A Implementation of Web-based Education Contents for 8051 MicroController

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Abstract: This paper describes Web based education technique. We implemented a remote compile system with 8051 micro controller. It implemented the system in this paper so that a learner compiled 8051 control programs to the remote. Most big restriction subject is the control of the hardware in an engineering field even though it implements a remote education system. We download the Java Application to Java Web Start and execute in this system. In this paper the learner controls 8051 executions in Web to the remote and implemented so that we confirmed the action. The supplementary problem will be the construction of a remote education system which offeres existing text and sound information, flash animation.

1. INTRODUCTION

The virtual experiment system is the education to be composed of a simulation technique and to be achieved between the professor and learner in Web environment. The remote education system is the system to study as the learner controls an experiment training equipment directly. It implemented the system in this paper so that the learner compiled 8051 control programs to the remote.

2. THE MAIN DISCOURSE

We compiled an assembly code using the A51.EXE and compiled C code. Our system downloads the Java Application using Java Web Start and executes. The block diagram of the remote compile system is shown in Figure 1.

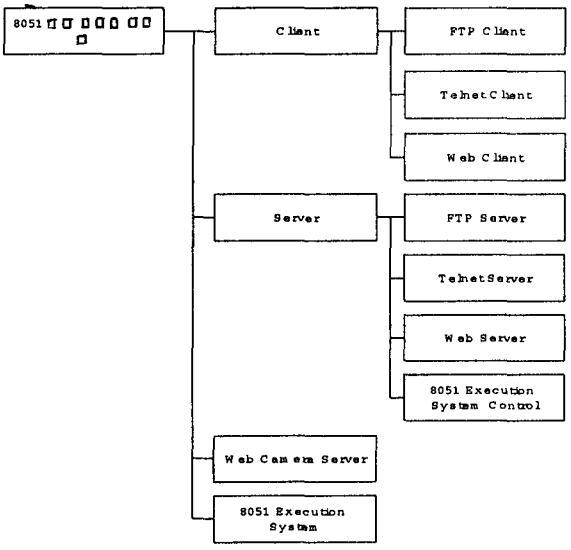

fig 1 The remote compile system block diagram.

2.1 COMPOSED OF REMOTE COMPILE SYSTEM

This system was composed of a server system and client system. The Server system is composed of Compile module, 8051 Execution Module, 8051 System, Telnet Server and FTP Server. The running diagram is shown in Figure 2.

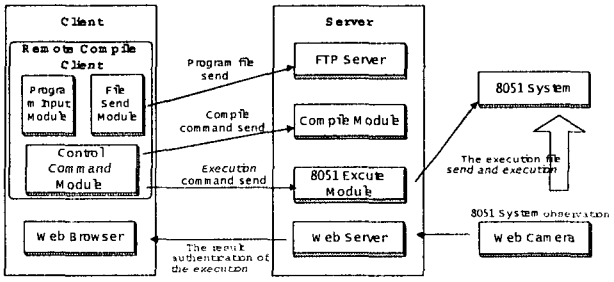

fig 2 The execution sequence.

The initial connection image is shown in Figure 3.

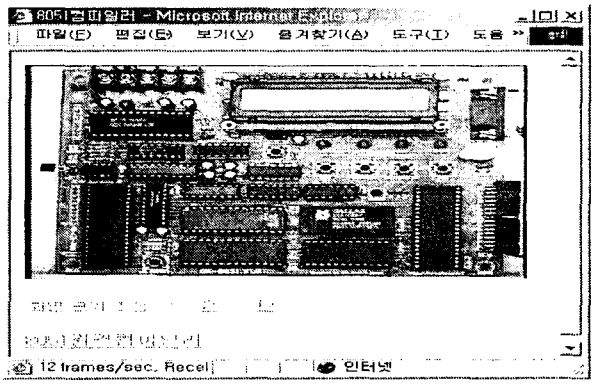

fig 3 The initial connection image

The image to do download the program is shown in Figure 4.

