A TECHNIQUE FOR COMPUTER SYSTEM CONTROL USING VOICE COMMANDS FOR EXAMINATION

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Abstract

In this paper we propose "A Technique for Computer System Control Using Voice Commands for Examination". This can be used to control the computer using user's voice. For this Speech Recognition technology is used which allows the computer to understand the words spoken by the user. When the user gives the commands to the computer, by using Speech Recognition technology the computer will understand that particular command. Once the command is understood then the system will perform the particular task.

Keywords: SAPI interface, TTS, STT, Speech Recognition Technology.

I. INTRODUCTION

Speech Recognition technology helps computer to understand the words spoken by the user. But peoples prefer external devices to interact with the computer system. Our product uses this technology to provides the ability to the user to interact with computer and computer responding by some actions or operations based on the commands. In our daily life the best way of communication is the oral communication. It is good when the person interacting with this system orally. This can be done by using SAPI. SAPI is nothing but speech application programming interface this is provided by the Microsoft Windows Operating system that allows the programmer to perform Speech to Text(STT) and Text to Speech(TTS). The languages like C,C++ and visual basics are used for the interfaces. Normal person can use the system with no difficulties but there is a difficulties for blind people so it is good if we use speech recognition technology. The function of speech recognition module is to identify the spoken word spelt by the user and generates the appropriate action. To get a better result the system should be well trained so that it can be comfortable by the commands given by the user. If a person finds it difficult or is not capable of handling the mouse ports and the keyboard and if the keyboard or mouse is faulty, there have to be other ways to handle the operating system. "Speech" may act as one of them. Importance of this is that it does not require the use of vision. Blind person always finds it difficult to take the exams by their own and this system represents a way how to take the exam by giving voice command.

II. LITERATURE SURVEY

There are several applications that has been developed in the recent years. The initial works are based on the slides changing in power point presentation. Here the command is restricted to 0-9 digits. For example to go to 19th slide user should spell like one- nine. Here the navigation of slides is done using voice commands which works using low-cost microcontroller 89VS5[3]. A member of the set of the smallest units of speech that serve to distinguish one utterance from another in a language or dialect the \p\ of English pat and \f\ of English fat are two different phonemes. In English there are about 44 phonemes to convey the 500,000 or more words, so that it consumes less memory. Phonemes is one of the units of sound that distinguish one word from another in a particular language. Major drawbacks are spontaneous voice recognition, namely hesitations, out of vocabulary. The problem in speech recognition technology is that it may take some unwanted noise i.e., noise in the environment[4].

Purva shelar[1] takes speech as input perform the operation and produce the output. This is suitable for the handicapped people. It is also helpful for the deaf people they can use the system through gesture or retina scanning technology.

Mr. Anand Mantri,[2]. Here they used some of the applications like Visual Basic.NET and Microsoft Speech Application Programming Interface SDK- the speech application programming interface, it create a completely functional voice driven operating system. It reduces the complexity of using hardware. It will operate computer systems and makes it easier to operate them with voice. Multiuser voice recognition and provides more accuracy than other system.

Surabhi Bansal's[5] goal is to use Unit matching system, lexical decoding and it figures out which phonemes are spoken thus it eases out the complexity of the system. The system runs in the Linux OS.

III.METHODOLOGY

An user will give the commands using microphone. Speech Application Programming Interface(SAPI) will recognize the given commands. The SAPI has sound card. This will receive voice input in analog form and then output is stored in the database. Those commands will be compared. If the command is not found then it will alerts the user by giving invalid message in the audio format. Otherwise the particular commands action mapping will occur. The command which is mapped corresponding action will takes place. Once the action is completed it will inform the user by giving an indication message. And then the system is expecting the next command from the user. This process repeats as the user gives the input.

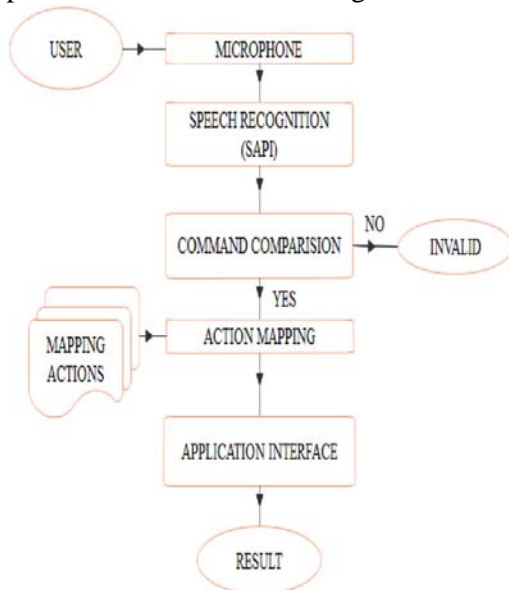The process is as shown in the Fig. 1.

Fig. 1. System Architecture

Even there is a provision for an admin to go through the activities that are related to the user. Admin can do the modifications on the user interaction pages.

