Conclusion and Future Work

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CONCLUSION AND FUTURE WORK

6.1 INTRODUCTION

The performance of speech recognition systems has improved significantly, including speech recognition, dialog systems, and text and speech conversion. This has resulted in widespread use of speech and language technologies in a variety of applications. With large number of languages in the world, the most important challenges in spoken language technologies today is the need to support multiple inputs and output languages, particularly if applications are intended for international markets, diverse user communities, and nonnative speakers. Today’s applications have to support even multiple languages simultaneously to meet the needs of a multicultural society. As a result, new algorithms and tools are required that supports the simultaneous recognition of mixed-language input and spoken documents, the production of output in the appropriate language, or the accurate conversion from one language to another.

The objective of the research was to address the problem transcription of continuous speech recognition for Indian languages such as Gujarati and Hindi, widely used by Indian people. We have developed system that supports small vocabulary continuous speech recognition system for Gujarati and Hindi Language and generates appropriate text output.

6.2 BENEFITS OF PROPOSED WORK

- The system works well with low configuration system with any sound card and microphone, for dictation higher configuration is desirable for better performance.
• The text generated can be saved in file and can be edited by the system and other word processor software such as Microsoft Word.

• Due to small vocabulary, it also enables speaker-independent processing, eliminating the need for speaker profiles or "training" of the recognizer.

• It produces better accuracy and performance rates compared to dictation tasks, because a speech recognition engine used for dictation must encompass nearly an entire language dictionary.

• It is easy to add new words to existing vocabulary. If word is difficult to recognize then user can type that word manually in editor directly using phonetic Gujarati/Hindi keyboard input method with on the fly help.

• It works for Gujarati and Hindi both the language and user can select language at run time also.

• Good Accuracy is achieved for small vocabulary isolated as well as continuous speech for most test speech.

• Special training is not required to operate the system, since system mimics windows operating system graphics user interface.

• The system can be used for wide spread application such as kiosk system, restaurants, kids training etc where small vocabulary is required.

6.3 CONCLUSION

• The system works for windows platform only and is developed using CloudGarden’s Java Speech API Implementation and Microsoft Speech Engine.

• The system provides reasonable good accuracy for isolated Gujarati/Hindi word recognition.

• The system gives good accuracy for various categories of users for small vocabulary, but system is not truly speaker independent.

• The system can be used to recognize other phonetic Indian language with little modifications.
• This is one of the very few attempts to recognize Gujarati isolated speech and continuous speech.
• Improvement of recognition accuracy is still an open research area.
• If the recognition vocabulary is increased then accuracy of recognition is decreased.
• It was found that head set microphone is best suited for the application, although we have used desktop microphone for testing purpose.

6.4 FUTURE WORK

The system developed by researcher is only for small vocabulary of Gujarati and Hindi Language. The future work is obviously

• To accept large vocabulary without compromising accuracy and out of vocabulary problem.
• To provide user training and maintaining speaker profile i.e. speaker management.
• To recognize other phonetic Indian languages with little modification for small vocabulary.
• The system can be modified to use on any platform and not only on windows platform.
• Speech response and play back facility can be given to user by using speech synthesis feature of speech engine and Java Speech API.
• System could be deployed on mobile phone or tablet with windows operating system.
• System could be used to recognize command to control the application itself.
• Grammar checking can be implemented for Gujarati and Hindi.