ISSN (Print) : 0974-6846
Indian Journal of Science and Technology, *Vol 9(2), DOI:10.17485/ijst/2016/v9i2/85814, January 2016* ISSN (Online) : 0974-5645

Data Entry Works in computer using Voice Keyboard

S. Durai*, N. Rajkumar, N. K. Manikandan and D. Manivannan

Department of Computer Science and Engineering, Vel Tech University, Chennai - 600062, Tamil Nadu, India; duraitrichy@gmail.com, Sivarajkumar.n@gmail.com, manikandan1488@gmail.com, mani02.ceg@gmail.com

Abstract

Background/Objectives: Data Entry Works in computer using Voice Keyboard. **Methods:** Here our idea is to use voice to communicate computer. For this we are going to develop a voice keyboard similar to on-screen keyboard. The on-screen keyboard contains all the keys available with regular keyboard device. But our implementation will be focus only on characters, symbols, number keys only. Because our main motive is to reduce the human effort to type all the data and increase the speed of data entry work. But instead of typing, here just pronounce the character that will be typed in any editors. **Findings:** The user gives voice input to computer, the computer accepts the voice input and converts to appropriate text. This will also be useful for All kind of Data Entry works; besides useful for physically challenged users. **Application/Improvements:** In future we develop voice keyboard with all functions.

Keywords: Physically challenged people on data entry works, SAPI, voice keyboard

1. Introduction

In[1] software industries most of the organizations spend considerable time for data entry works. Organizations need more human power to complete the data entry works. Here organizations need expert typist with good speed and accuracy. [1]For data entry works hands and eyes are necessary. Hence physically challenged people unable to get into such assignments. So the idea is to enable voice communication between human and computer. Such approach does not demand good typing skill and training. Even though it is a good idea, it has its own disadvantages. For example, the organization workers should be separated, because one's voice would interfere the others work. The recruited people first trained their voice to this voice engine; if their voice once synchronized with voice engine then it will be easy.

In[2] proposed visual-speech to text conversion applicable to telephone communication for deaf individuals. They explained how automatic recognition and conversion took place for converting text from cued speech for French language. In this approach 95% accuracy between the communications was achieved.

In[3] proposed Bangla speech- to –Text conversion using SAPI. This approach investigates speech-to-text (STT) conversion using SAPI Speech Application Programming Interface developed by Microsoft corporation for Bangla language. This approach used SAPI for organizing and matching pronunciation from nonstop Bangla speech in precompiled grammar file for SAPI and SAPI return back Bangla words in English character if there is matches take place. From the database words retrieved as a Bangla words in original Bangla characters to complete the sentence. This paper experimentally carried this approach on an article from a newspaper and the recognized rate was 78% on an average.

In[4] proposed Android application for speech to Text convertor. The approach was based on evaluating voice versus keypad as a means for entry and editing of texts. In other words, SMS can be converted from text to voice.

* *Author for correspondence*

2. METHODOLOGY

In this approach use SAPI to convert and recognize the voice input to equivalent text.

2.1 Microsoft Speech Application Programming Interface (SAPI)

The speech API is used as a crossing point between applications and speech engines. In SAPI versions 1 to 4 applications communicate with engines directly. In SAPI 5, applications and engines could not directly communicate with each other. Instead each talks to a runtime component (sapi.dll). This SAPI implemented by sapi.dll for application use and another one using as a interface for Engines. Figure 1 shows the working architecture of SAPI. This architecture accepts English and coverts corresponding English alphabets.

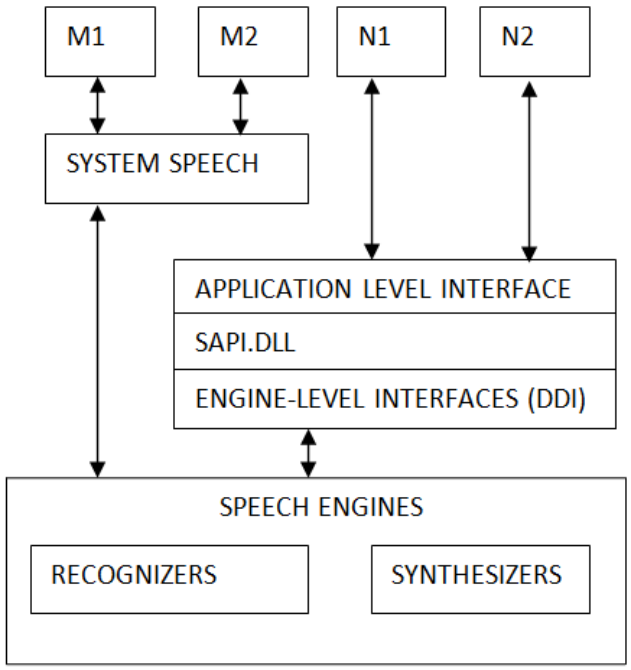

Figure 1. Working Architecture of SAPI

2.2 Visual Data Entry Keyboard

Our keyboard contains only standard buttons that is what the buttons available in type writing machine. Figure 2 & Figure 3 shows the proposed keyboard model. Figure 2 represents the visual mode for capital letters, figure 3 for small letters mode. This visual is only to feel the users to know we are on type mod

