SECURED VOTING MACHINE WITH TOUCH SCREEN & SMART CARD

ABSTRACT:

Secured voting machine with touch screen and smart card embedded system project main idea is to develop a voting machine which can increase security of voting. This secured voting machine will provide a easy user friendly display and high security where there will be no chances of malpractice.

By developing this touch screen voting system project users can overcome disadvantages that are seen in present system. This system provides simple and easy procedure for voting where villagers can use it easily. And this will reduce rigging procedure in voting.

Here the Touch Screen with a micro Controller will be designed and connected to the voting Machine through the serial port of the computer. The voting symbols are displayed on the screen. IF a person has to vote he has to first swipe the card on the computer. The VB program in the Computer will capture the serial port. The PCB is designed by using Express PCB & the circuit is designed by using Proteus software.

COMPONENTS USED:

- Power Supply 5v DC - 7805
- Micro controller - AT89S52-Atmel (www.Atmel.Com)
- External EEPROM memory - AT24C02/4/8/16/32A
- LCD - (Liquid crystal display) 2 x16
- Real Time Clock (RTC) - DS1307
- Serial Communication - MAX 232
- Buzzer - Freq-1 to 18 kHz (5v-12Vdc)
- Smart card reader
- Touch screen sensor

SOFTWARE USED:

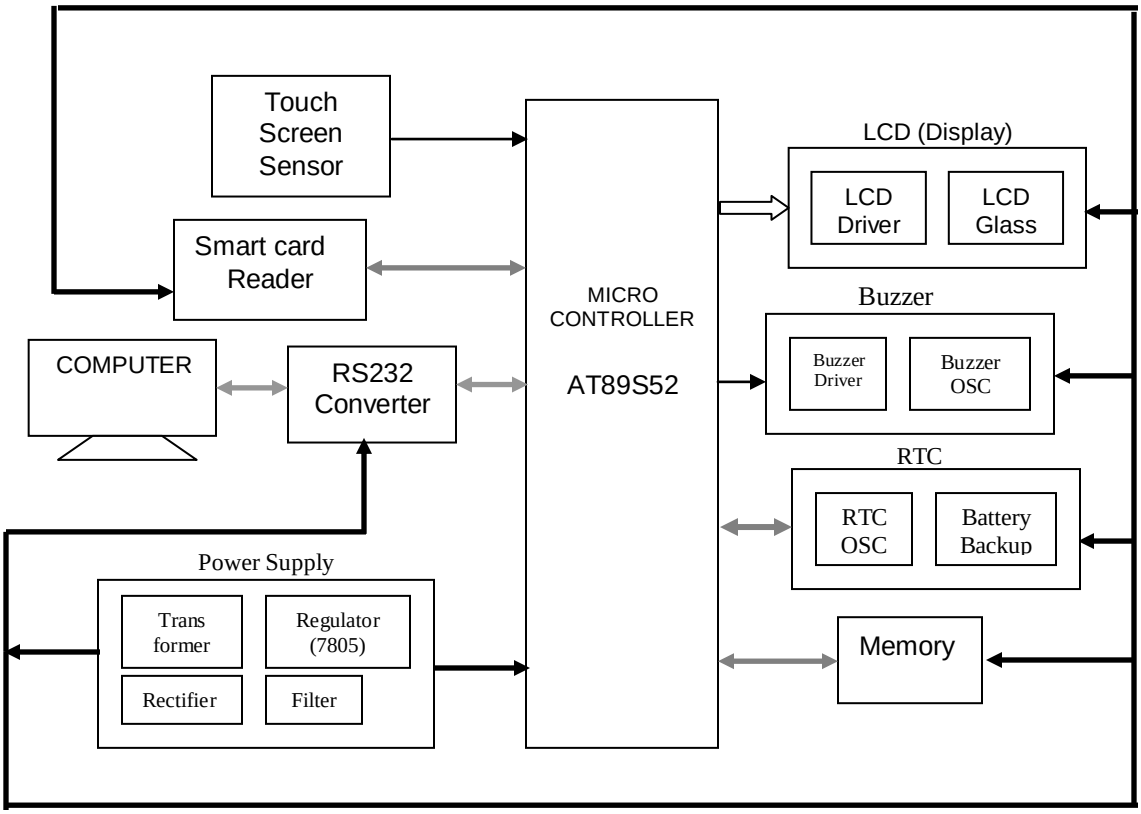
- Embedded C
- Visual Basics (VB).

WORKING PRINCIPLE:

The Touch screen with microcontroller will be connected to the PC serial port. The program in VB with the voting machine software will be running. When a person wants to vote he/she has to touch the Screen. All the symbols are displayed on the screen.

The controller will read this and sends the details to the computer serial port. The VB program will recover this data and check for authorization and send the permission to the micro controller to allow this person to vote. If the micro controller gets the permission it will enable the voting buttons. If not permitted it will display “ACCESS DENIED” with buzzer sound. At the end of the day the VB program will calculate and give the voting result.

