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SVAP : The Windows Personal Handyman Assistant

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Abstract - *The project aims to develop a personal-assistant for Windows-based systems.SVAP is the digital life assistant which uses mainly human communication to perform the tasks. SVAP draws its inspiration from virtual assistants like Cortana for Windows, Siri for iOS and Google assistant for Android .The concept of speech technology really encompasses two technologies: Synthesizer and recognizer. A speech synthesizer takes as input and produces an audio stream as output. It has been designed to provide a user-friendly interface for carrying out a variety of tasks by employing certain well-defined commands. A direct analysis and synthesizing the complex voice signal is due to too much information contained in the signal. Therefore the digital signal processes such as Feature Extraction and Feature Matching are introduced to represent the voice signal. In this project we directly use speech engine. Users can interact with the assistant either through voice commands or using keyboard input. As a personal assistant, SVAP assists the end-user with day-to-day activities like general human conversation, searching queries in google, gmail, searching for videos, retrieving images, playing music, music videos, movies from directory as well from youtube and internet with voice command, live weather conditions, word meanings, searching for medicine details, health recommendations based on symptoms and reminding the user about the scheduled events and tasks. The user can also perform basic mathematical calculation. The user statements/commands are analyzed with the help of Artificial Intelligences to give an optimal solution. Our aim to create more and more functionalities which can help human and also reduces their efforts.*

1. INTRODUCTION

SVAP: The idea behind the project is to make your computer more interactive with the user.

The purpose of this project is to build a program that will be able to provide services to users like virtual assistant. This Software aims at developing a personal assistant for windows-based systems. The main purpose of the software is to perform the tasks of the user at certain commands, provided in either of the ways, speech or text. It will ease most of the work of the user as a complete task can be done on a single command. This assistant draws its inspiration from Virtual assistants like Google assistant for android and Siri for iOS. Users can interact with the assistant either through voice commands or keyboard input.

2. LITERATURE SURVEY

2.1 Voice Based Email Application for Visually Impaired

Email is considered as one of the most pervasive form of communication. However, all these technologies can be of no use to the people who are visually impaired as all activities that can be performed on the computer are based on visual perception. With the advent of technologies in mobile phones, many technological solutions have been implemented for visually impaired so that they can utilize them, and get benefited by them. Considering it as a key idea application will be built that will help blind people to send and read emails as ordinary people do. Speech has not been used much in the field of electronics and computers due to the complexity and variety of speech signals and sounds. However, with modern processes, algorithms, and methods, the processing of speech signals easily and recognize the text. The application will not let the user to make the use of keyboard instead will work on text to speech and vice versa to facilitate sending, reading, forwarding and replying to emails using an android smart phone. The app will be developed this on android platform. Our speech-to-text module directly acquires and converts speech to text. Speech recognition is done via the Internet, connecting to Googles server [2].

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2.2 DAVID - The Virtual Assistant

The purpose of this project is to build a program that will be able to service to humans like a personal assistant. This is a stimulating concept and lots of people round the globe are working it. Today, time and security are the 2 main things to which individuals are more sensitive, nobody has the time to spoil; nobody would really like their security breach, and this project is mainly for those kinds of people.The tecnologies to be used are: IIS , ESP8266 WiFi Chip , Arduino , Raspberry PI and Microsoft speech API. The Speech Application Programming Interface or SAPI is an API developed by Microsoft to permit the utilization of speech recognition and speech synthesis within Windows applications. To date, variety of versions of the API are released, which have shipped either as a part of a Speech SDK, or as a part of the Windows OS itself. Applications that use SAPI include Microsoft Office, Microsoft Agent and Microsoft Speech Server[2].

2.3 Automated Speech Recognition System

Once Most natural form of human communication depends on speech. In order to understand human speech by enabling machines, computers can act as an intermediate for human expert, so that it can respond accurately and reliably to human voices. This can be achieved by speech recognition system, which allows a knowledge processor to spot the words an individual speaks during a microphone or telephone, and converts them into transcription . Speech Recognition (SR) and its application is that the thrust area in research during the past three decades which is administered on various aspects, especially within the field of Information and Communication Technology (ICT) for speeding up scientific advancements. Also, people interact with system to utilize the technology in greater amount without the acquaintance of operating keypad . At present, Automatic Speech Recognition (ASR) is effectively utilized for communication between human and machines. This paper analysis the accuracy of feature extraction based on modelling which is implemented using MFCC and HMM for two different type connected and continuous speech. The recognition result shows that the overall system accuracy for connected word is 69.22 % and continuous word is 50%[2].

