

Development of Digital Multimedia Player based on Mobile Network Sever

Sung-Il Hong*, Hyen-Sik Lyu**, Chi-Gook In*, Ji-Chul Park**, Chi-Ho Lin*, Dal-Hwan Yoon**

*School of Computer, Semyung University, Jecheon-city Chung-buk, Korea

**Dept. of Electronic Engineering, Semyung University, Jecheon-city Chung-buk, Korea

megadriver@hanmail.net, hyunai112@nate.com, knightiii201@naver.com,

pjc@nate.com, ich410@semyung.ac.kr, yoondh@semyung.ac.kr

Abstract— In this paper, we have developed the digital frame multimedia player based on mobile network server. Sending photos taken by mobile phone, the image data is stored on the mobile network server of mobile communication operators and transfer into the digital multimedia frame interconnected with the network sever. At this point, the digital multimedia frame to the network operators should be up to the server, you can play independently or images can be saved. Also, we can use the storage as a hardware memory of the frame itself, SD or CF memory stick devices and USB.

Keywords- Digital frame, multimedia player, mobile phone, mobile network sever, image data.

I. INTRODUCTION

Recently, the advancement of information and communication apparatus with the display device (LCD) has been increased. Especially, the home network based on **Keywords**-IP (internet protocol) is grown by integrating all the electronics of a family recipe. In this network, the one of a display device application is the digital frame multimedia player [1].

One of the display device application systems is a digital media player or an electronic digital frame that can reproduce the video data stored in memory. A conventional picture frame have replaced by these media player, which can display a still image taken by a digital camera or stored in computer and a moving image data. Also, other function of latest digital photo frame can play simply a still or moving image with CF or SD memory card, which your memory card file can back to download if it requires [2].

Meanwhile, according to the development of network server technology it has became possible to store much of the still image, moving image and music files. The digital frame we call the multimedia player became possible to connect the internet, local network connected to a PC or network storage device. These a digital electronic frame technologies with the internet can display an images stored on memory cards and

play music files or the files stored on external storage devices like SD or CF cards or USB. Also, we can download the image or music files from the network server, or reversely [3]. In addition, we can play the image or music files of camera phone or DMB phones and portable video devices.

In this paper, we have developed the mobile network server software and the digital frame multimedia play with it. If a user have taken the pictures with a camera or an image or music files of DMB phone or portable video devices, then we can concurrently transfer to the network sever of communication company and the digital multimedia player. The data received can be displayed or played on the system.

II. DEVELOPMENT OF DIGITAL FRAME SEVER

A. The digital frame sever system

If a user have taken the pictures with a camera or an image or music files of DMB phone or portable video devices, then the data files become transfer into the network operational sever of communication company. We call it a digital frame sever (DFS), and the figure 1 shows the diagram of it.



Figure 1. The DFS system with a mobile network

In figure 1, the DFS system has the PC or a media conversion sever of it, which connected to a mobile phone or the other terminal through the wireless network. Also, it is

connected directly to the digital image player. Recently, according to the connectivity of the cyworld, we have serviced the SMS and counted the bill.

The server performs the data transformation by other subscribers and connects the subscribers by internet. So, a subscriber in PC can connect into the DFS operational system, or retire.

B. The management S/W of DFS system

The manager of the DFS system can manage the operational S/W like the figure 2.

