

TEXT TO SPEECH CONVERSION USING LINEAR PREDICTIVE CODE TECHNIQUE

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ABSTRACT: In this article the Text to speech convertor is mainly made for the humans to get interact with the computer. This system is made for reading the documents in the form of text, pdf etc. and then this system will generate the output in the form of speech. This system will only operate in Windows Environment. This system will read all the expressions in the line of that document. In this system the main technique used is the Linear Predictive Code (LPC) .The LPC is a tool used mostly in audio signal processing and speech processing for representing the spectral envelope of a digital signal of speech in compressed form. It is one of the most powerful speech analysis techniques, and one of the most useful methods for encoding good quality speech at a low bit rate and provides extremely accurate estimates of speech parameters.

Keywords - Text to speech, linear predictive code, information extraction.

1. INTRODUCTION: A text-to-speech (TTS) conversion system converts text into speech. Voice is one of the best alternatives for eye strain involved in reading any document. In case of illiterate people Voice is very helpful for them to get the better performance in ENGLISH .For this purpose the Text to Speech convertor is made for them to get the better ability in which the computer will speak with them. Text To-Speech is a process in which input text is first taken and then processed and understood, and then the text is converted in digital audio and then spoken in the form of speech. It is a software in which the given text will be outlet in the form of voice of the user specified as Male and Female. There are many techniques in which this Text-To-Speech can be implemented they are Linear Predictive Code (LPC), Voice Synthesizer etc. But

basically in this article the LPC technique is used, which is efficient for this system. By using this technique the encoding of text is done at good quality and the speech rate is low bit rate for which it gives the accurate speech parameters. This technique gives the better results as per required. By using the LPC technique the signals which will be generated will be at low bit rate for which the speech will be audible and all the bits of speech will be spoken carefully. LPC is one of the methods of compression that models the process of speech production. In this system the main focus is on the output which is going to be produced. One of the most interesting ideas is the fact that a workable TTS system, combined with a workable speech recognition device, would actually be an extremely efficient method for speech coding.

2. LITERATURE SURVEY:

We have studied many papers on text to speech conversion. All that paper were based on diaphone, phoneme for Spanish language etc.

2.1 Diphones: For defining the Diaphone first of all we have to create the phone set for identifying all possible diphones, phrases containing those possible diphones, recording those words or phrases and splitting those diphones. This process has been described. "Extension: Research report

on Natural Language Processor (NLP) for Khmer TTS". After defining and splitting the diphones, we follow steps described to build diphone database to be used in Festival. This diphone database is in group.

2.2 Phoneme for other language: The set of phonemes used in Mexican Spanish is practically a subset of phonemes used in English. The system has problems to accentuate the letter "a" at the end of the words, like in the words in Spanish "mami" and "papi".

2.3 Perceptual Linear prediction (PLP):

In this method the speech which is going to be spoken use some aspects the critical-band resolution curves, the equal-loudness curve, and the intensity-loudness power-law relation. Some drawback of this system is that it takes more time to covert the text to speech. In which the implementation is very hard.

3. DESIGN OF IMPLIMENTATION:

3.1 LPC:

This system is mainly made for text to speech conversion using LPC technique, where the input is text and the output will be the words spoken in English. In the figure 1 the block diagram of this system is shown. Linear

Predictive coding is a tool used mostly in audio signal processing and speech processing for representing the spectral envelope of digital signal of speech in compressed form, using the information of linear predictive model .LPC analyse the speech signal by estimating the formats, removing their effects from speech signal, and estimating the intensity and frequency of the remaining buzz. Each word is revised to determine if the sequence of characters coincides with a sequence of an inference rule and it chains the phonemes with the previous phonemes, forming the final word.

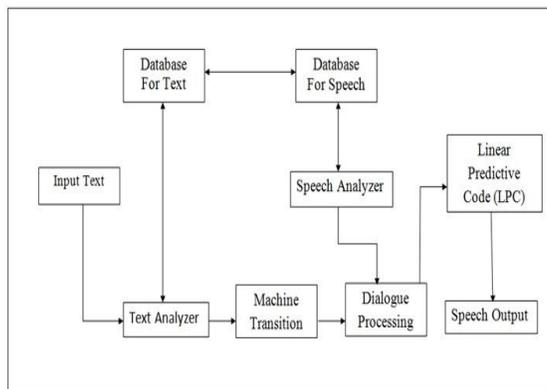


Fig.1.Outline of System

In this system the first step is to take the input as text, then the system will analyse that text while analysing the text it will also check for the text stored in the database which will get match with the phonemes, after that the text will get translated into machine language by which the system will prepare for the dialogue processing ,by which the speech will get analysed and the

analysed speech will check for all phonemes in the database of speech ,this speech is now ready for output while producing the output the LPC technique will be implemented by which the speech will be produced in low bit rate and the speech rate will be variable for the user. Now the system will speak the text with low bit rate, and it will provide extremely accurate estimates of speech parameters. In this system the text which is going to be analysed as the input that text will carry all the words from the database and it will check for the phonemes that are stored in database for each word, the system will pronounce all the word as per to the phonemes of that word. The LPC technique will carry the speech and will speak as per the sentence. This system will not only speak the text as per given text, but it will speak with some meaning. If the text is having any vowels as ‘a’, ‘e’, ‘i’, ‘o’, ‘u’ then that this system will clarify that vowels, if the text is having any punctuation marks, exclamatory marks, comma, full stop, then this system will recognize the marks and speak as a valid text .The user can also decide which voice does he want male or female. In this system the speech which is going to be spoken will have all the expressions also

4. CONCLUSION:

The proposed system can be used to provide an interface for communication between man and machine. The proposed system can be used for reading of texts in English with an excellent accent. This proposed system is a rapidly growing aspect of computer technology and is increasingly playing a more important role in the way we interact with the system and interfaces across a variety of platforms. Thus implementation of this system is in windows and the methods used work only in windows platform, so the system environment is windows. As human voice is nonlinear in nature, Linear Predictive Codes are not a good choice for speech estimation. Thus the LPC makes the voice in a good quality speech.

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