

A Smart Texting System For Android Mobile Users

Pawan D. Mishra

Harshwardhan N. Deshpande

Navneet A. Agrawal

Final year I.T Final year I.T

Final year I.T

J.D.I.E.T Yavatmal. J.D.I.E.T Yavatmal. J.D.I.E.T Yavatmal.

Prof Atul. D. Raut

Senior Lecturer

J.D.I.E.T Yavatmal.

Abstract:-

The importance of mobile phone is increases day by day and everyone wants such a mobile system which can make users work simpler. Mobile phone usage in world is spreading rapidly and is gone through many new technological changes. The SMS user may want the faster and easier way of texting. This paper is based on evaluating voice of the user against the keypad for editing the text. An important innovation in SMS technology is the speech recognition technology which converts voice messages into text messages. In other words, we can say messages can be speech typed. A speech to text converter is developed to send SMS. The paper will make use of dictating machine prototype for English language. It is found that large vocabulary speech recognition can offer an easy way of text entry.

Keywords:-Short Message Service(SMS), Speech to text conversion(STT), Speech Acquisition ,Hidden Markov Model (HMM) , HMM-Based recognition.

1. Introduction

The paper will make use of a dictating-machine prototype for the English language. A speech to text converter is developed for the SMS application, this system will use recognition technology that can convert voice messages into text messages. The conception of the Android platform is attracting more and more programmers in mobile computing fields.

Android is a package of software for mobile devices, including an operating system, middleware and core applications. The Android SDK provides powerful tools and APIs necessary to develop applications on the Android platform using the Java programming language. During speech acquisition, speech samples are obtained from the speaker in real time and stored in memory for pre-processing. Speech acquisition requires a voice recorder in mobile phone that has the proper amplification to receive the voice speech signal, sample it, and convert it into digital speech. Generally, pre-processing involves taking the speech samples as input, blocking the samples into frames, and returning a unique pattern for each sample. The system will identify useful or significant samples from the speech signal. To accomplish this goal, the system divides the speech samples into overlapped frames.

Now let's limit our focus towards short message system it is text messaging service component of phone, using standardized communications protocols that allow the exchange of short text messages between mobile phone devices. SMS text messaging is the most widely used data application in the world, with 2.4 billion active users, or 74% of all mobile phone subscribers. The cell phones are very important part of modern life. Many of us need to make a call or message at anytime from anywhere. Many of them needs their cell phones when they can't do so e.g. At the time of driving, cooking accidents may occur because of this activity an speech to text converter for mobile design for this purpose so to avoid accidents.

The study of speech to text conversion is from 1970s where the first experiment of phoneme- to-grapheme conversion, this conversion consists of segmentation of phoneme string into word. This work is again extended to stenotype-to-grapheme conversion. Voice massaging is slowly and gradually reducing the importance of text massaging because it is safer to message at the time of cooking and driving. This paper introduces an idea about the speech-to-text conversion for SMS application. This software enable user to send the SMS without using keypad with fully spelled word.

2. Related Work

Speech technology can use composition, transcription, transaction and collaboration dialog based on particular domain [1]. Natural Language Understanding (NLU) and speech recognition are two independent technologies. When these two technologies can be combined, it provides the powerful human-computer interaction (HCI). Natural language understanding has been an active area research for decades. Since then, the field of Artificial Intelligence (AI) has evolved researchers are borrowing ideas from the fields of mathematics, linguistics, psychology and philosophy. From the research of long decades it can be derived that the conventional computer programs and procedural paradigms were not suited for the challenge at hand. By procedural paradigms I am referring to task oriented programming, such as a program written in a 3rd generation language like COBOL, Fortran, or C [2]. Completely different languages and tools had to be created to help the development of Conversational Systems, such as Lisp (based on Lamda Calculus), Prolog (based on predicate calculus), Small Talk (based on objects), semantic nets, frames, etc.

Secondly, a chatterbot is designed to simulate an intelligent conversation with humans via speech or text. This chatterbot is based on the theory of Turning Test described in the introduction of this paper. The technology, used by the chatterbot, to generate response is simply finding a keyword from the input and get the reply from database with matching keywords or wording patterns [3].

Figure shows the functional diagram of a very general TTS synthesizer. A simple text is process by Natural language processing software with linguistic knowledge and some logical inferences. Then the text goes to make some phonetic transcription with desired intonation and rhymes [2]. Then it passes through the Digital Signal processing to transform that symbolic information into speech with the help of mathematical models, algorithms and computations.

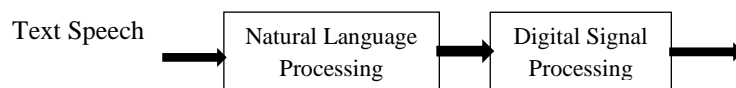


Fig. Text To Speech Synthesizer

Most of the time text-to-speech synthesizer costs the user to say some specific and restricted text to pronounce. Sometimes the quality of the “emotional dynamics” also comes into the play as the outputs are not as comparable to human speech performances. Although giving less satisfactory output, these synthesizers solve the problem in real time with limited memory requirements.