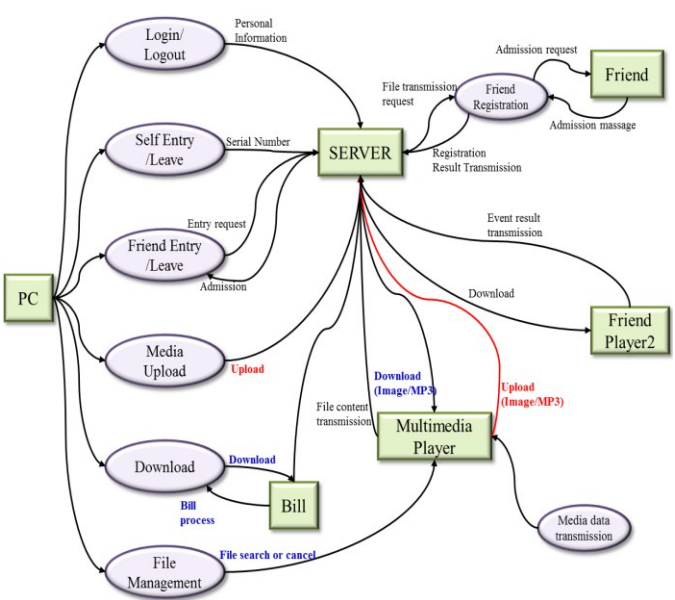


Figure 2. An operational S/W of DFS system

If a subscriber has connected to the DFS system, then the one can obtain the ID and Password. In figure 2, the subscriber log in the DFS system, then the user can upload their files like an image or music data into the DFS system, or downloaded into your terminal or the digital media player. The DFS operator can count the bill in terms of the data quantity and service a data file to the media player. If the subscriber can want to join with other friend, the friend can also act on the DFS system like the subscriber. A subscriber can be an ISP (internet service provider) or a cyworld companies. They can give and take a data files between them.

Figure 3 shows the main monitor of the DFS management system. We can manage the group, local group and personal in the main monitor of the server. Also, we can manage the file name, size and record the register information of FTP contents like a day. If we can't deal many data files in the main monitor, then we can divide the contents list into sub menu.

The management of a group and a personal subscriber can group a zone in the provinces, which manage the local group and personal information, locally.

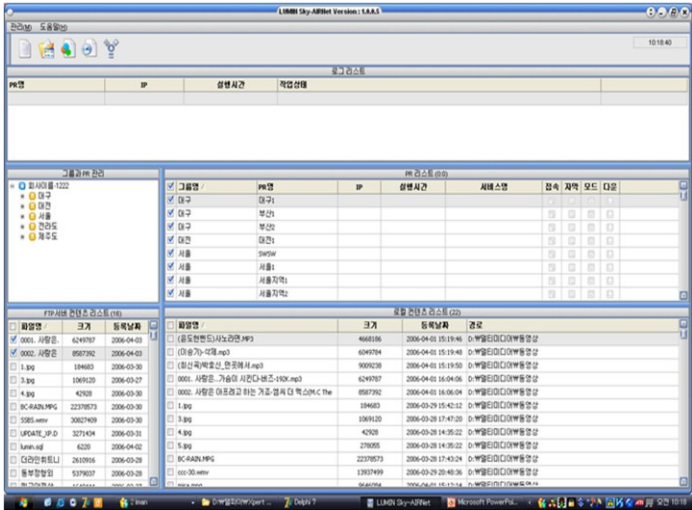


Figure 3. The main monitor of management sever

III. IMPLEMENTATION OF A MULTIMEDIA PLAYER

Table 1 shows the technical specification of the digital multimedia player.

TABLE 1. THE SPECIFICATION OF THE MULTIMEDIA PLAYER

	terms	Spec.
Display	Size	10.4 inch
	Resolution	VGA (640X480)
	Contrast	150 cd ~ 400 cd
Memory	Internal	Flash 64MB
	External	CF/SD and USB
Interface	USB Host	USB 2.0
	TV Out	S-Video(EF-080T)
	Audio Out	Stereo(EF-080T)
files	Remocon	IrDA
	Still image	JPEG (.jpg)
	Moving image	MPEG II
	Sound	MP3

Figure 4 presents the H/W block diagram of the multimedia player. In order to develop the multimedia player, we divide the system into two parts, the one is wireless board and the other is controller board. The wireless board are consists of the received device of wireless remote sensor signal, CPU, 32 MB SDRAM and LAN. Where we use the power of 1.8 ~ 3.3 V.

