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An Electronic Voting System for Haptic Touch Screen Interface

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Abstract: **- Touch panel interface is becoming a popular technology in many fields. It has been used in specific application systems such as ATMs (automated teller machines), museum displays, and ticketing counters in airports and stations for a while. Now it consolidates its position as a general-purpose interface used in notebook PCs, PDAs (personal digital assistants), and cell phones. The user can easily moves, rotates, zooms in and out, and some other 3D operations by directly touching and dragging the model. The touch panel interface eliminates keyboards and mice for interaction in small devices. It also enables a single device to provide a variety of application interfaces by customizing display layouts. Large-scale touch screen devices such as Microsoft Surface tabletop display efficiently support multiuser collaboration environment. In this project, we propose an approach for effectively designing user-friendly haptic applications especially targeted at supporting the weak users such as the elderly users. Then, we exemplify how the tactile feedback function helps the weak users through the design and development of an electronic voting system. The system uses a touch panel haptic display for allowing the weak to easily confirm, select, and vote their supporting candidate without any assisters. The data will be store in the memory cards and also store in the pc.**

Keywords: **Haptic Technology, E- voting, ATMs, Touch Interface, 3D operation & PDAs.**

1. INTRODUCTION

In this project, we propose an approach for effectively designing user-friendly haptic applications especially targeted at supporting the weak users such as the elderly users. Then, we exemplify how the tactile feedback function helps the weak users through the design and development of an electronic voting system. The system uses a touch panel haptic display for allowing the weak to easily confirm, select, and vote their supporting candidate without any assisters. The data will be store in the memory cards and also store in the pc**.**

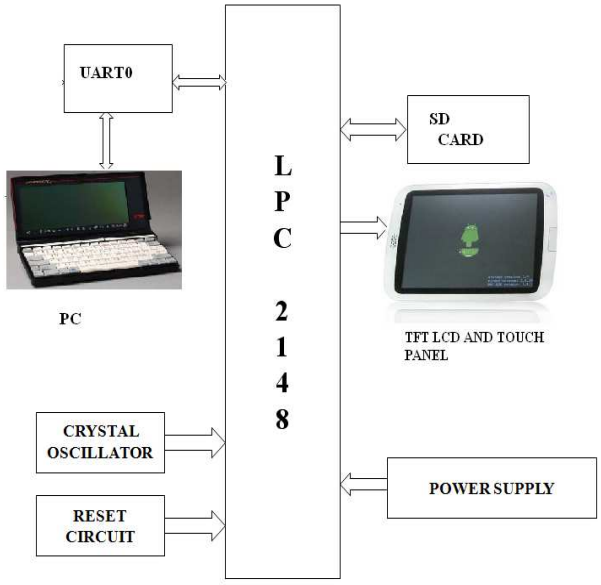

Fig.1. Block Diagram of an Electronic Voting Mashine with Haptic Touch Screen Interface

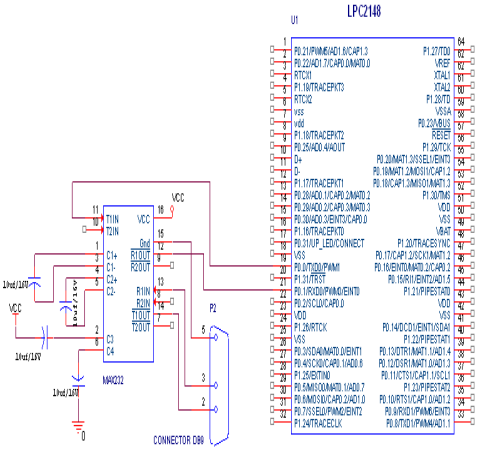

Fig.2. Interfacing max232 with LPC2148

2. DESIGN

Since the LPC2141/42/44/46/48 have significant amounts of on-chip memory, it is not possible to determine how the processor core is operating simply by observing the external