Phonemes are the linguistic units. They are the sounds that are group together to form the required words. The conversion of phoneme into sound that depends on many factors such as surrounding phonemes, speaker accent and age. The phonemes are extracted by Microsoft Speech SDK.

IV.EXPERIMENTAL RESULTS

The proposed system uses Visual Basic.NET and Microsoft Speech Application Programming Interface SDK- the speech application programming interface that helps to create a completely functional voice driven operating system. Microsoft's SQL Server Management is used at the back end to store the data that are to be used.
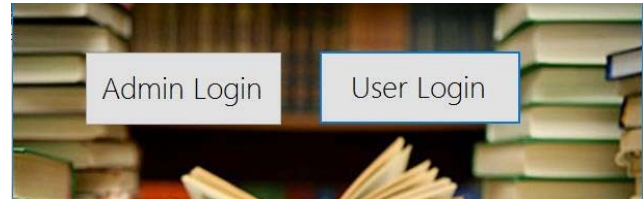

Fig. 2. Login Form

At the beginning admin logs in by entering into the Admin Login Block by giving his username and password as shown in Fig. 2. After login he has provision to add questions, options and answers to the database. That is as shown in the Fig. 3.

Fig. 3. Adding questions and answer to the database

Admin can change the password by entering the new password and confirming the password. Admin can add the instructions that will be read once the user logs in. He has got the page to add the users details with name, dob, address, gender and the registration number is created automatically. Search for user is used to retrieve the user details that is added by admin to the database by giving their auto created registration number.

An user logs in using his registration number through voice command. Once he logged in he

can either spell instruction to hear the instructions or else he can start the exam by telling start that is as shown in Fig. 4.
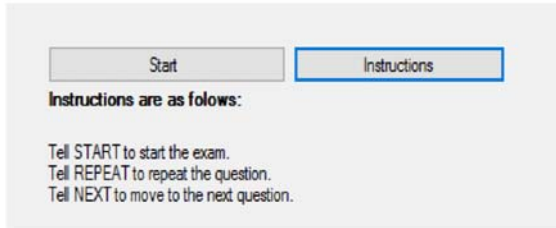

Fig. 4. Before commencement of an exam

Once the exam is started then the question and options will be read out automatically. If the user wants to hear the question again the repeat command should be given. Or else the particular option should be spelled out. When the answer is confirmed then next should be given to move to the next question. These features are shown in the Fig. 5.

Fig. 5. Form containing questions

The procedure will repeats for all the questions. When the user reaches the last question and spells next to move to the other page then the result will be read out and also displayed automatically without giving any other command.
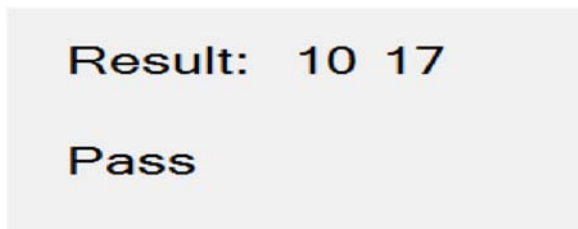

Fig. 6. Final Result

The final result is shown in the Fig. 6 which contains total number of questions and the correct answers.

V.CONCLUSION

The system provides an interactive method to access the computer through speech. Here we are giving voice as an input it will perform the necessary actions and provides us an output. The developed software fulfils the needs of people who are unable to use hands and ensures that they too can reach out the functionalities of a computer system. It will saves the time and makes life much more easier. The system presented in this paper helps for the blind person to operate a computer in a natural way.

VI.FUTURE ENHANCEMENT

The system can be much more enhanced so that it can be used even for the deaf peoples by using gestures. The background noise can be reduced to use this system effectively. At some point in the future, speech recognition may become speech understanding. The statistical models that allow computers to decide what a person just said may someday allow them to grasp the meaning behind the words.

VII.ACKNOWLEDGEMENT

REFERENCES

[1] Purva Shelar, Shushruth Singatkar, Megha Varma "An Interacting Computer Environment Using Speech Recognition" in International Engineering Research Journal (IRRJ) Volume 1 Issue 9 Page 915-918, 2015, ISSN 2395-1621.

[2] Mr. Anand Mantri, Mr. Mukesh Tiwari, Mr. Jaikaran Singh "Development of FPGA based Human Voice Recognition System with MFCC Feature" in International Journal of Engineering Trends and Technology(IJETT) - Volume 8 Number 10 - Feb 2014.

[3] B. Arun Kumar, Sridevi, P. Jeevan, V. Anuragh "Automatic Slide Navigator by Voice Commands Using Microcontroller" in International Journal of Research in Computer and Communication technology, IJRCCT. ISSN 2278-5841, Vol 1,Issue 4, September 2012.

[4] Anil J Kadam, Pallavi Deshmukh, Amita Kamat, Neelam Joshi, Ritika Doshi "Speech Oriented Computer System Handling" in International Conference on Intelligent Computational Systems (ICICS'2012) Jan. 7-8, 2012.

[5] Surabhi Bansal and Ruchi Bahety published "Speech Recognition System".