The controller board are consists of LAN9118, 4 MB flash memory, 32 MB SDRAM, key IF, IR IF, speaker, LCD monitor, USB based on 2.0. The CPU use 200 MHz. Especially, the codec chip for an image or music use the ESxx series to perform an important function.

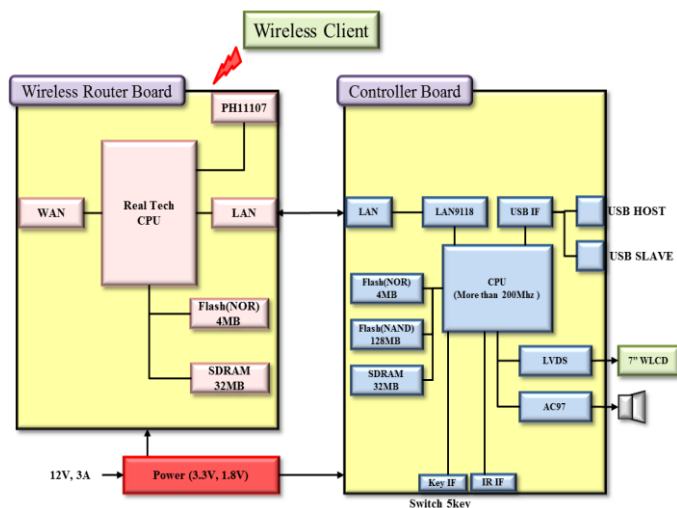


Figure 4. H/W block diagram of multimedia player

In this system, we can use the push button of a forward, play, a pause and back so on, and remote controller based on wireless. Also, we can search the image number, and increase or decrease the size of an image through S/W program. If we select the menu of slide show, the one can zoom up the image. If we select the music menu, the one can play MP3 file from an internal memory, USB, SD or CF cards, optionally. In order to obtain a several effectiveness of a still or moving image, we can select the slide show time from 1 to 10 second. Also, we can see the detail monitor by zoom in or out function.

Figure 5 shows the flow chart of S/W program. In the system, we use own the image or music files of mobile phone and an external storage device jointly.

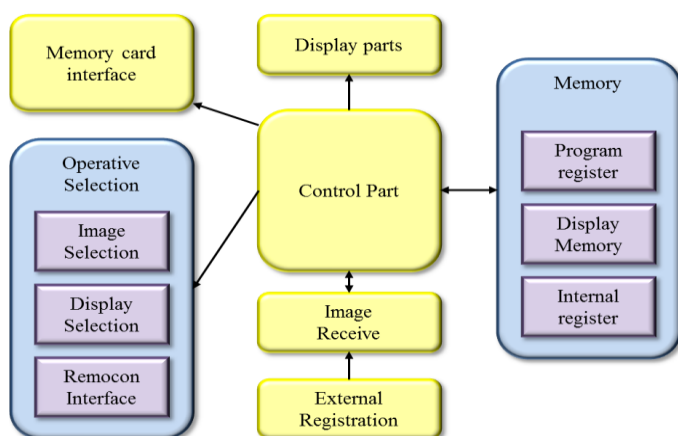
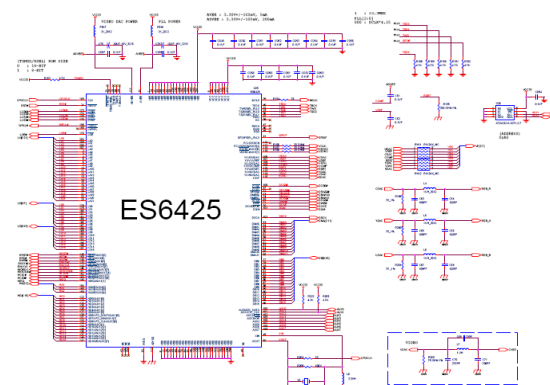


