

A. Numeral Recognition System

There are several kinds of parametric representation of the acoustic signals. Among of them the Mel-Frequency cepstral Coefficient (MFCC) is most widely used. We have developed the recognition system using MFCC and DTW [2]

B. Database few people recorded the number one in English and the same word in Spanish, Swedish and French respectively. Some of the MFCC Features extracted of the English Numerals are shown in the figures below (Fig. 1 and Fig. 2)

C. For accuracy in the numeral recognition, we need a collection of utterances, which are required for training and testing. The Collection of utterances in proper manner is called the database. The age group of pre-school learners for the collection of database ranges from 04 to -07. The vocabulary size of the database consists of English numerals 0-9

D. Then performed these mentioned steps for speech recognition Acquisition Setup, Feature extraction, Mel-Frequency Filter bank, Discrete Cosine transform, delta energy and delta spectrum

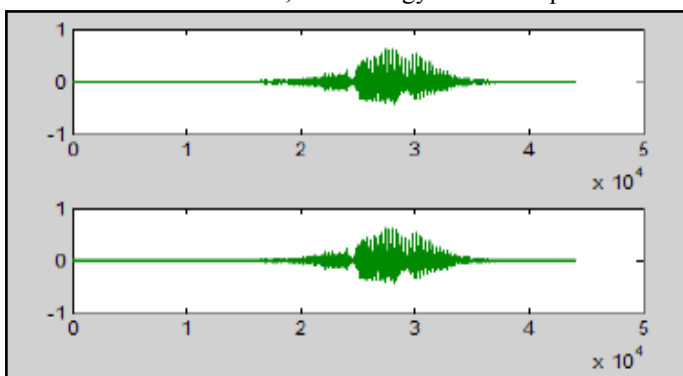


Fig. 2: Plot For English “One” Numbers and in the Same for Spanish Language “One”

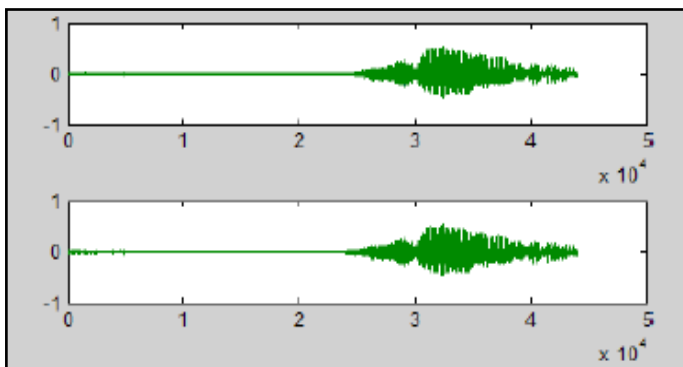


Fig. 3: Plot for English “One” Number and in the Same for Swedish Language “One”

IV. Benefits

1. The present invention provides an educational solution to overcome misspelled Words, and a Word pronunciation. This pen is storing all English numbers and its pronunciation skills in these 3 languages and pronounces word as user will select language option.
2. The user no longer has to search for English native speakers or regular dictionaries.
3. Introducing global languages to pre-school learners by learning by doing things
4. Pre-school learners having different cultural and Cultural differences in communication styles and preferences are also significantly reduced.
5. There is nice turn for pre-school learners to give the global vision

V. Conclusions

In this paper we are going to discuss the new features that we can design and put into digital pen and we can use it to teach to pre-school learners English and different international pronounce skills. The following are the benefits

1. This is best effective e-learning tool e-digital pen for pre-school learners as like a normal writing pen.
2. Introducing international languages to pre-school learners.
3. To help pre-school learners for different pronounce skills.
4. Portability of this digital pen.
5. Giving a real view of global vision, cultural, art and history and make an interactive learning and career option.
6. Real true term that is - “The digital pen is mightier than the sword”

VI. Conclusion

In this paper we have discussed the new features that we can design and put into digital pen and we can use it to teach the pre-school learners. This is best effective e-learning tool e-digital pen for pre-school learners as like a normal speaking and teaching pen.

VII. Acknowledgment

It is my pleasure to get this opportunity to thank my beloved and respected Guide and who imparted valuable basic knowledge of Electronics specifically related to Speech Processing

References

- [1] “Digital electronic correction pen with audio pronunciation and spellcheck capabilities, with built-in memory”.
- [2] “Speech Processing for Marathi Numeral Recognition using MFCC and DTW Features” International Journal of Engineering Research and Applications (IJERA).



Mr. Zende Sachin Sahebrao received my M.Sc. degree in computer science from Dr. BAM University, Aurangabad, Maharashtra India in 2004 and received Master of philosophy degree in same subject in 2010 from YCMOU, Nasik. I am going to award my Ph.D. degree in the computer science subject titled “Handwritten Marathi numeral classification using structural features of digital pen” from Shri. Jagdish Prasad

Jhabarmal Tibrewala University, Vidyanagari, Jhunjhunu, Rajasthan – 333001.

I worked as a lecturer in the computer science subject and having 9 years teaching experience of under graduate and post graduate subject. My research interests include handwritten character recognition, OCR, digital signal processing, data base management system and cloud computing.