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A Review on AI based Virtual Assistants

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Abstract- Consumers and professionals are becoming highly engaged in smart assistants and virtual assistants due to recent advancements. Voice assistants provide a wide range of services with new and effective user interfaces. However, such technologies disclose new requirements as well as some flaws. Furthermore, they do not provide automation jobs such as WhatsApp automation, YouTube automation and many more services like translator, Wikipedia search, information about corona cases etc. To address these difficulties, we present a virtual assistant architecture for laptop that incorporates some of the most modern techniques in automation, speech production and recognition, and artificial intelligence. The proposed assistant is efficient and effective in terms of resources, as well as interactive and configurable, and the completed prototype runs on a laptop.

Keywords- Virtual assistants, speech recognition, WhatsApp automation, AI.

I. INTRODUCTION

The concept of a smart assistant has grown well- known and popular during the previous decade. Commercial devices such as Amazon Alexa, Google Home, and Cortana can communicate with users through speech recognition and synthesis, provide a variety of services, and integrate with automation, providing an advanced user interface. We are all incredibly busy in our daily lives nowadays. As an IT professional or someone who uses a computer or laptop, you have a lot on your plate. Many chores must be completed manually while working on a laptop, such as sending emails, opening Google several times per day, learning on YouTube, and so on. Our AI-powered virtual assistant will aid you in completing these chores by providing audio instructions and then executing commands.

We've all heard of Cortana, Siri, Google Assistant, and a slew of other virtual assistants that help users with chores on the Windows, Android, and iOS platforms. But, to our surprise, there isn't a virtual assistant like this one available for the Developers' Paradise. The main goal of this project is to reduce the amount of work that must be done while using a laptop. They can be applied for educational purposes, such as assisting with presentations, seminars, internet conferences, and project management. Virtual assistants may be required for time management. Currently, the project's goal is to provide users with a Virtual Assistant that will help them with tasks such as exploring the web, extracting weather data, and many more things.

This article discusses a basis for creating virtual assistants that include expressive speech recognition and synthesis. The proposed architecture was created with the goal of integrating automation, but it is not restricted to that. The resulting virtual assistant seeks to engage the user in a very engaging and successful spoken conversation session.

The next sections of this paper provide a brief overview of prior work, a description of the proposed architecture and prototype, and preliminary experimental results. The document comes to a close with some closing remarks and future goals.

II. LITERATURE SURVEY

In this paper, the virtual assistant with surveillance system was developed after careful study of Python language and the libraries available in it.

They used IoT for connectivity of gadgets and involved hardware components like microcontrollers, sensors, etc. The future scope of the project is, it can be extended by using various components like PIR sensor for person detection, Wi- Fi switches, Temperature Sensors, Humidity Sensors etc. [1]

Natural Language Processing is used in Voice- Controlled Devices to process the language spoken by the human, comprehend the question, process the query, and respond to the human with the result. This system was developed as a humanoid application that confirms the necessity of language rework that sends messages and also uses build-in application by processing the commands given by the user to the system. The project's future scope includes the development of gadgets that can accept bilingual commands and answer in the same language as the user. [2]

The virtual assistant with home surveillance system was developed after thoroughly understanding the Python Language- its modules and libraries, the working of existing Virtual Assistants and their shortcomings, the Raspberry Pi's operation and requirements, as well as existing face detection and recognition algorithms. The future scope of this paper is that the system may be extended to provide more smart features and functionalities. This is an area where a lot of study is being done. [3]

In this paper, they have created a chatbot with AI and NLP for domain-specific assistants. Chatbots are helpful for human interaction. In practical applications, the Ward Algorithm was employed to calculate distance between components. The majority of the chatbots do not contain all of the requirements in terms of intelligence and interactivity, as per their taxonomy research. [4]

Goal Net model is used for as the basis for developing virtual assistant. The case study's modules and Goal Nets show how Goal Net may be used to represent varied functionality and behaviour for virtual assistants. HCI and MADE could be analysed utilising ideas, such as usability measurements, to make the creation of virtual assistant abilities easier.[5]

They create software to test software so that the appropriate level of quality can be maintained. Smart testing software should not only have all current complex data analysis methods, but it should also include modern communication interfaces for transferring all results regarding the tested system's behaviour from machine to human. [6]

This article investigates how individuals use speech to connect with computers. It deals with human- interactions via speech. ASR and TTS were used with a huge vocabulary. Various techniques for data processing were applied in this paper. Speech synthesis and recognition will become even more efficient in the future as they gain a deeper knowledge of how humans make and interpret speech. [8]

III. PROPOSED WORK

- User give voice input to the virtual assistant to perform specific task or to get answer or required question.
- Then the speech recognition algorithm convert voice into text & processes it & evaluate whether it is to perform an action or a question.
- If it's a question, the virtual assistant will provide the user the desired result by searching its database
- If it's an action, the virtual assistant will look it up in the database and carry it out. After the action is completed, it translates the test to voice, searches for the desired result, and responds to the user.

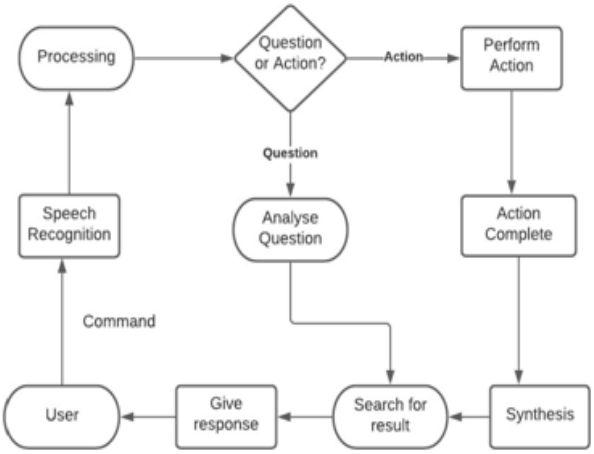

Fig 1. Proposed work.

IV. SUMMARY

The project aims to develop a support savvy virtual assistant for laptop. This Virtual Assistant which is developed in this project can performed a lot of tasks which are used in our day-to-day life like reminder, set alarm, google search, and YouTube music; open any website, temperature of any city etc.

It has been designed to provide a user-friendly interface for carrying out a variety of tasks by employing curtained well-defined voice commands. Automated tasks of WhatsApp, YouTube, and shutdown laptop are also added to ease the workload of users. The proposed system will effectively reduce work space and provide fast execution of tasks with interactive interface.

V. CONCLUSIONS

This system will save you time and money by automating basic and repetitive operations and producing high-quality results. If you use virtual assistant correctly, it will boom in your business & work. Proposed system will effectively reduce the work load.

The virtual assistant will continue to play an essential role in business and education development strategies since it offers cutting-edge solutions for increasing profitability by facilitating and speeding up the execution of work space for employees. It helps a lot while presenting any seminar, online education, automated reply to customers. We'll aim to make it more powerful in the future by adding an interactive user interface.

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