2.4 Voice-Controlled Personal Assistant For The Elderly And Disabled

The aim of this study is to develop a voice controlled personal assistant which will run as a desktop application which will aid its users (primarily the elderly and disabled perform various operations through voice commands, and in so doing simplify basic operations carried out on their personal computer like launching of programs, checking the time, opening websites, playing music etc. The objective of this study is to develop a system that should: 1. Function as a desktop application to aid visibility, since elderly people find it hard to use smart phone applications due to the size of their screens. 2. Possess an easy Graphical interface which will allow users interact easily with the appliance . We used the Object-oriented analysis and design (OOAD) methodology since the programs were be written entirely in the Java programming language; a very popular Object Oriented Programming Language. The software development methodology used for the program is the waterfall model, this model is a sequential design process in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of Conception, Analysis, Design, Implementation and eventually Deployment.

2.5 A Python based Virtual Assistant Using Raspberry pi for Home Automation

The main aim of the work is to develop an economically effective and performance wise efficient virtual assistant using Raspberry Pi for home automation supported the concepts of Internet of Things, Speech Recognition, tongue Processing and AI . People who are using it can formulate inputs and therefore the device itself responds through voice commands by itself. It can fetch the date, time, weather, play your favourite music and fetch search results from the web along side controlling the house appliances.

NodeMCU chips are used to control the appliances which receives the command from the Raspberry Pi.

We can also use the Arduino IDE to code the NodeMCU. NodeMCU has to be included in the IDE which will help us use the kit with it.

3. APPLICATIONS

3.1 Existing System

As we are also aware about cortana for windows, but it was facing several issues after the windows 10 update. i.e, it was unable to recognize speech, sometimes leads to screen freeze and crashing of software so that is why it was disabled by microsoft many times in past few year.

3.2 Proposed System

- Search engine with voice interaction.
- Search various files from system through voice command.
- Open various applications with voice input.
- Quick and accurate response.

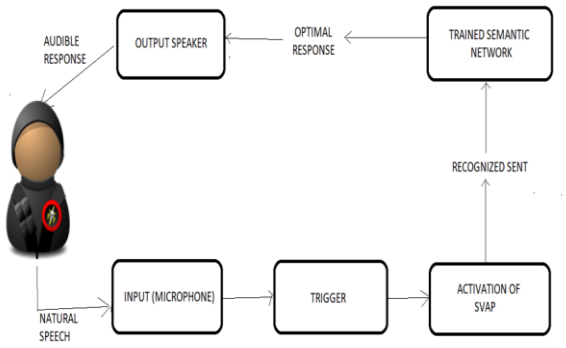
3.3 Scope

- Currently, the project aims to provide the Users with a Virtual Assistant that would not only aid in their daily routine tasks like searching the web, extracting weather data, vocabulary help and lots of others but also help in automation of varied activities.
- This Software aims at developing a personal assistant for windows-based systems. The main purpose of the software is to perform the tasks of the user at certain commands, provided in either of the ways, speech or text.
- it'll ease most of the work of the user as an entire task are often done on one command. This assistant draws its inspiration from Virtual assistants like Google assistant for android and Siri for iOS. Users can interact with the assistant either through voice commands or keyboard input.

Among the Various roles played by SVAP are:

- Open various applications with voice input
- Search Engine with voice interactions
- Weather Forecasting
- Google maps
- Calculating Calculator)
- Direct wikipedia search
- To make system sleep , shutdown and restart
- To directly play mp3 and mp4 files.
- Direct google search
- Play music on youtube

Fig.1 Working of the System



3.4 Technology Used

- Software : Visual Studios Code
- Lnguage : Python
- Operating System :Windows 10

External Pckage Requirement

1. GTTS : Google Text To Speech
2. Speech Recognition
3. Selenium
4. Wolframalpha
5. Playsound
6. Pyaudio

3.1 Working of the System

- Give the trigger input.
- Once the user gives the trigger input it will activite the assistant.
- Triggering: Activation of the personal windows voice assistance ie SVAP.
- Voice input: Voice input is given by user through microphone.
- The input will be then recognize by the software.
- The software will convert the given input into text. ie, speech-to-text(speech recognize).
- Displaying the recognized sentence.
- Based on the type of input, it will be processed by the semantic network that has been trained for it.
- The software will fetch for the optimal response.
- The audible output will be generated.

4. CONCLUSION

Through this voice assistant, we have automated various services using a single line command. It eases most of the tasks of the user like searching the web, retrieving weather forecast details, vocabulary help mathematical calculation, direct sending mails, opening of any browser, direct google searches and microsoft office or any application can be opened through voice input and medical related queries.For the entertainment part the SVAP can play music and movies from the saved system directories as well as from youtube.The use of SVAP will give an amazing experiecnce to the user as most of the things can be controlled through voice. We aim to make this project a complete server assistant and make it smart enough to act as a replacement for a general server administration.

5. REFERENCES

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