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Intelligence Hands Free Speech Based SMS System on Android

Shaikh Shaheda Faiyaz
Department of Computer Engineering
Anjuman-I-Islam's Kalsekar Technical Campus
New Panvel, India

Khan Arshiya Raueeb
Department of Computer Engineering
Anjuman-I-Islam's Kalsekar Technical Campus
New Panvel, India

Inamdar Mohsin Harun
Department of Computer Engineering
Anjuman-I-Islam's Kalsekar Technical Campus
New Panvel, India

Prof. Ansari Mukhtar Amir
Department of Computer Engineering
Anjuman-I-Islam's Kalsekar Technical Campus
New Panvel, India

Abstract—Speech recognition has wider application in now a day, before speech recognition there were a messaging through text which takes a lots of time and efforts and it is a interesting way of communication than text. Therefore people attracted more towards speech than text. Speech recognition is added with new features day by day by using different technologies. Speech recognition is used for lots of category of people such as: handicap, illiterate or people with less knowledge of languages, so that human can enjoy today's technologies. This paper is based on speech recognition system developed on android platform. System which we have developed is go through different features such as: text-to-speech conversion and vice versa, contact selection by voice and module selection is also voice based, multiple contact selection, frequent message, favorite contacts, notifications etc. As we studied different papers based on this application were having a drawback and fewer features, so as with leads of technologies it is possible to add more features to make it more interesting. We developed this application by using Google API and various algorithms and a dictionary of sentence. For making it voice based we used HMM (hidden markov model).

Keywords—*Speech-To-Text, Text-To-Speech Converter (Both Side), HMM (Hidden markov model), frequent contacts, favorite contact, multiple contacts.*

I. INTRODUCTION

Android platform try to satisfy a users with different kind of application, it also try to focus on every kind and category of people. It tries to make android application for everyone with their comfort and ease. Speech recognition is basically used by illiterate and physically disabled users. From decade Speech recognition system is used in many Applications like speech reader, speech converter. As the usage is increases, speech system is also improved day by day with different features and improvement and it is used in lots of application and engines such as what′sApp, Google, YouTube etc. Speech system is also used in vehicles to prevent it from accidents. This speech system is easy in use, user just has to click on mice which get recorded and then converted by converter into text or voice. This system takes very less time for processing a command than text which time is saving than text, because speech takes less time in processing in a comparison of text. For making a speech conversation we did use various Google API, main model which is used for speech conversion is a HMM (hidden markov model).There are various hmm models exist for each words. This application is totally based on English language. The conversation starts with when user opens an application, there are three options to check new massages, add contact and create message. User can type a contact number either from their voice or manually selected from their contact list, then user speech message from their voice. There are others features are also available in this application such as: user can select their favorite contact, detail of particular contact and frequent contact etc.

II. WHY ANDROID STUDIO

A. *Gradle integration:* - Quick Gradle built tool is great feature in android.

B. *Advanced code integration*:-It has auto java code completion, which is better than an Eclipse.

C. *User Interface (UI):*-Tools and menus available in android studio make it more effective for developers.

D. *Organization of project:*-Android studio uses different modules to organize and manage projects.

E. *System stability:*-Android studio does not need more RAM and high CPU speed. It can create a new project in 30 seconds. Therefore, it is more stable than eclipse.

F. *Drag-and-Drop:*-Developer can easy drag an elements from a list and can place it in proper place which were absent in eclipse.

III. SPEECH RECOGNITION

Speech recognition system is used to saves a time and to perform faster processing. Speech recognition can be performing through HMM (Hidden Markov Models), acoustic and language modeling and an advanced system uses a pronunciation model. Acoustic model is used to make a relationship between a speech units and audio signals

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while language model is used to differentiate between a words that sounds same. HMM model is used by Google server by using SR(Speech Recognition) There are different HMM models for every words in language. When a user speaks, that particular HMM model is called then an algorithm is used to link each words properly to make text sentence speak by user.

