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Language To Language Translation System

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ABSTRACT

The system used in Language to Language Translation is the phrases spoken in one language are immediately spoken in other language by the device. Language to Language Translation is a three steps software process which includes Automatic Speech Recognition, Machine Translation and Voice Synthesis. Language to Language system includes the major speech translation projects using different approaches for Speech Recognition, Translation and Text to Speech synthesis highlighting the major pros and cons for the approach being used. Language translation is a process that takes the conversational phrase in one language as an input and translated speech phrases in another language as the output. The three components of language-to-language translation are connected in a sequential order. Automatic Speech Recognition (ASR) is responsible for converting the spoken phrases of source language to the text in the same language followed by machine translation which translates the source language to next target language text and finally the speech synthesizer is responsible for text to speech conversion of target language.

Keywords :- Automatic Speech Recognition, Voice Synthesis, Machine Translation.

I. INTRODUCTION

Language to Language Translation System represents a technology which automatically translates one language to another language in order to enable communication between two parties with different native tongues. To translate a voice in one language to another voice in a different language, Language to Language Translation Technology is used. Speech Recognition Technology, which recognizes the utterance of a person's and converts it into a text; Speech Synthesis Technology, which translates the text during a certain language into a text in another language; and Speech Synthesis Technology, which converts the translated text into a speech. Additionally, the technology to understand the natural language and the user interface-related technology integrated with the UI (User Interface) also play an important role in the Language to Language Translation System. Currently, Language Translation Technology is available as product that instantly translates free form multi-lingual conversations. Language Translation systems instantly translate continuous speech. Challenges in accomplishing the interpretation include overcoming speaker-dependent variations a la mode of speaking or pronunciation are issues that need to be addressed so as to supply top quality translation for all users. Moreover, speech recognition systems must be ready to remedy external factors like acoustic noise or speech by other speakers in real-world use of Language translation systems. The existing system has the problem of cross-lingual conversion of intent, with respect to intonation in speech. The existing system also created a parallel speech database for the English-Portuguese language pair that is publicly

released with database work. The existing system presented analysis of word focus on two language pairs and proposed an automatic transformation technique of intonational accents and also objectively shown the improvement of TTS (Text To Speech) intonation contours employing the proposed techniques. This paper proposes the translation system, the language is first converted to text then is converted to target language text and then it converted to target language using dictionary. ASR (Automatic Speech Recognition) is responsible for converting the spoken phrases of source language to text in the same language followed by machine translation which translate the source language next to target language text and finally the speech synthesizer is responsible for text to speech conversion of target language.

II. RELATED WORK

Speech to Speech Translation is one such system which will play important role by facilitating communication between persons speaking different languages. Worldwide efforts are being made to realize this goal and implement it practically to be used by commoner. [1] The Speech-to-Speech Translation System that utilizes diverse processing strategies, including connectionist learning, traditional Artificial Intelligence (AI) knowledge representation approaches, dynamic programming, and stochastic techniques. JANUS translates continuously spoken English and German into German, English, and Japanese. JANUS currently achieves 87% translation fidelity from English speech and 97% from German speech. The system presents the JANUS system along with comparative evaluations of its interchangeable processing components. Nowadays in most of the places people face problems while speaking with other people, who does not know their languages or other languages, in existing system and technique, speakers record the interaction and translate into another language using manual transaction, so as to avoid the difficulties, the system automatically recognize the speech within the sort of [2]English language and translate into Tamil language. The device consists of three parts namely speech recognition device, English to Tamil machine translation and Tamil speech generation, the system first recognize the speech in English using speech reorganization device and displays speech on the screen in English text then translate into Tamil language text and displayed on the screen, after that the text is convert into Tamil speech and it should be heard at the other end of the device. Speech recognition system that recognize English speech via speech recognition device. English speech is then translated into English text using speech synthesis, after converting into text format system compare with the words stored in the database if text match with the Tamil text stored in the database. English text is converted into Tamil text is completed by the MT system then the text are going to be displayed on the screen.

III. SYSTEM IMPLEMENTATION

The sequence diagram for Language to Language Translation is designed, where user will act as actor and can login to give the speech through system by click on start button. The input audio query sent to the web interface provided. The pre-processor on query for accuracy purpose. The sequence to sequence train model which is to be trained for translation of first language to target language. The pre-processing model has encoder and decoder for training long short-term memory model. Administrator can also update information about English to Hindi dataset by uploading the CSV files.