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pins. The Embedded Trace Macro cell (ETM) provides real-time trace capability for deeply embedded processor cores. It outputs information about processor execution to the trace port. The ETM is connected directly to the ARM core and not to the main AMBA system bus. It compresses the trace information and exports it through a narrow trace port. An external trace port analyzer must capture the trace information under software debugger control. Instruction trace (or PC trace) shows the flow of execution of the processor and provides a list of all the instructions that were executed. Instruction trace is significantly compressed by only broadcasting branch addresses as well as a set of status signals that indicate the pipeline status on a cycle by cycle basis. Trace information generation can be controlled by selecting the trigger resource. Trigger resources include address comparators, counters and sequencers. Since trace information is compressed the software debugger requires a static image of the code being executed. Self-modifying code cannot be traced because of this restriction.

Real Monitor is a configurable software module, developed by ARM Inc., which enables real-time debug. It is a lightweight debug monitor that runs in the background while users debug their foreground application. It communicates with the host using the DCC, which is present in the Embedded ICE logic. The LPC2141/42/44/46/48 contains a specific configuration of Real Monitor software programmed into the on-chip flash memory.

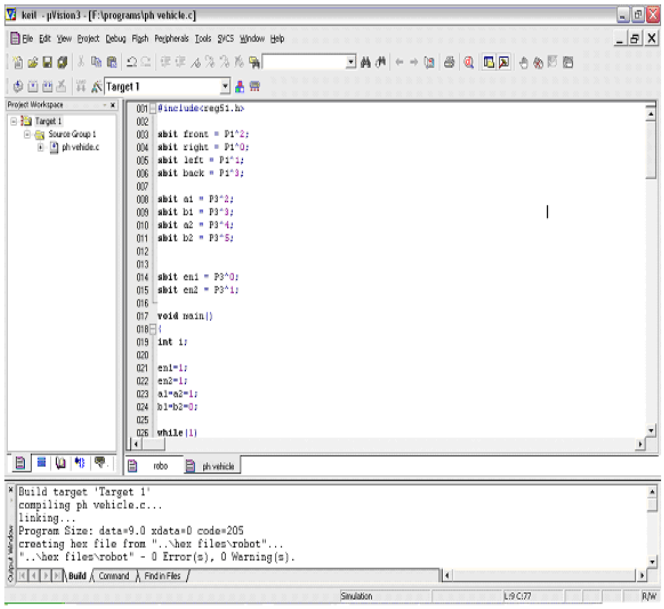

Fig.3. Compilation of source code

It is simple to use and low cost, yet powerful flash microcontroller programmer for the Atmel 89 series. It will Program, Read and Verify Code Data, Write Lock Bits, Erase and Blank Check. All fuse and lock bits are programmable. This programmer has intelligent onboard firmware and connects to the serial port. It can be used with any type of computer and requires no special hardware. All that is needed is a serial communication ports which all computers have.

3. RESULT

All devices have signature bytes that the programmer reads to automatically identify the chip. No need to select the device type, just plug it in and go! All devices also have a number of lock bits to provide various levels of software and programming protection. These lock bits are fully programmable using this programmer. Lock bits are useful to protect the program to be read back from microcontroller only allowing erase to reprogram the microcontroller. The programmer connects to a host computer using a standard RS232 serial port. All the programming 'intelligence' is built into the programmer so you do not need any special hardware to run it. Programmer comes with window based software for easy programming of the devices.

4. CONCLUSION

We proposed an approach for effectively sharing different types of haptic devices and designing various haptic applications. We exemplified our approach through the design and development of an electronic voting system. The system uses an easy-to-use touch panel display with embedded tactile feedback function. It allows the weak in information technology such as the elderly and blind users to easily confirm, select, and vote their supporting candidates without any assistance.

We conducted a preliminary experiment for verifying whether the system can generate tactile effect vocabulary effective for discriminating multiple candidates only through touch sensations. Although our project is at an early stage, the result is promising. Because we are also working on developing some other practical application systems and tactile effect design tools, we would also like to conduct more thorough evaluations by using other applications and tools in the near future.

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