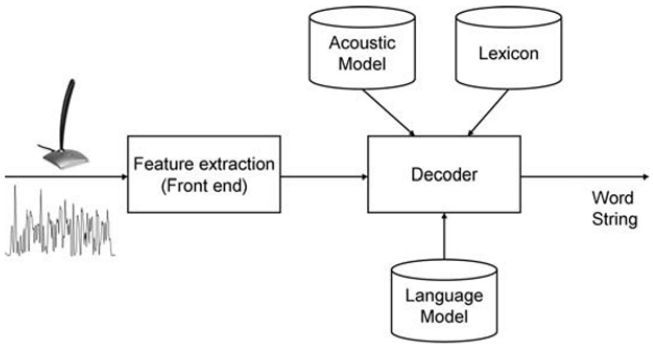


Fig1:- Diagram of Automatic Speech Recognition System

Speech input through mice, user click on mice and speech get recorded by recorder then particular words get selected as per the voice of user. These words get selected from an offline dictionary. As a words comes algorithm selects a HMM models for that speech. When model gets selected it trying to make a proper sentence without grammatical mistake. If there any grammar and pronunciation mistake it resolve through dictionary, vocabulary. When proper sentence get selected it convert it into readable format and display those sentences on a user's message field, then message can send to a relevant user. This speech recognition application will work for English language and it has English offline dictionary.

IV. DESIGN OF APPLICATION

This Android application contains different interesting modules for making it more interactive. Android device gives platform for executing this application. Android device has SMS facility which allows of sending SMS, receiving SMS notifications etc.

