About myself:

1, My name is wang xiang, and the name in IRC/forums/mailing lists is also my real name.

2, I'm a phd student of Institute of Acoustics,Chinsese Academy of Science. My mayor is speech signal processing and speech synthesis.

3, I like music very much and have a iPod.

4, I have not involved in Rockbox previously.

5, Because I often listen to music and my mayor is also speech signal processing, so it is my honor to integrate the Text-to-speech module to Rockbox.

6, I'm in Beijing China and I'll be available since the afternoon(after 3:00 pm).

7, Every day I have 8 hours available to write code, so in the whole week there are at least 50 hours to write code for Rockbox.

8,Yes, I have built Rockbox myself.

9, My programing languages are C, C++, java, perl and linux shell.

Some examples:

1) Use C and C++ language to write the code of HMM speech recognition and synthesis system for my lab.

2) Use Perl to write the text-processing codes.

3) As a Intern of SamSang China Research center, write the voice-control game on the platform of Windows mobile.

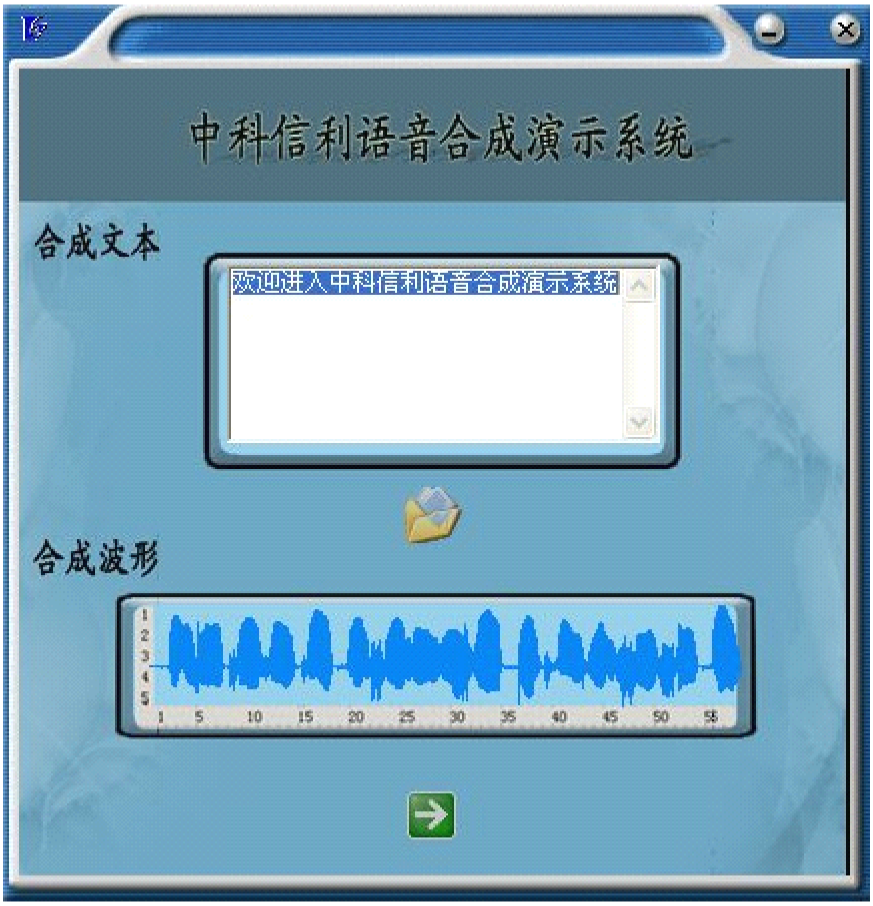
Figure 1 Games programming

4) Write the VOIP client programs via G.729.

5) Write the UI of speech recognition products.

6) Linux shell program in C for the HMM training module of our speech recognition system

7) Build the speech synthesis system of our lab.



欢迎进入中科信利语音合成演示系统

Figure 2 Online Speech Synthesis System(Text-To-Speech System)

No, I have not yet. So I want to attend this program eagerly.

About My Project

Abstract :

The project idea is to integrate the current Text-to-speech engine to the Rockbox.

Detailed Description :

The detailed description should consist of several parts:

Task description and subdivision:

Describe your project in as much detail as possible (only relevant details, no need to mention e.g. that you will set up a build environment) Try to subdivide the project in logical sub-projects, and describe them separately

Compared the size of speech database of the espeak(1M) and flite(10M), I think ESpeak is more suitable to be integrated to the embedded equipment or DAP.

