Android Based Smart P.A. System

Prof.Vineeta Philip, Hemant P. Meshram, Sujit S. Joshi, Sagar S. Kalaskar

***Abstract*— The existing PA system consist of more hardware. As it is wired system, therefore complexity is also increased and main drawback of this P.A. system is manpower is required to handle this system. In android based smart P.A. system, all this drawbacks will be overcome. Because it has Wireless access, All work will be done with the help of Wi-Fi in that manpower is also reduced and mobility will be granted. Android.speech.tts. Text To Speech class provide necessary methods to the trick. At the start we need to implement the TextToSpeech.OnInitListener to do the initialization. In this project we need application that will take a Text field to get the input text from user and a control button to initiate the Text To Speech conversion.**

***Index Terms*— Text- to- Speech synthesis based application**

I. INTRODUCTION

The Text-to-speech (TTS) or speech synthesis systems play a major role in building these virtual assistants. At IIIT-Hyderabad, India, there is an ongoing research to build the virtual assistants including text-to-speech engines for Indian languages. As a part of IEEE exhibits at Birla science center, Hyderabad, IIIT-H has deployed English, Telugu, Hindi and Kannada text-to-speech systems. This deployment allows an easy user interface so that a school kid can select a language from a drop-down list on the computer screen and enter an arbitrary text using a virtual keyboard. This text is then converted into spoken form and is played back on the loud speakers.

The intelligibility and naturalness of the synthesized speech are studied. Mobiles contain a speech codec, one of the modules in the baseband processing. The idea of this paper is to propose a methodology to use the already available speech codec in the mobile and read a SMS aloud to the listener, when TTS is embedded in a mobile We are going to design Android based smart P.A. system which is based on Text-to-speech synthesis. For this one application is designed. In this application various files are provided for various tricks or initialization of text to speech synthesis according to this files android gives speech output. And this speech output is given to loudspeaker using Wi-Fi and controller. System having mobility, any user can access from anywhere within Wi-Fi range. It can be used in various sectors of industries, school/colleges, auditoriums, hospitals.

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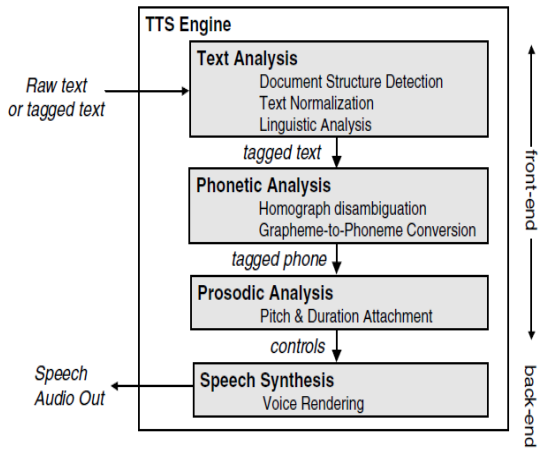
II. TEXT-TO-SPEECH SYNTHESIS

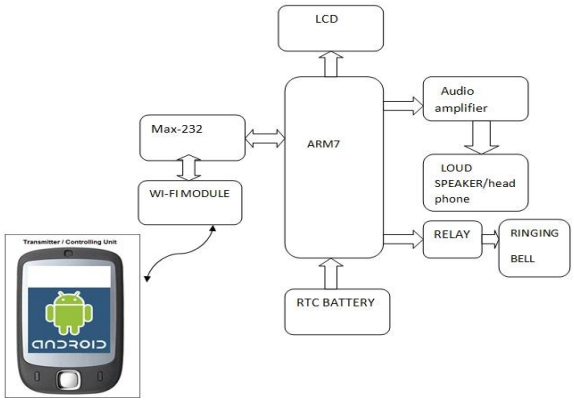
Speech synthesis is the artificial production of human speech. A computer system used for this purpose is called a speech synthesizer, and can be implemented in software or hardware products. A text-to-speech (TTS) system converts normal language text into speech. An intelligible text-to-speech program allows people with visual impairments or reading disabilities to listen to written works on a home computer. Our system aims to make a simple conversion from text to speech initially. So the operands that are to be recognized are the alphabets and the numbers. The main objective is to provide any valid text at the input via keyboard and the output will be obtained as a voice representation of the inputted text. This is based on the conversion of text into speech using the speech processor. This is our attempt to make a portable "Text-to-Speech Converter". When the text is provided as an input to the controller, it sends the text to the speech processor which synthesizes the data, disintegrates into allophones and provides a voice output of the text written.

A block diagram of a general TTS engine is depicted. We distinguish a TTS ''front-end'' (i.e., the part of the system closer to the text input) from a TTS ''back-end'' (i.e., the part of the system that is closer to the speech output). Input text, optionally enriched by tags that control prosody or other characteristics, enters the front-end where a text analysis module detects the document structure.



Encompassing transcription of acronyms, abbreviations, currency, dates, times, and further linguistic analysis that enables other tasks down the line. The tagged text then enters a phonetic analysis module that performs homograph disambiguation, and grapheme- to-phoneme conversion. The latter process is also called ''letter-to-sound'' conversion. The string of tagged phones enters a prosodic analysis module that determines pitch, duration (and amplitude) targets for each phone. Finally, the string of symbols that was derived from a given input sentence is passed on to the speech synthesis module where it controls the voice rendering that corresponds to the input text.

III. BLOCK DIAGRAM



We are dealing with arm7 which is actually main part of our project. In our project, we required Android mobile phone in that we are designed one android APPLICATION which is fully based on JAVA programming language. With the help this Application smart phone itself convert the text message into the speech. Suppose if any person who is authorized want to insert any message then this application will take that message as a input and provide speech as a output. There are many files in application but we required only Android.speech.tts.TextToSpeech class provides necessary methods to the trick. At the start we need to implement the **TextToSpeech.OnInitListener** to do the initialization. ARM7 will do the further procedure and decode that speech and provide to the loudspeaker through audio amplifier.
ARM7 have inbuilt Real time clock which is required for the bell system. Depending upon RTC value set controller will check our RTC value and according this value bell system will be ringing after every one hour or for selected value. LCD will display the time and message which is provided.

IV. ALGORITHM

1. START
2. Initialize all the devices.
3. Type the text in the smart phone application.
4. Click on the button to send it to the controller.
5. At controller check data received via Wi-Fi module.
    a. If yes then send to the DAC pin.
    b. If no then go to step 5.
6. And that file is given to the audio amplifier.
7. By using RTC of the controller data will be given to ringing bell.
8. Bell will ring after 1 hours.
9. Go to step 6.

V. FUTURE SCOPE

Instead of ARM7 we can also built this project with the help of Raspberry pie. Linux operating system ,UNIX is installed on PCs , laptops . We also gives the priority to the tasks for example Emergency messages has highest priority than normal/ regular circulars.

VI. CONCLUSION

Implementing this project will reduce the flaws and the manpower required in traditional PA System. We are developing a Smart PA Sytem which will ensure mobility and a user friendly interface through WiFi. The project will also have system reliability and better use of resources.

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