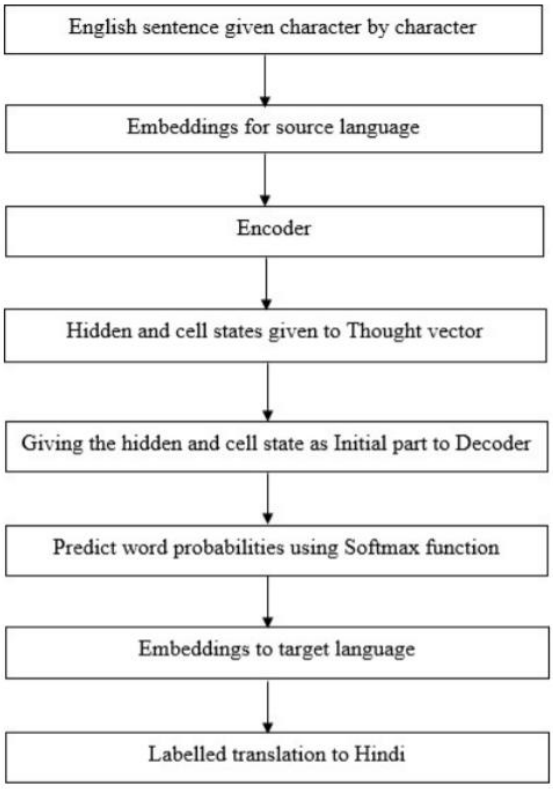

Fig 1: Sequence Diagram for Language to Language Translation System.

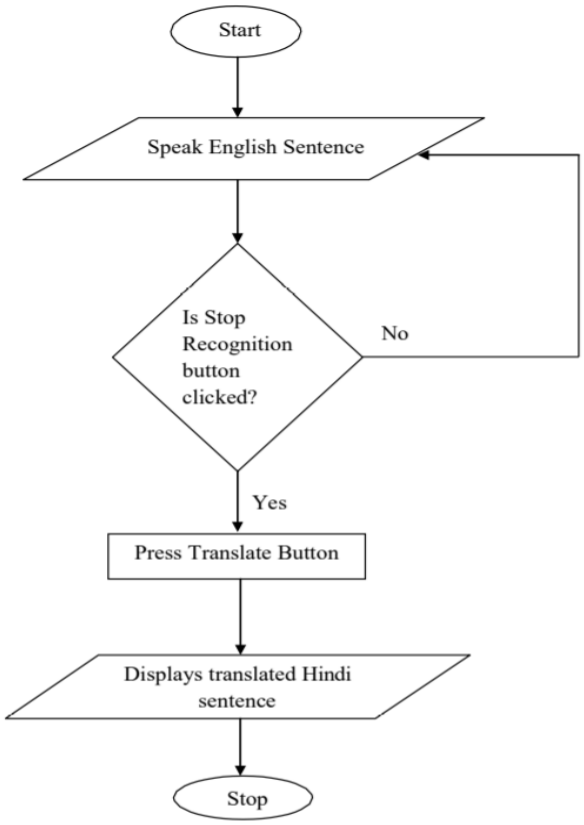

Fig 2: Flowchart for Language to Language Translation System.

Procedure for User Portal for the proposed system

Step 1: Start

Step 2: Press start recognition button, the English sentence is taken from the user as voice.

Step 3: If the stop recognition button is clicked, then the sentence is displayed on the screen and press the translate button to translate into Hindi sentence or else repeat Step 2.

Step 4: Displays translated Hindi sentence as well as read out the sentence.

Step 5: Stop.

IV. EXPERIMENTAL RESULTS

The proposed system is being designed and following outputs have been obtained as results.

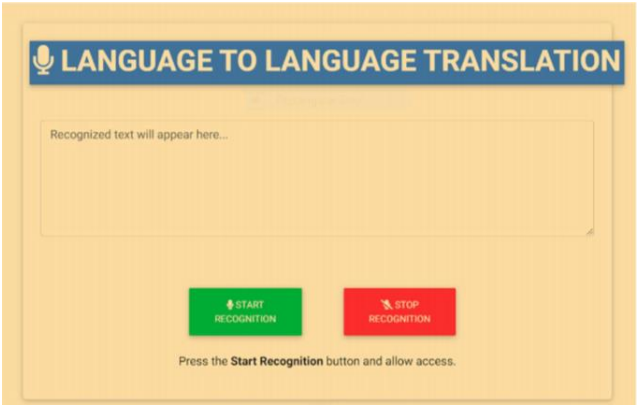

Fig 3: Home Page.