A Text-to-speech system is composed of two parts:

1, Text-Processing(Text-to-phones)

2, Phones to Wave

A flowchart is as follows:

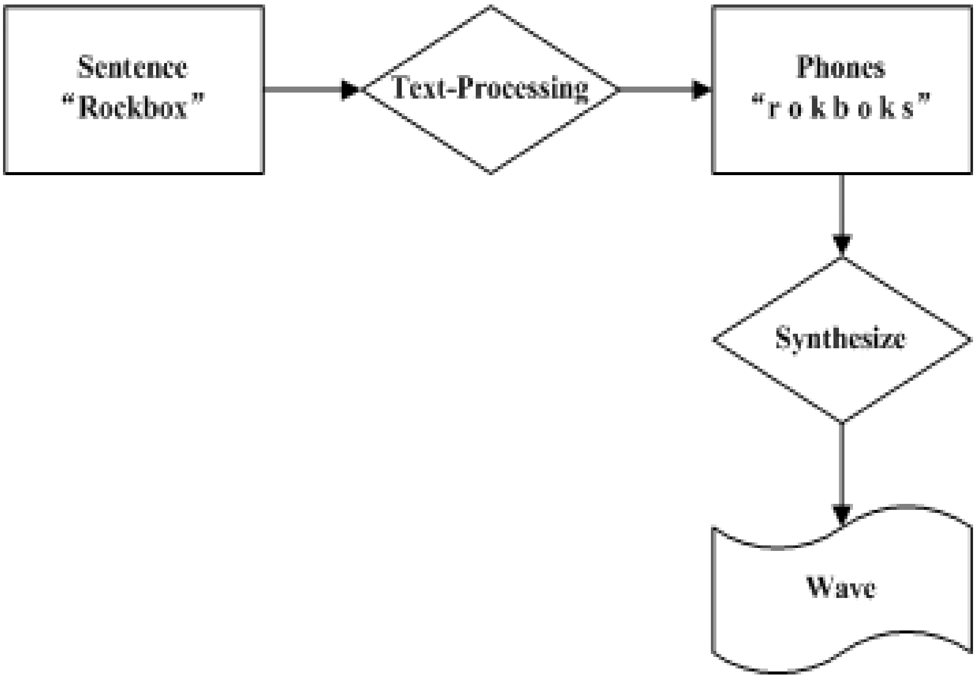


Figure 3 Flowchart of Our Text-to-speech system

So I made these schedules:

April 8-May 23	Reading Source Code Of Rockbox
May23-MidTerm	Integrate the code of ESpeak, Floating point to fix point
MidTerm-Augus 21	Test the code

April 8-May 23 Reading Source Code Of Rockbox

May23-MidTerm Integrate the code of ESpeak,

1) Floating point to fix point

2) add support in rockbox to use espeak for some things like reading filenames and song titles

3) change code from C++ to C, because Rockbox written in C and ESpeak in C++

MidTerm-Augus 21	Final Revision,Test the code

Benefit to the Rockbox project

Text-to-speech is an Humanlized design for the usage of Rockbox, while I'm using the ipod with the sweet voice to introduce you how to operate is a wonderful feel.

I will be on the IRC every day when I'm working.
I hope to have more talk with the mentor to exchange information to ensure the project being processed successfully.

No, I think the module can be used without change.

More detailed Job(About the basic task and extra task):

1) basic tasks:

Integrate the men voice Text-to-Speech with English language to the rockbox. Support the reading of all the information supplied by Text(string or char*), such as the player, the filenames, the song titles, the time of the music,even the name of palylist

It may relate to these sub-task that I can think of:

1.1 change code from C++ to C, because Rockbox written in C and ESpeak in C++, this is the first thing to do

1.2 Sort the resource of the speech database, not all the information of epeak is necessary for the integration. I have to classify it with different languages, dictionaries, voices. The aim of this step is to decrease the usage of the disk storage.

1.3 Floating point to fix point, it is a separate task

1.4 add support in rockbox to use espeak for some things like reading filenames and song titles.

1.5 Optimization Job: Optimize the algorithm to reduce the CPU and Memory usage

1.6 Debug to use the TTS to the box

Maybe if the extra task is not completed

2) extra tasks:

Integrate more languages and voices to the module, like Chinese,French ... and various voices. With the control of speaking of tone,rhythm, speed.

Specific Date: (Plan of my coding):

From April 8 to April 18: Reading the source code of ESpeak, change the code styles of C++ to C

From April 19 to April 29: Two things to do, First sorting the resources we can use, choose the minimum speech database for rockbox.; Second Reading the source code of Rockbox, talking with my mentors, deeply understand the framework of rockbox and the interface of ESpeak and Rockbox

From April 30 to May 22: Finish the ESpeak revision of code styles and learn the Rockbox

When the summer code begins, the plan is arranged about every two weeks:
From May 23 to June 7: Build the C style ESpeak in Linux

From June 8 to June 21: Float point to fixed point operation

From June 22 to July 8: Optimize the algorithm to reduce the CPU and Memory usage
From July 9 to July 23: Debug to use the TTS to the box

The rest two weeks to do with extra or other jobs.