conceivable extra watchwords is [video, film, melody, music]. The choice about whether to add words to the rundown of primary catchphrases is an individual decision. For this situation just when "YouTube" is in the question, the action(s) will be executed. Assume video is identified in the question, with no further principal watchword, the activity you need to accomplish could likewise be to open VLC (Video Lan) player, QuickTime player or Windows Media Player, for instance, rather than opening YouTube. Nonetheless, for the situation you need to open YouTube when "video" is the main identified catchphrase in the question, you need to add "video" to the succession of fundamental catchphrases rather than the arrangement of additional catchphrases.

Consider the Term in the Model passage of Segment. It contains fundamental catchphrase [YouTube] and additional watchwords [video, film, tune, music]. For this situation, the mixes which we have are [YouTube, YouTube video, video YouTube, YouTube film, film YouTube, YouTube tune, melody YouTube, YouTube music, music YouTube]. This multitude of blends are put away in the grouping merged Terms List of the Simple Term. At the point when one of these mixes are recognized in a question, the suitable activities are being executed.

VII. FUTURE OF VOICE ASSISTANTS:

This section explores the numerous packages of virtual assistants powered by using ai. It discusses their function in diverse domain names such as healthcare, customer support, schooling, clever homes, and automobile structures. The assessment highlights a hit implementations and identifies potential regions for further exploration.

- Streamlined Conversations: Google and Amazon recently announced that their voice assistants will no longer require users to use "wake" terms like "Alexa" or "Google" in order to initiate a conversation.
- Users will find it easier and more natural to communicate with these helpers thanks to this new feature. Such devices are also expected to improve their grasp of contextual aspects that improve the efficiency of interactions.
- Change in Search Behaviours: According to industry estimates, the global value of voice-based shopping will reach \$40 billion by 2022.
- By 2022, consumer spending on voice assistants is expected to increase to 18 percent.
- Voice-based ad revenues are estimated to reach \$19 billion by 2022, which is not surprising.
- Personalized Experiences: Customers may interact with digital assistants and voice-enabled devices like Amazon's Alexa and Google Home using speech—the most natural way of communication.

- Perhaps this is why online sales of voice-enabled devices increased by 39% year over year.
- As voice assistants improve their ability to discriminate between different voices and adjust results to each particular user's information, they will soon begin to provide increasingly more personalised experiences.
- Focus on Security: According to 41% of voice device users, they are concerned about their privacy while using their devices.
- This is why, with their voice assistant technologies, Amazon and Google have implemented a variety of security features (such as speaker ID and authentication).
- Compatibility & Integration: In the near future, voice assistants will likely be integrated into a wide range of items.
- With the debut of its Family Hub refrigerator, Samsung has already taken the first step in this direction.
- Google also just released Google Assistant Connect, a new tool that lets manufacturers to create custom gadgets that include this technology.

VIII. CONCLUSION:

This paper presents an exhaustive outline of the plan and improvement of a Static Voice empowered individual partner for pc utilizing Python programming language. This Voice empowered individual associate, in the present way of life will be more viable in the event of saving time and supportive to contrastingly abled individuals, contrasted with that of earlier days. This Associate works appropriately to play out certain errands given by client. Besides, there are numerous things that this right hand can do, such as sending message to client versatile, YouTube mechanization, gathering data from Wikipedia and Google, with only one voice order.

Through this voice colleague, we have mechanized different administrations utilizing a solitary line order. It facilitates the vast majority of the undertakings of the client like looking through the web and so on, we plan to make this venture a total server partner and make it sufficiently brilliant to go about as a trade for an overall server administration.

The project is fabricated utilizing open-source programming modules with PyCharm people group backing which can oblige any updates in practically no time. The measured idea of this venture makes it more adaptable and simpler to add extra elements without upsetting current framework functionalities.

Undoubtedly, voice assistants are soon becoming a part of businesses, empowering their productivity and collaborating their efforts. However, the pace is dangerously slow with the voice still being in its infancy. It is yet to find the required acceleration to become an integral part of business networking and our lives. However, great minds have taken their interest in unleashing its potential and the future of voice assistants looks bright.



An excellent voice assistant will save time and money by doing the small tasks for you and doing them accurately and with high quality. If you handle the voice assistant correctly, it will be a boom in your business. When Siri debuted on iPhones in 2011, she changed the world, transforming the way we used our phones and other technology. What Siri did for phones, Alexa did for homes, initiating the rise of the smart speaker.

IX. REFERENCES:

- [1] Marco Gramaglia, Marco Fiore, Alberto Tarable, Albert Banchs, "Preserving mobile subscriber privacy in open datasets of spatiotemporal trajectories", INFOCOM 2017 - IEEE Conference on Computer Communications IEEE, pp. 1- 9,2017.
- [2] Chung, H., Lee, S.: Intelligent virtual assistant knowsyourlife. CoRRabs/1803.00466 (2018)
- [3] Tadas Baltrusaitis, Peter Robinson, and Louis-Philippe Morency.2016. Openface: an open source facial behavior analysis toolkit. In Proceedings of the IEEE Winter Conference on Applications of Computer Vision (WACV).
- [4] D. R. S. Caon, T. Simonnet, P. Sendorek, J. Boudy, and G. Chollet, "vAssist: Virtual In- teractive Assistant for Daily Home-Care," in Proceedings of pHealth,2011.
- [5] Crevier, D. (2013). AI: The Tumultuous Search for ArtificialIntelligence. NY:Basic Books, ISBN0-465-02997-3.
- [6] Sadun, E., & Sande, S. (2014). Talking to Siri: Mastering the Language Apple's Intelligent Assistant

IJEAST

INTERNATIONAL JOURNAL
OF ENGINEERING APPLIED SCIENCE
AND TECHNOLOGY

ABOUT IJEAST

International Journal of Engineering Applied Science and Technology (IJEAST) is a peer-reviewed, open access journal that publishes high-quality research papers in the field of Engineering, Applied Science and Technology.

IJEAST aims to provide a platform for researchers, academicians, and professionals to share their innovative ideas, research findings, and practical experiences with the global scientific community.

FOCUS AREAS

- Engineering
- Applied Science
- Technology
- Innovation & Development
- Interdisciplinary Studies



PEER REVIEWED

All submissions are rigorously peer reviewed to ensure quality.



OPEN ACCESS

Free and unrestricted access to research for all.



GLOBAL REACH

Connecting researchers and professionals worldwide.



TIMELY PUBLICATION

We ensure a swift and efficient publication process.



For more information, visit our website
www.ijeast.com



INTERNATIONAL JOURNAL
OF ENGINEERING APPLIED SCIENCE
AND TECHNOLOGY

✉ editor@ijeast.com

🌐 www.ijeast.com

📍 India



2455-2143