AUDIO AND VIDEO DECODING PLAYER

Overview

This is a project I wrote when I learnt about linux application programming. This project aims to produce a player which is to decode audio and video files and then to play them.

Current supported file formats are bmp,jpeg,png pictures and mp3 songs.

Basic functions:

(1)   Decode and show bmp,jpg,png pictures.

(2)   Switch pages when you touch or slide the screen.

(3)   Loop play pictures by default.

(4)   Auto-search the supported pictures in the specified folder.

(5)   Decode and play mp3 songs.

(6)   Play in sequence, play in loop, single cycle.

(7)   Switch songs , pause, stop, resume via pressing different keys.

(8)   Auto-search the supported songs in the specified folder.

DEVELOPMENT ENVIRONMENT

Hardware:

PC(installed virtual machine ubuntu16.04)

x210 Board(Cortex-A8 S5PV210)

Software:

OS:linux(transplanted by myself)

Compiler:GCC

Compile method:Cross compilation

BASIC PROCESS

Step1:Build development environment(including transplant and clip linux kernel, build tftp and nfs server, make simple root file system).

Step2:Transplant some encoding and decoding library, like libjpeg,libpng,zlib,libid3tag,libmad.

Step3:When the above works done, I start to write application code.

SIMPLE DESCRIPTION ABOUT PROJECT STRUCTURE

There are two basic functions that play songs and show pictures respectively.

I design these two functions as two individual progress. And I call the progress that playing music with API execl in the progress that showing image.

Image progress:

First of all:How to show a picture on the lcd screen?

This part of code is included in file framebuffer.c. We can use the decoded image data to draw pixels on screen. Please to get details via reading source code.

Secondly:How to get the picture pixel data?

This part of code is contained in file fb_bmp.c, fb_jpg.c, fb_png.c. Please to get details via reading source code.

Thirdly:How to confirm the format of picture?

This part of code is also included in file fb_bmp.c, fb_jpg.c, fb_png.c.Please to get details via reading source code.

Fourthly:How to manage all pictures?

This part of code is included in file image_manager.c. Please get details via reading source code.

Fifthly:How to switch pages via touching or sliding screen?

This part of code is included in file image_manager.c. Please get details via reading source code.

Audio progress:

First of all:How to play a music?

This part of code is included in file audio.c. Please to get details via reading source code.

Secondly:How to decode mp3 song?

This part of code is also contained in file audio.c. Please to get details via reading source code.

Thirdly:How to confirm the format of song?

This part of code is also contained in file audio.c. Please to get details via reading source code.

Fourthly:How to manage all songs?

This part of code is included in file audio_manager.c. Please get details via reading source code.

Fifthly:How to control play songs via press keys?

This part of code is included in file audioplay.c. Please get details via reading source code.

Contact with me:

Please feel free to contact with me via email:1192872431@qq.com if you have any question about this project.