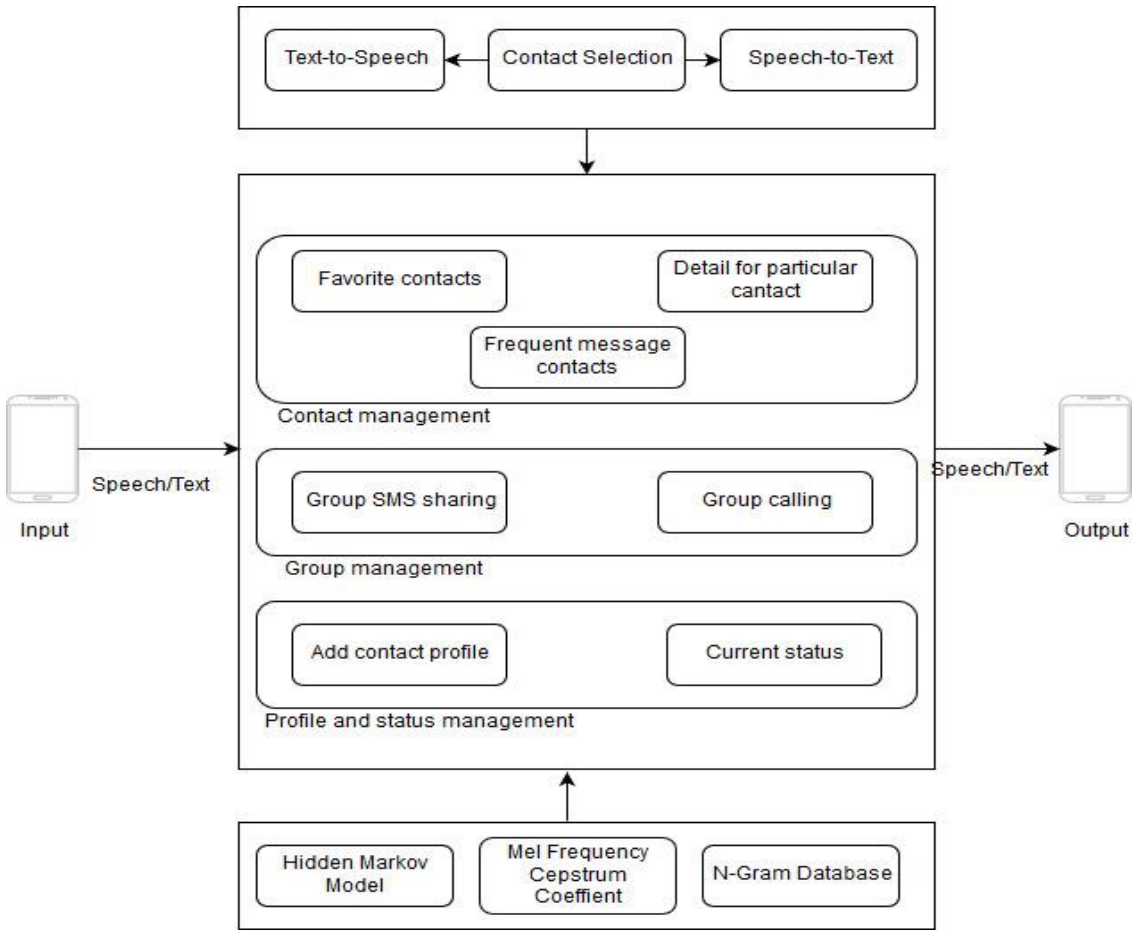


Fig2:- System Architecture

As shown in the figure 1, application design contains a various modules. Some of the modules are already developed and some we are going to add in application. The main modules are speech- to-text conversion and text−to-speech conversion, where contact selection is voice based and manual. When it is voice based it uses mice and its manual application uses contact list.

Now other modules contain various features which are contact management, profile management and group management. Contact management contains features are favorite SMS contacts for texting to their favorite users, frequent contacts are contacts to whom having a more conversation and a detail of particular contact contains a texting time day etc. Second module is group management which has a group texting feature where user can share a SMS to various contacts at a time. Last module is profile management in which user can set profile of a receiver for selecting it more easily.

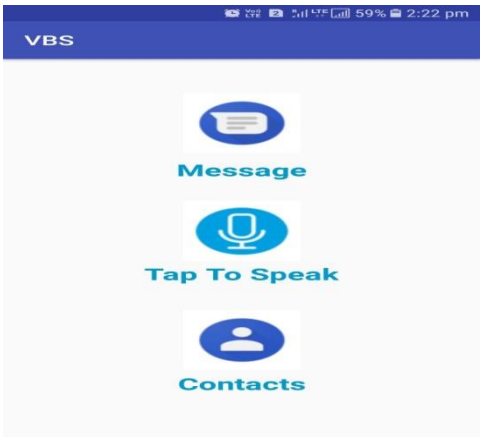
V. EXISTING SYSTEM

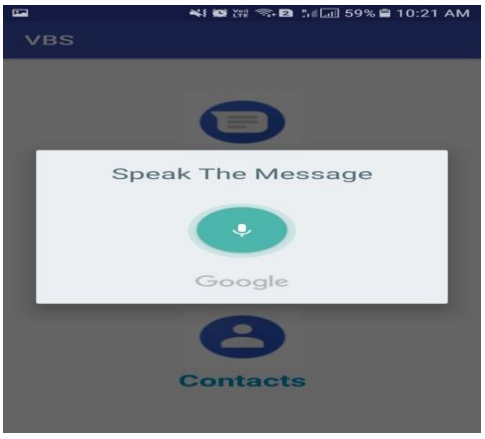
Speech recognition adds a tremendous change into a classic keyboard. Speech recognition is easy in use and manipulation. Existing system which we have studies have speech to text and text to speech conversion of input. It has a contact selection which is voice based numeric characters. When user has to select a contact with a voice they have to speak a numeric character or contact can be selected with a voice. Contact cannot be selected with a user name which has store in a contact list. These application has notifications, so that they can get notify whenever SMS comes. It also has reminders which are used to remind a specific period of a time that this text comes at this particular of time.

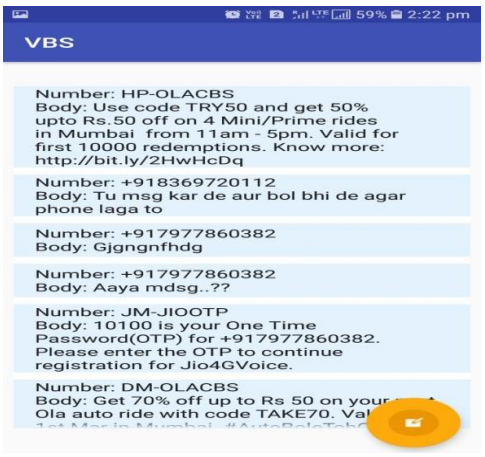
Disadvantage:-The system does not have a contact selection by number and manually, it cannot perform contact selection by name of a recipient.