Block Diagram



COMPONENT APPLICATIONS:

Power supply:

The microcontroller and other devices get power supply from AC to Dc adapter through voltage regulator. The adapter output voltage will be 12V DC non-regulated. The 7805 voltage regulators are used to convert 12 V to 5VDC.

Vital role of power supply in 'Secured voting machine with Touch screen and Smart card' the adapter output voltage will be 12V DC non-regulated. The 7805/7812 voltage regulators are used to convert 12 V to 5V/12V DC.

Microcontroller:

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density nonvolatile memory technology and is compatible with the industry- standard 80C51 instruction set and pin out.

Features:

8K Bytes of In-System Programmable (ISP) Flash Memory
Endurance: 1000 Write/Erase Cycles
4.0V to 5.5V Operating Range
256 x 8-bit Internal RAM
32 Programmable I/O Lines
Full Duplex UART Serial Channel
Fully Static Operation: 0 Hz to 33 MHz

Vital role of Micro controller-AT89S52 in 'Secured voting machine with Touch screen and Smart card' is used to Control all the operation.

Memory:

These memory devices are used to store the data for off line process. The AT24C02A / 04A/ 08A/ 32/64 provides 2048/4096/8192/32,768/65,536 bits of serial electrically erasable and programmable read only memory (EEPROM) organized as 56/512/1024/4096/8192 words of 8 bits each. The device is optimized for use in many industrial and commercial applications where low power and low voltage operation are essential. The AT24C02A/04A/08A is available in space saving 8-pin PDIP.

Features

Internally Organized 256 x 8 (2K), 512 x 8 (4K) or 1024 x 8 (8K)
2-Wire Serial Interface (I2C protocol)
High Reliability
– Endurance: 1 Million Write Cycles
– Data Retention: 100 Years
– ESD Protection: >3000V

Vital role of External EEPROM memory in this project 'Secured voting machine with Touch screen and Smart card' is used to store the received data.

RS 232 CONVERTER (MAX 232N) Serial Port:

This is the device, which is used to convert TTL/RS232 vice versa.

RS-232Protocol

RS-232 was created for one purpose, to interface between Data Terminal Equipment (DTE) and Data Communications Equipment (DCE) employing serial binary data interchange. So as stated the DTE is the terminal or computer and the DCE is the modem or other communications device.

RS-232 pin-outs for IBM compatible computers are shown below. There are two configurations that are typically used: one for a 9-pin connector and the other for a 25-pin connector.

9-pin RS-232 Pin-out

PIN	DESIGNATION
1	Data Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Signal Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator

Buzzer:

The buzzer subsystem produces a 2 KHz audible tone when powered. The buzzer will sound when the signal coming into the driver is high. It must be connected to a transistor, Darlington or transducer driver subsystem.

The buzzer is connected between the supply rail (+V) and the input signal. This acts as **load** on the driver. When the input signal coming into the buzzer subsystem is low, a **potential difference** across the buzzer causes current to flow. It is this flow of current that causes the buzzer to sound.

Vital role of buzzer in this project 'Secured voting machine with Touch screen and Smart card' is used to indicate normal/abnormal/active/deactivate condition of system/peripherals.

Real Time Clock (RTC – DS1307)

This is used to maintain the current time in off line processing. The DS1307 Serial Real-Time Clock is a low power; full binary-coded decimal (BCD) clock/calendar plus 56 bytes of NV SRAM. Address and data are transferred serially via a 2-wire, bi-directional bus. The clock/calendar provides seconds, minutes, hours, day, date, month, and year information. The end of the month date is automatically adjusted for months with fewer than 31 days, including corrections for leap year. The clock operates in either the 24-hour or 12-hour format with AM/PM indicator. The DS1307 has a built-in power sense circuit that detects power failures and automatically switches to the battery supply.

Features

It uses I2C protocol

_ Real-time clock (RTC) counts seconds, minutes, hours, date of the month, month, and day of the week, and year with leap-year compensation valid up to 2100.

_Two-wire serial interface Consumes less than 500nA in battery backup mode with oscillator running

Vital role of RTC in this project 'Secured voting machine with Touch screen and Smart card' is used to get the current time.

LCD:

LCDs can add a lot to your application in terms of providing an useful interface for the user, debugging an application or just giving it a "professional" look. The most common type of LCD controller is the Hitatchi 44780, which provides a relatively simple interface between a processor and an LCD. Inexperienced designers do often not attempt using this interface and programmers because it is difficult to find good documentation on the interface, initializing the interface can be a problem and the displays themselves are expensive.

LCD has single line display, Two-line display, four line display. Every line has 16 characters.

Vital role of LCD in this project 'Secured voting machine with Touch screen and Smart card' is used to display the corresponding action in written form.

Touch Screen sensor:

A Touch Screen with a micro Controller will be designed and connected to the voting Machine through the serial port of the computer. The VB program in the computer will capture the serial port.

Smart card reader:

Smart card reader is used to store the ID number & other details of the Authorized persons.

APPLICATION OF THIS PROJECT:

- Touch screen is used in Banks, ATM, & in online Booking centers etc.