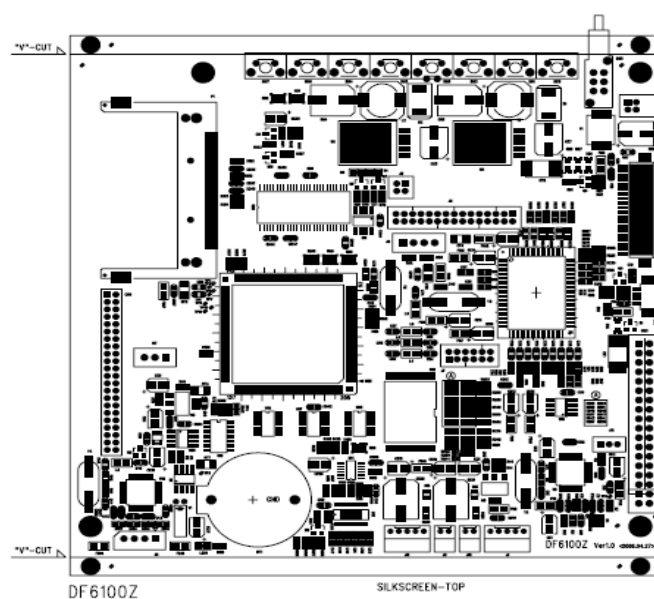
Figure 5. Flowchart of multimedia player

In figure 5, the system are consists of a receive part of an image files, an operational selection part, the memory part for saving a program, the LCD memory for displaying the date received from an external memory and the transformation of files, so on.

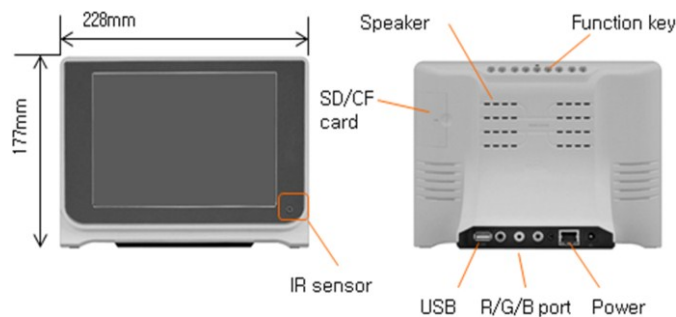
Figure 6(a) shows the circuit diagram of multimedia player, (b) the system model and (c) the multimedia player system. Function keys, speaker, USB, power switch and R/G/B port for an external terminal are designed in back surface.



(a) The circuit diagram



(b) The PCB layout



(c) The system model

Figure 6. The multimedia player system

In figure 6, the size of multimedia player is 177x228 mm, the LCD monitor is 7 ~ 8 inch, in general. In order to service the several function, we can design variously the program for showing a still image or moving image. Also, the interface function between the DFS system and the multimedia player is very important. The main chip ES6425 of Fig.6(a) is playing on the representation of an image source file and MP3 music file in terms of the push button of a forward, play, a pause and back so on, and remote controller based on wireless. The stereo jack on (c) multimedia player back when you connect external speaker can enjoy music while viewing pictures, or USB port for direct connection of digital cameras and the photos on the camera can manage them directly.

Also, we can search the image number, and increase or decrease the size of an image through S/W program. If we select the menu of slide show, the one can zoom up the image. If we select the music menu, the one can play MP3 file from an internal memory, USB, SD or CF cards, optionally. In order to obtain a several effectiveness of a still or moving image, we can select the slide show time from 1 to 10 second. Also, we can see the detail monitor by zoom in or out function.

IV. CONCLUSION

In this paper, we have developed the management program for the DFS system and the multimedia player. The system can own the data files for an image or music file jointly, and this is the important elements of increasing the additive value. Especially, we can manage the DFS system of a whole group, or locally group and personal type of subscribers. The multimedia player with the DFS system can communicate the image or music files, and the multimedia player can display the image or music files from an external device, SD or CF cards. Then these data can be received from mobile phone or portable video devices.

ACKNOWLEDGMENT

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