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Voice Web Assistant

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ABSTRACT
This research paper presents the development of an AI Web assistant capable of accepting as speech input in any language it response in web. JavaScript used in this project to develop ai Web assistant different types of algorithm and concept of OpenAI ChatGPT and google Assistant concept used in web assistant. The paper discusses the methodology used in developing the system, including the design and implementation of the different algorithm. Results show that the system was highly accurate. Future research is highly advanced version of web assistant.

Keywords: Assistant, Artificial intelligence, Machine learning.

INTRODUCTION

A **voice assistant** is a digital assistant that uses **voice recognition**, language processing algorithms, and voice synthesis to listen to specific voice commands and return relevant information or perform specific functions as requested by the user.

Based on specific commands, sometimes called intents, spoken by the user, voice assistants can return relevant information by listening for specific keywords and filtering out the ambient noise.

While the embodiments of voice assistants and the reasons for their adoption are wide-ranging, their usage shows a consistent pattern: across several studies, searching the web for content like music and recipes and performing simple informational queries consistently ranks among the most frequent use-cases for voice web assistants. **Voice recognition** works by taking an analog signal from a users voice and turning it into a digital signal. After doing this, the computer takes the digital signal and attempts to match it up to words and phrases to recognize the users intent. To do this, the computer requires a database of pre-existing words and syllables in a given language to be able to closely match the digital signal with. Checking the input signal with this database is known as **pattern recognition**, and is the primary force behind voice recognition. A voice assistant is a software agent that can perform tasks or services for an individual, by using the technology of voice recognition. Following voice assistants are a few of which can be found on the market today-Apple's Siri, Amazon's Alexa, Microsoft's Cortana, Google assistant, Samsung Bixby and many more.

The explosion in recent years of mobile devices, especially web-enabled smartphones, has resulted in new user expectations and needs. A growing body of work has investigated the space of voice-based search and its particular challenges. For example, Schalkwyk et al. describe Google Search by Voice (an early

version of Google's in-product voice search features around 2010), and detail the many complex technical challenges involved, from accurate speech recognition to multimodal interface design.

Virtual Assistants (VAs) can help in knowledge management processes. Using a standard format (questions and answers), people can easily store knowledge. This can encourage organizational staff to explicit their tacit knowledge. Thus, organizational knowledge tends to increase in explicit formats.

Voice control further improves the convenience provided by such devices, and it has already been applied in various systems. For example, the aforementioned driver could control the GPS systemin his car without letting go of the steering wheel, while the busy secretary could simply tell her phone to dial a number while she works on an important file. Although, the more technically savvy users may prefer to use such a system because they prefer talking to typing, or simply because it's fun.

The Virtual Assistant (VA) presented in this paper receives a question written in unrestricted natural language posted by a user using a Web browser. The VA analyses the question, eliminating stop words (generic words like prepositions and articles) and reducing words to their radicals, using a stemming algorithm. After that, the VA looks in the knowledge base for similar questions and returns to the user the corresponding answer. Knowledge is stored as a set of question-answer pairs. The knowledge base is maintained by domain experts, responsible by storing knowledge as questions-answers and by updating the base (increasing the stored knowledge). The facility is that the question does not have to be exact. Automatic Speech Recognition (ASR) which is a computer technology that is used to identify and process the human voice.

LITERATURE SURVEY

Voice assistant has a long history with several waves of major innovations. Voice assistant for dictation, search, and voice commands has become a standard feature on smartphones and wearable devices. The study stems from an overlooking literature review in order to present generic knowledge (theory and concepts) about voice control, virtual assistants, fields of use and more. Many researchers have done work on various voice assistants. The first voice system was made by Bell laboratories in 1952.The name of that system was 'Audrey'. Audrey had some limitations. It could understand 10 digits only. In early 1960's IBM made a shoebox machine.

Siri is among the best voice assistants that are available in the market. Some chat bots also been made, chat bot also works on similar principle as voice assistant. Voice assistant increases the interaction between the human and the machines. The input and output data are now in voice format, therefore they are appropriately processed under various technologies such as Automatic Speech Recognition (ASR), Natural Language Understanding (NLU) and Text-to-Speech (TTS). Basically, ASR is used to convert the words a user has spoken into text in several types of conversations such as speech-to-text for in-person conversation, captioning for online meetings and telephone conversations. Then, NLU is primarily focused on machine reading comprehension to understand the content of text to issue corresponding commands based on comprehending text. Finally, TTS reads a sentence or a paragraph of text aloud to the users such as reading e-news or stories from e-books. In this paper, we would focus on learning Google Assistant as an AI assistant for chatbot perspectives. In a chatbot case, a web browser plays a client role for an input mechanism to acquire a signal. Then this signal is sent to the server to process, analyse and generate responses. Server response generation can be broken down into two categories: data retrieval and information output. The core focus of this paper is to implement JavaScript on the client side to exchange input and output data between client and server