3. Analysis Of Problem

- The system acquires speech through a voice recorder and processes the sampled speech to recognize the uttered text.
- A speech-to-text system can also improve system accessibility by providing data entry options for blind, deaf, or physically handicapped users.
- Many people will have to use their cell phones while driving even though it is illegal to do so. Road accidents may occur because drivers that using cell phones definitely cannot fully concentrate on the driving.
- An important innovation in SMS technology lately is the speech recognition technology that can convert voice messages into text messages.
- A such a system would enable deaf users to communicate with each other
- Enable user to send messages without use of keypad to type message in the form of original fully spelled word.
- It is a standalone system for converting speech to text without using a PC for recognition.

4. Proposed Work

The proposed work converts Speech into Text. In this paper we have provided speech to Text Conversion system. The elements of Speech to Text conversion system are,

- 1) Speech Acquisition
- 2) Speech to text conversion
- 3) SMS transmission

This system allows us to give our voice as input and produce text as an output. Systems use "training" where an individual speaker reads sections of text. These systems analyze the person's specific voice and use it to fine tune the recognition of that person's speech, resulting in more accurate transcription. The speech to text conversion system is the ability of smartphone to identify the words which is in the spoken language and translation of it into the readable form that is in the form of text. Many speech recognition software available in the market which is available for limited vocabulary of words or if the words spoken very clearly.

Every speech-to-text conversion system require acquisition of speech at the real time During speech acquisition, speech samples are obtained from the speaker in real time and stored in memory for pre-processing. Speech acquisition requires a voice recorder in mobile phone that has the proper amplification to receive the voice speech signal, sample it, and convert it into digital speech. To achieve speech pre-processing sphinx frame work is used this is the best tool found to acquiesce speech signals. Sphinx is design with high flexibility modularity.

The main requirement of every speech to text conversion system is a database which will compare peach with frequencies. If we develop the system which will convert the speech into text globally that is for any user it is very difficult job because the frequency of giving input of any user is different as that of other user. If the system is global hence we are creating it for the mobile user means our job is very much difficult there are millions and billions mobile users and sound frequency and peach comparison is again difficult. Hence we need to use database which is already provided by "Google".

If we try to create the database manually it will create time and space problem. To create such a huge database lot of time will west and this paper is for mobile users whose internal memory of mobile is generally low and the database for this is system is very much huge. Instead of creating a database for this system we need to use existing database which is available at the web server.

The speech input is collected in the container and the send it to the peach and frequency comparison the recognition take place. To get correct text which is spoken we need training on input file for that neural network (NN) is used and the output is collected in the text file and SMS is ready to send.

During SMS sending phase the speech samples which is converted into text is send as an SMS to the other device. In this phase, two android emulators are used to send and receive the SMS. From the first emulator which we consider as mobile one text message is send and other device receive it at the inbox.

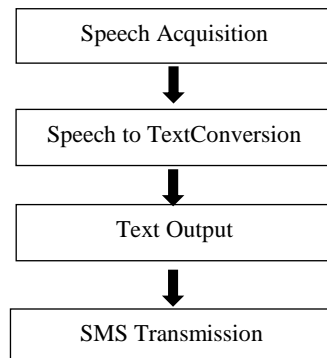


Fig: showing the elements of speech to text conversion system

5. Conclusion

This paper based on evaluating voice versus keypad as a means for entry and editing of texts. An important innovation in SMS technology lately is the speech recognition technology that can convert voice messages into text messages. In other words, messages can be voice/speech typed. The paper will make use of a dictating-machine prototype for the English language, which recognizes in real time natural-language sentences built from a 2000-word vocabulary. This paper will demonstrate the requirement of speech to text conversion system and also it shows how we can construct the STT (Speech to Text) for mobile users. When we are taking about mobile the main memory requirement we have consider here because we are using already existing database and that is safe and system will work faster this is the main advantage of this system.

Reference

- [1] J. A. Jacko, A. Sears, "The human –computer interaction handbook: fundamentals, evolving technologies, and emerging" New Jersey: Lawrence Erlbaum Associates, 2003, pp. 712-750.
- [2] T. Dutoit, "An Introduction to Text-to-Speech Synthesis." TTS Research team, TCTS Lab, pp. 2-6.
- [3] B. Manaris. "Natural Language Processing :A human-Computer Interaction Perspective", University of Southwestern Louisiana, Louisiana.
- [4] Ryuichi Nisimura, Jumpei Miyake, Hideki Kawahara and Toshio Irino, "Speech-To-Text Input Method For Web System Using JavaScript", IEEE SLT 2008 pp 209-212.
- [5] Janet See, Umi Kalsom Yusof, Amin Kianpisheh, —User Acceptance towards a Personalised Handsfree Messaging Application (iSay-SMS)ll, CSSR 2010 Initial Submission December 5-7, 2010 pp 1165-1170.