Voice based Intelligent Virtual Assistance for Windows

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Abstract

This paper is based on voice intelligent Assistance. This tool is used for searching purposes, remainders just by using voice commands. If we want to access any document or file we can do it by voice recognition. But there are certain limitations that the user should set some voices as a security options. If the user spells out the word it automatically types in the required field. It recognizes the speech and searches the appropriate content in the database and retrieves it. The user should select the appropriate language for the virtual assistant to understand. If any wrong or invalid communication happens it invokes some messages in dialog box. It is like a software agent which performs tasks and events based on commands. Voice-Command and speech synthesis are enhancing the level of user-interaction in applications. This trend is now approaching business-applications like ERP-Systems. Implementing an intelligent personal assistant (IPA) will empower the application not only by navigating users through the system, but it also enables the option to navigate and explain data to the users through speech synthesis. In this paper, the architecture for a new IPA was worked out and a prototype for a web-based ERP-System resting upon this architecture has been developed. This IPA is able to listen to voice commands, to interact by opening a report and giving a brief summary via speech-to-text to the user and explaining the most important information in the relevant context of the displayed KPIs. This prototype will be used for further researchers in the combination of IPA and data analytics

Keywords : Voice Commands , ERP,IPA, Virtual Assistance

1. Introduction

The Voice recognition technology system was developed before the Apple's Siri was introduced in 2012. In 1963 at the Seattle World's Fair IBM delivered a tool named Shoe box. It can easily find and recognize 1,011 words, which is equal to the vocabulary knowledge of a 3 year old student. It was actually like the size of a shoebox and performs some mathematical operations and can easily recognize 16 spoken words and also digits from 0-9.The rapid growth of machine learning and Artificial Intelligence which made possible the growth and development of voice recognition methodology. There is a lot of human beings exists in this society who uses speaking. An average human can be able to pronounce about 150 words in a minute, but can only type 40 words. This explains why voice technology should be taken immediately by IT companies. It takes a lot time for human to write a paragraph than reading it.

2. Literature Survey

[1-4] The proposed system was based on the voice recognition in commands which converts the speech to text. The user gets easy access to speech than getting typed in the keyboard. The user spells the commands in the voice so that the user should have good quality of microphones. The user should spell the word in correct pronunciation which should be understandable to the voice recognition system. But there exists some confusion to the system for example the words sun and son have same pronunciation so the system finds difficult to choose which word. So that it provides some powerful microphones to be audible to the system.

[5-10] The voice is the convenient and efficient mode of communication. Most of the people prefer to use speech rather than using text based. The basic overview of the proposed system is it gets input signal in the form of voice. It passes on to the feature extraction and gets into the decoder. In the decoder it consists of two main models, they are acoustic model and language model. The decoder will decode the input. After all the processing going in the decoder it gives the specified output. The classification of speech recognition system are types of speech utterance, types of speaker model, types of vocabulary. It uses LGB algorithm functions which will train the VQ codebook.

3. Implementation OF SPEECH to text command Execution

- **Speech to Text:** User will ask the computer to run command by giving input as speech

- **Command Execution:** Based on command received from the user, system will execute the command (if available). e.g. Open Notepad, Paint, Google Chrome, etc. System accept various command such as opening of specific applications, writing a note and saving it, opening web URL, Search for any query or details and shutdown & Restart command

- **Text to Speech:** Once a command is received, application speaks the command which makes user experience more interactive with the system

Figure 1 : Voice Recognition

4. How Do Artificial Intelligence Assistants Interact With People

As technology grows day by day, the way that people interact with people and devices it changes dramatically. Assume how internet facility searches have become easier using voice recognition. It does not exists long ago that an internet search had to be very specific and would often give some strange and unrelated results than the original. Now, it looks like search engines, such as Google, Yahoo and Bing can recognize what you are thinking in your mind and know exactly what you are searching for in the internet. Engines can easily understand the context and the content of our search.

[11]AI assistants had made some growth in some technologies. In early days text was the only way to communicate with the computers but now the voice has taken over the charge.

[12-15]Smart speakers and Assistant applications are always listening for the user words. By default, the words "Hey Siri," "OK Google", "Alexa" are the default words to call or wake up the smart AI, but users can changethe words to some perspective.Wake words for smart AI has a special algorithm that is always listening for a particular word or phrase so that a phone, smart speaker or something else can begin communicating with a server to do its job. Wake words need not to be long enough to be wake the smart AI, It should beeasy for a human to speak and simple for a machine to understand.

[16]Voice assistants don't really understand what you're saying they just listen for their wake word like key words and then begin communicating with a server to search on a particular task. NLP is a form of artificial intelligence that helps technology interprets human language.

Voice assistant allows us to do a variety of tasks which is a major reason for many people like using it, especially on their phones.
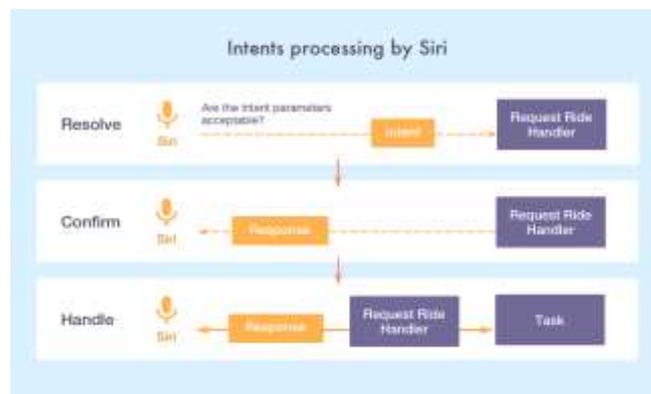

Figure 2 : Intents Processing

4.1 Advantages

✓ It converts text to speech

✓ It will assist you to find the applications easily.

✓ It can be used in windows 7.

4.2 Limitations

✓ Data need to be entered properly otherwise outcome may won't be accurate

✓ The user who are deaf and dumb cant able to access this.

4.3 Application

✓ This system can be used by the multiple peoples to get the counselling sessions online.

✓ Assigning repeated tasks to virtual voice assistants frees up the human time and resources.

✓ These digital voice-enabled assistants also make the operations hands-free.

✓ 50% of those who were surveyed said that it is a better interaction medium and they find it easier than any other method of communication used.

5. Conclusion

Voice Search has now become a definitive mobile experience. An absence of knowledge and learning makes it especially tough for organizations to get a strategy on voice search. There is a ton of chance for a lot further and significantly more conversational experiences with users for **AI in mobile app development.**

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