IMPLEMENTATION

It is comparatively time saving to build a JavaScript based Chatbot using web speech API. The Web Speech API enables to incorporate voice functionality easily into web applications. Combined with basic existing web technologies (HTML, CSS), developers are able to design and develop the user interface of any web app. The HTML file defines how the app looks. Front-end UI (User Interface): the interface the app where the user interacts with directly, including: text colours and styles, images, graphs and tables, buttons, colours, and navigation menu. HTML, CSS, and JavaScript are the languages used for Front End development. The structure, design, behaviour, and content of pages when apps are opened up. Responsiveness and performance are two main objectives of front-end UI. Backend Brain: is the server side of the app. It defines how data is stored and arranged, and also makes sure everything on the client-side of the app works fine. This part of the app is behind which users cannot see and interact with, but indirectly access through a front-end UI. Chatbots can be built in basically any programming language that allows you to make a web API, especially Java and Python offer a ton of libraries supporting bot API. The backend receives the user's request, analyses or processes it to generate a corresponding response, and returns it to the user. The web application server will then have to setup. The application is able to recognize the voice from the user end without internet connection. The verbal commands are converted to text and the operations take place. The application gives updates regarding the date, time, day, weather, humidity, temperature. The application is able to search YouTube videos, songs, Wikipedia, many different types of task perform google for any information in the internet.

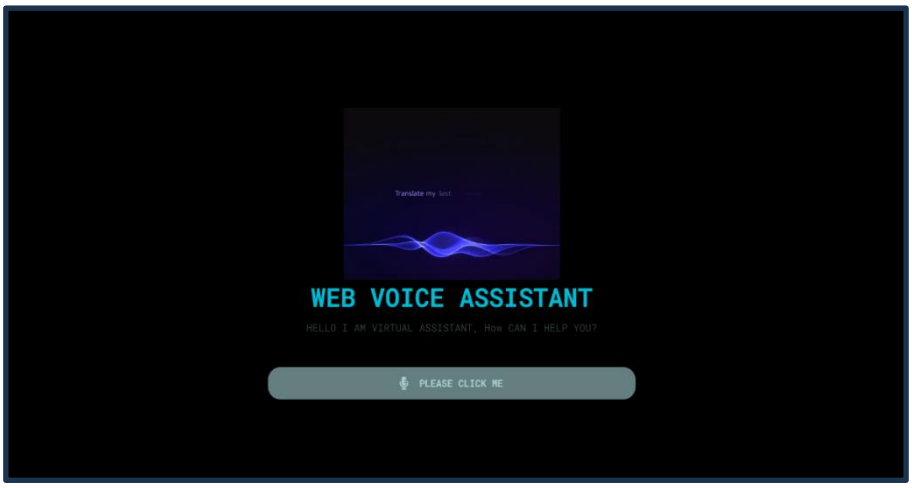
FUTURE SCOPE

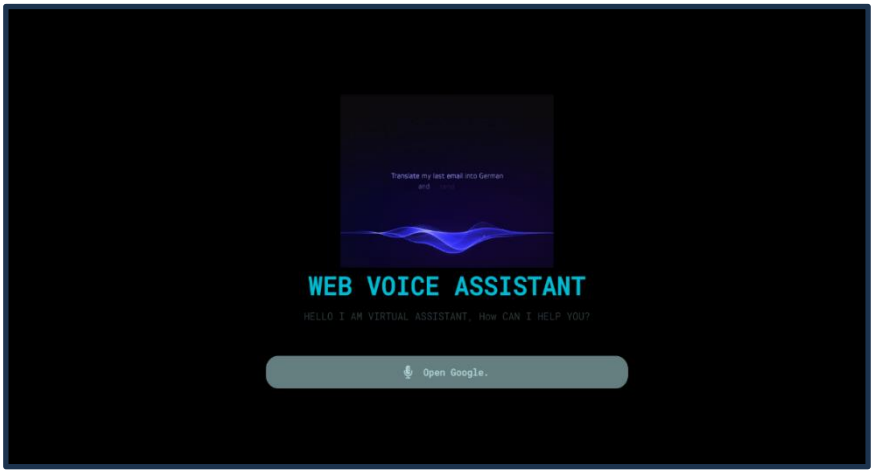
In the near future, voice assistants are also expected to take a more proactive role. Rather than just waiting for user commands, assistants will collect context-specific information and then take the initiative by making helpful suggestions to the user. For example, people can interact with their in-car voice assistants to get information about fuel levels, diagnostics, and service needs or system settings that may need adjustment. So when fuel levels are low, the voice assistant may suggest going to the nearest gas station (with GPS directions if needed).Easily handle web browser any where control our phone browser. Web assistant easily search a result and fast process in future day to day voice assistant ill be enhanced. Hey frequently converse with users by using natural language through voice-based interactions.