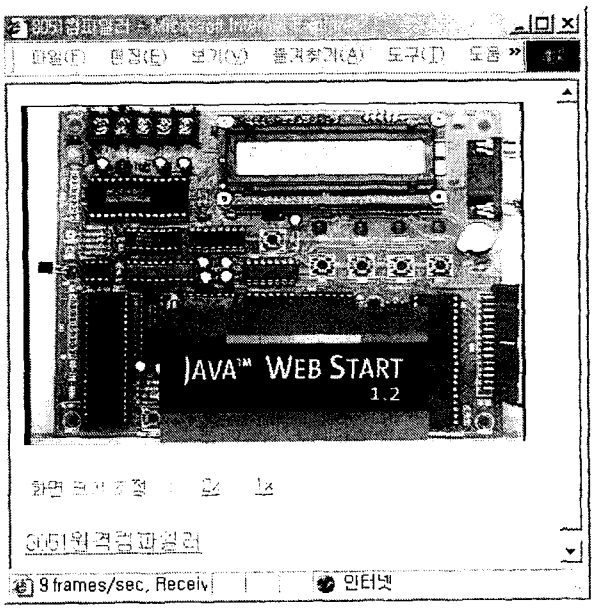

fig 4 Client application download image

The image of execution the client program is shown in Figure 5.

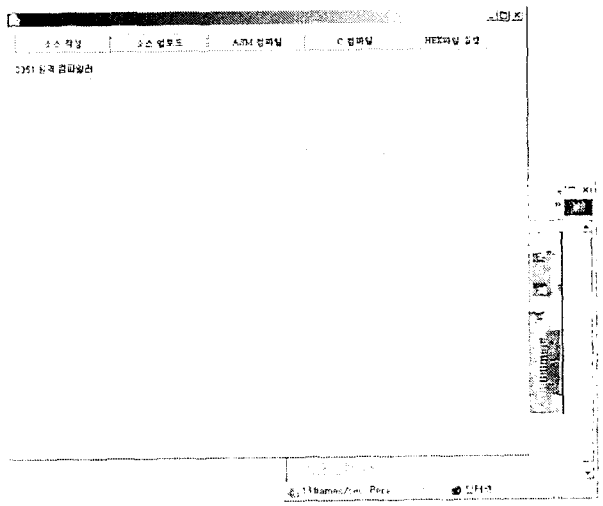

fig 5 The image of execution client program

The Client system is composed of code input module, file send module and control command module. The image of source input window is shown in Figure 6.

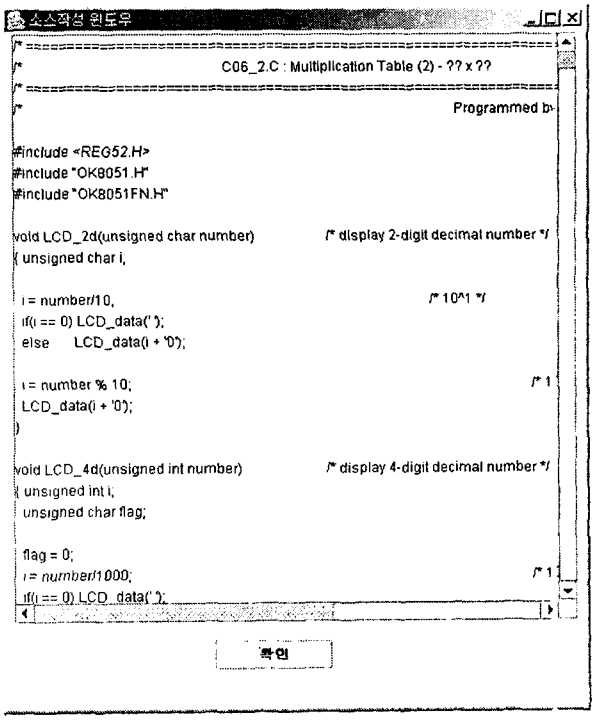

fig 6 Source input window

The image of file save dialogbox is shown in Figure 7.

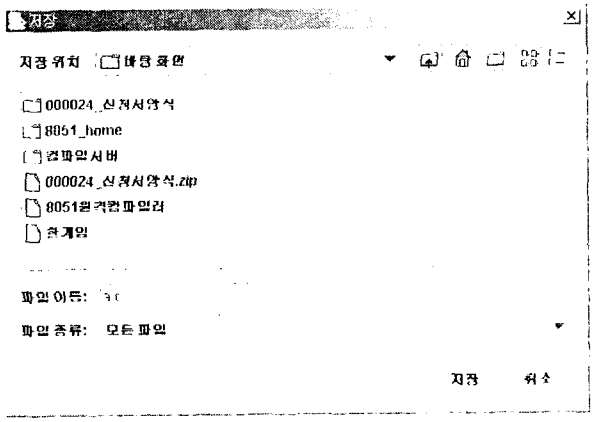

fig 7 File save dialogbox

The source input module is composed of the text input module and file save module. The text editor inputs the source code. The code to be input is saved to the file save module in Client system. The file send module is the module to be input to send the code in a server system. The code is sent in FTP communication method. Compile module produces the execution file by the compile and link the code to be sent. The image uploading source is shown in Figure 8.