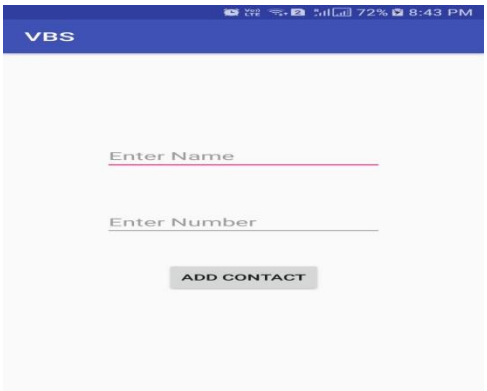
VI. PROPOSED SYSTEM

System is based on a SR (Speech Recognition) of Google server which used a HMM (Hidden Markov Model).The system performs a speech conversion by using acoustic model, language model, pronunciation and HMM (Hidden Markov Model).System performs a conversion taking a input from user, when a sound get inputted voice fluctuate in a set of signals which depends on a quality of a voice. These signals get recorded in a system, and input signals get divided into different words and phrases. At the last these commands get executed by a system. This system performs a contact selection of multiple users. It can perform a setting of a users profile as contact information. It also has different features such as favorite contacts and frequent contacts and notifications.









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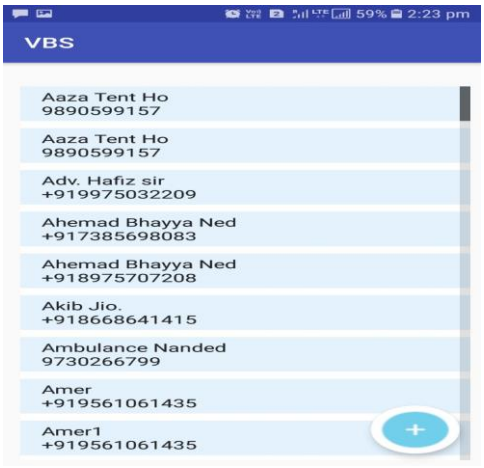

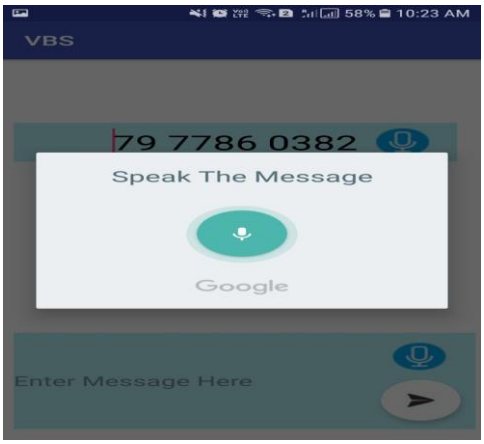

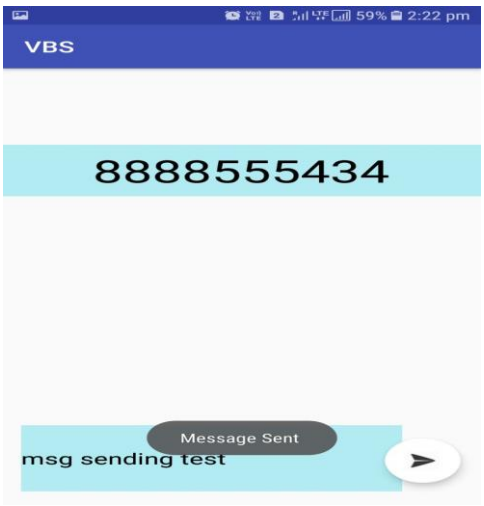

VII. CONCLUSION

In this paper, we discussed the topics relevant to the development of STT systems .The speech to text conversion may seem effective and efficient to its users if it produces natural speech and by making several modifications to it. This system is useful for deaf and dumb people to Interact with the other peoples from society. Speech to Text synthesis is a critical research and application area in the field of multimedia interfaces. In this paper gathers important references to literature related to the endogenous variations of the speech signal and their importance in automatic speech recognition. A database has been created from the various domain words and syllables. The desired speech is produced by the Concatinative speech synthesis approach. Speech synthesis is advantageous for people who are visually handicapped. This paper made a clear and simple overview of working of speech to text system (STT) in step by step process. The system gives the input data from mice in the form of voice, then preprocessed that data & converted into text format displayed on PC. The user types the input string and the system reads it from the database or data store where the words, phones, diaphones, triphone are stored. In this paper, we presented the development of existing STT system by adding spellchecker module to it for different language. There are many speeches to text systems (STT) available in the market and also much improvisation is going on in the research area to make the speech more effective, and the natural with stress and the emotions.

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