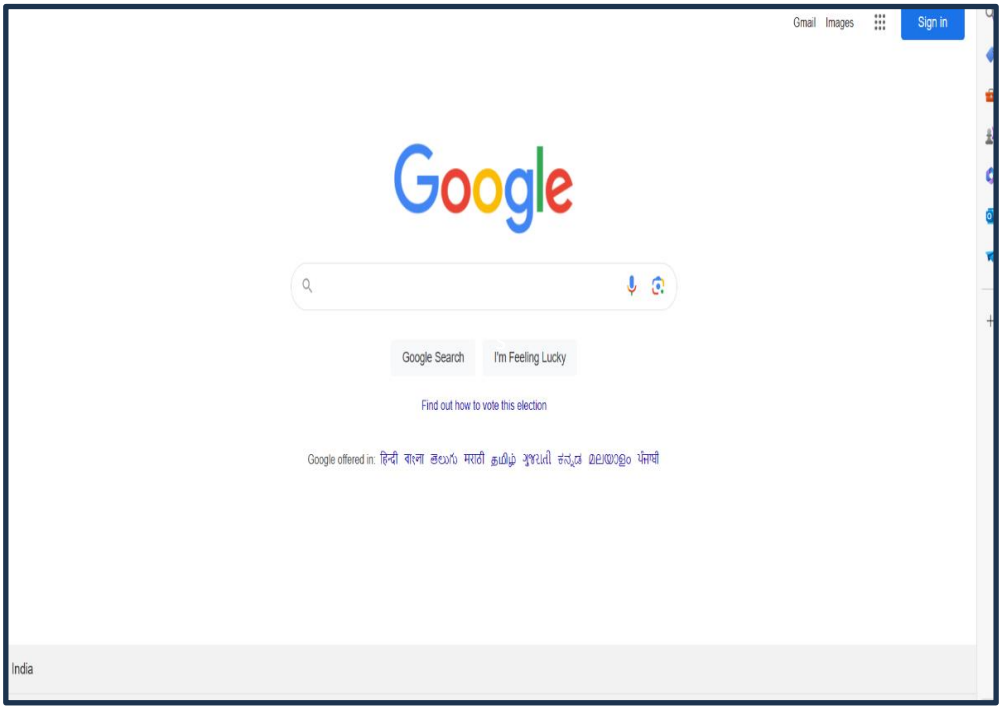
It can be very useful in future as things and processes are going to be automated in future. In future voice assistant can be more efficient and accurate when we will use iot technology in these voice assistant.

RESULT AND DISCUSSION

Voice assistant works fast and takes less time in execution. Voice assistant is a program that has the ability to understand instructions given by users and can do the task on the basis of those instructions. It uses system's microphone to take the verbal instructions. With voice assistant our laptops and PC's can work on our commands. It is a quick process, so saves time. Voice assistant works for you at regular intervals, therefore always accessible to you and can do the task according to the needs of user. Some of the outputs is shown in pictures given below:


WEB VOICE ASSISTANT
HELLO I AM VIRTUAL ASSISTANT. How CAN I HELP YOU?
PLEASE CLICK ME


WEB VOICE ASSISTANT
HELLO I AM VIRTUAL ASSISTANT. How CAN I HELP YOU?
Open Google.


Gmail
Images
Sign in
Google
Google Search
I'm Feeling Lucky
Find out how to vote this election
Google offered in: हिन्दी বাংলা తెలుగు मराठी தமிழ் ગુજરાતી ಕನ್ನಡ മലയാളം ਪੰਜਾਬੀ
India

CONCLUSION

In this paper, we researched about a web based AI chatbot which is based on Google Assistant API, JavaScript, Python, CSS and HTML. Voice Controlled Personal Assistant System will use the Natural language processing and can be integrated with Machine learning techniques to achieve a smart assistant that can perform action on various applications and will make human life comfortable. However, the main advantage of a VA is to help in the Knowledge Management process. With the VA, people can easily store and retrieve knowledge, through question-answer format. Voice assistant makes life easier for people. we made a voice assistant using python programming language. It can work on various operating system like windows. Artificial intelligence is also been used for making of this project. Efficiency of voice assistants is very high due to less time consumption. Voice assistants are easy to use and they can be used at any time. In our study we designed a web-based AI application to show how Machine Learning, & JavaScript techniques increase user compliance with a chatbot's request for service feedback.

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