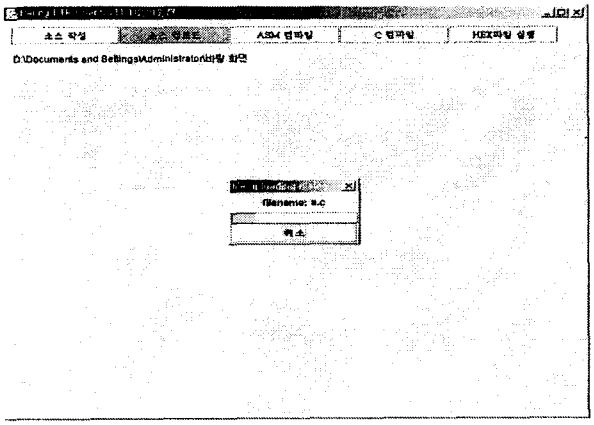

fig 8. Source uploading image

The compile module sends the message to be happened in an action process in a client system. The image to be sent compile control message is shown in Figure 9.

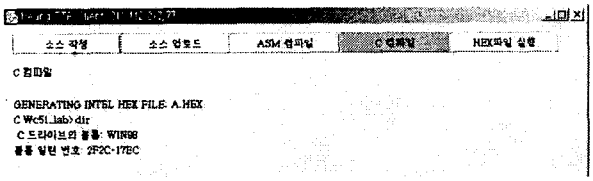

fig 9. Compile control signal sending image

The image to be sent execution control message is shown in Figure 10.

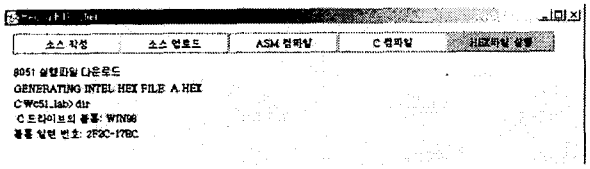

fig 10. Execute control signal send

8051 execution modules send the execution file to be produced to 8051 systems and execute the file to be sent in 8051 systems. The file is sent in RS-232 communication method. The image to execute the client program is shown in Figure 11.

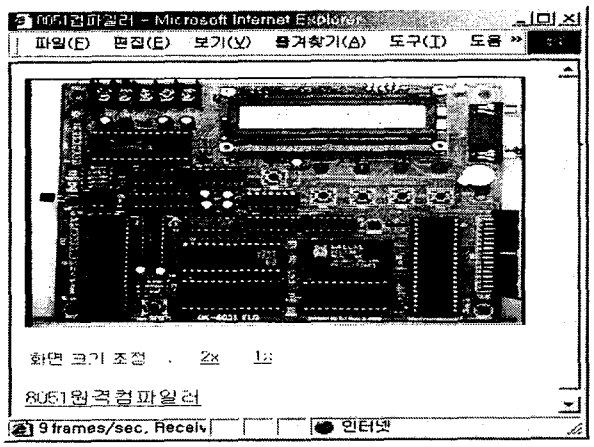

fig 11. Client program executing image

2.2 EMBODIMENT RESULT OF 8051 REMOTE COMPILERS

The remote compile system to implement in this paper is executed first of all in Web. The web camera takes a picture for the action of the 8051 system. and The captured screen to be taken sends to the client system so that the learner can see. A learner confirmed the 8051 system as watch the captured screen to be sent. It was the low so that the learner could store the code to fill in use a java web start. The learner executes java web start and downloads the application. The learner inputs a program in the java application to be downloaded. The program to be input is saved at the client. The program is sent to the server system by using FTP communication method after the program is saved at the client. After the code is compiled by the compile module of the server system, the execution file is produced if the compilation process succeed. The execution file is sent in 8051 systems. The execution file is executed in that system after it is sent in the 8051 system.

3. THE CONCLUSION

We implemented the system that the leaner controls 8051 kit executions in web to the remote and confirm the 8051 Kit action. Most learners can study a 8051microcontroller without the 8051 microcontroller kits through our web based system. This system has merits which learners do not need own hardware. In the future, we will develop a remote education system which offeres existing text and sound contents and flash animation.

Acknowledgement

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