Figure 3 shows, the Home Page of the System consists of a text field and two buttons. The text field is used to display the sentence. Initially everything will be in the

idle state. Upon pressing Start recognition button, the system will start listening to the environment. It will be listening until Stop recognition button is been pressed. Upon pressing the start recognition button, microphone gets activated and starts listening to the environment. Whatever voice it hears, converts it into text and the text will be displayed in the text are as shown above. The text area is dynamically updated with user voice.

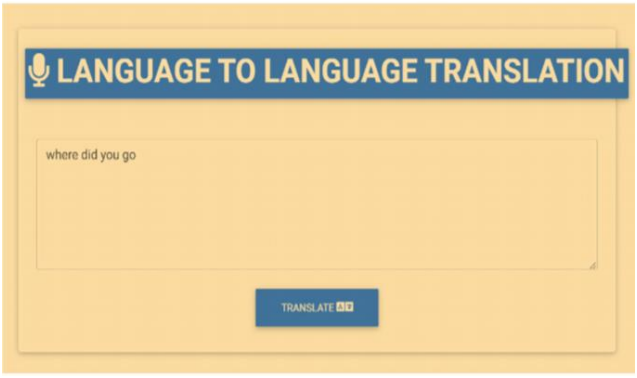

Fig 4: Input Page.

Figure 4 shows, the Input Page of the System, When the stop recognition button, is pressed page is directed to editing text page. By default, it contains the input sentence which is provided as a voice input in the home page. The input provided and the recognized sentence have some minor differences because of the surrounding noise. The provision is taken to rectify such errors. Pressing Translate button will trigger the backend processing.

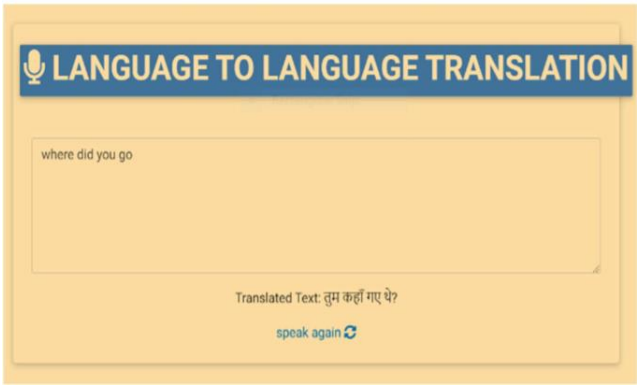

Fig 5: Output Page.

Figure 5 shows, the Output Page of the System, Pressing Translate button in the edit page will navigate the control to output page. The output page shows the input text in its text area along with the translated text below it. The output sentence is also heard in Hindi once the input text is entered. Pressing speak again button at the bottom of the page will redirect back to the home page.

CONCLUSION

The translation system which has been a valuable exercise in developing Voice Conversion systems using a common dataset. The Challenge has successfully demonstrated performance of the current Voice Conversion (VC) techniques on a speaker conversion task and has helped to share views about unsolved problem. First of all, there is no doubt that the Long Short-Term Memory (LSTM) network architecture is complex enough to learn type of sequences. Based on the error rate of training phrases with a small data set it is able to translate the seen phrases almost perfectly. The problem is that the network is not large enough to handle a more general setting with much larger data set, that is the network is underfitting the data. Managed to create a data set that suited all of our needs and that had a very good distribution among the lengths of the phrases. Thus, the system is useful for a person to convey the messages to another person. Future work that can be added to project may be, the created dataset to have a lot of nice features and possible changes to be made in order to try to get the current network to perform better. A first step would be to remove the overlapping feature that are used when extracting the phrases yields to a larger data set but with much smaller phrases.

V. REFERENCES

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[2] T. Toda, A.W. Black, and K. Tokuda, "Voice conversion based on maximumlikelihood estimation of spectral parameter trajectory," IEEE Transactions on Audio, Speech, and Language Processing, vol. 15, no. 8, pp. 2222 – 2235, nov. 2007.

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