Figure 2. Keyboard Layout for Mode 1

Figure 3. Keyboard Layout for Mode 1

2.3 Working Model (figure 4)

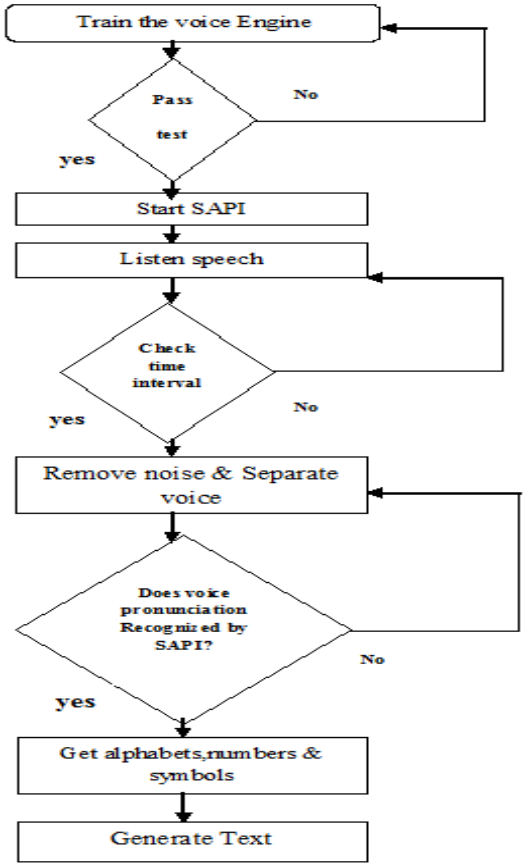

Figure 4. Proposed Methodology Activity diagram

Table 1. Voice Training

character	Pronunciation
A	Aei
B	Bee
C	Cee
D	Dee
E	Eee
F	Eff
G	Gee
H	Hutch
I	Ai
J	Jay
K	Kay
L	Ell
M	Emm
N	Enn
O	Oh
P	Pee
Q	Queue
R	Or
S	Yes
T	Tea
U	You
V	We
W	Double You
X	Ex
Y	Why
Z	Zee
0	Zero
1	One
2	Two
3	Three
4	Four
5	Five
6	Six
7	Seven
8	Eight
9	Nine
Symbols	Shift
Mode changing	Shift

The first process of our methodology is train the voice engine. For this we are having standard training sentences, words and in addition to it the following Table 1 should be checked.

If the training session passed, then the user enters into using SAPI application. Next the user starts to spell the data. Next step is removing noise from the input voice. Then the original voice alone will be passed to the listener, if it is recognized by SAPI then the appropriate character fetched from database and display it to the text box. For the displaying output we can use any textbox, for example search box, command prompt, address bar and any Textual Application.

3. Conclusion

We proposed methodology for developing voice keyboard for data entry works. In this Approach 90% accuracy was achieved. It contains advantages as well as disadvantages, but in future the disadvantage will be solved. This approach is used to develop voice key board only for data entry works .This keyboard contains only limited functionalities. In future we will develop voice key board for all keys with all functionalities for operate system with full voice.

4. References

1. Shah H N M, Ab Rashid M Z, Abdollah M F, Nizam Kamarudin M, Kok Lin C, Kamis Z. "Biometric Voice Recognition in Security System", Indian Journal of Science and Technology, 2014 February, l 7(2), 104–112.
2. Jadhav A, Patil A, "Android Speech to Text Converter for SMS Application", IOSR Journal of Engineering, 2012, 2(3), pp. 420-23.
3. Heracleous P, Ishiguro H, Hagita N, "Visual-speech to text conversion applicable to telephone communication for deaf individuals",18th International conference on Telecommunications, (ICT), Ayia Napa, 2011, pp. 130-33.
4. Sultana S, Akhand M A H, Kumer Das P, Hafizur Rahman M M," Bangla Speech-to-Text Conversion using SAPI", 2012 International Conference on Computer and Communication Engineering (ICCCE 2012), Kuala Lumpur, Malaysia, 2012, pp. 385-90.