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ELECTRONIC VOTING MACHINE BASED ON 8051

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ABSTRACT

The project Electronic voting system is an interesting project which uses 89S52 microcontroller as its CPU. Voters can give their vote to of the contestant. The 89S52 microcontroller has four ports of each eight pins. In this project one port is allowed for micro switches for four contestants, master switch for polling officer. Four LEDs are connected to switch for indication. A simple also powerful program is written in 'C' language and filled into the microcontroller to accept votes and to count total votes.

In this project we used RFID module and RTC for identifying information of that particular voter which include in microcontroller according to tag ID's with proper timing information. Every voter should get approval with his control switch, and then only a voter can give his vote.A buzzer is provided for audio effect of switch connection.

KEYWORDS: Microcontroller, RTC, RFID module, buzzer, LEDs, LCD 16*4 display.

INTRODUCTION

1. India is the largest democracy of the world. People's active participation in the formation of the government is an important aspect of a democratic government. This is ensured by elections. Conducting free and fair elections in a populous country like India is an upgrade task . It's challenge to conduct elections for selection of candidates to represent the people of the country at different levels. Even more important is the timely declaration of results. This is necessary to bring stability in the governance and steady economic growth of the nation.
2. An ELECTRONIC VOTING MACHINE is an answer to all above problems. It's a technicaly masterpiece. Many countries world over have shown their interest in learning the mechanism behind this simple yet powerful machine. Its got a very simple interface, its tamperproof, prevents bogus voting and it has helped in getting rid of the time consuming task of counting.

BLOCK DIAGRAM

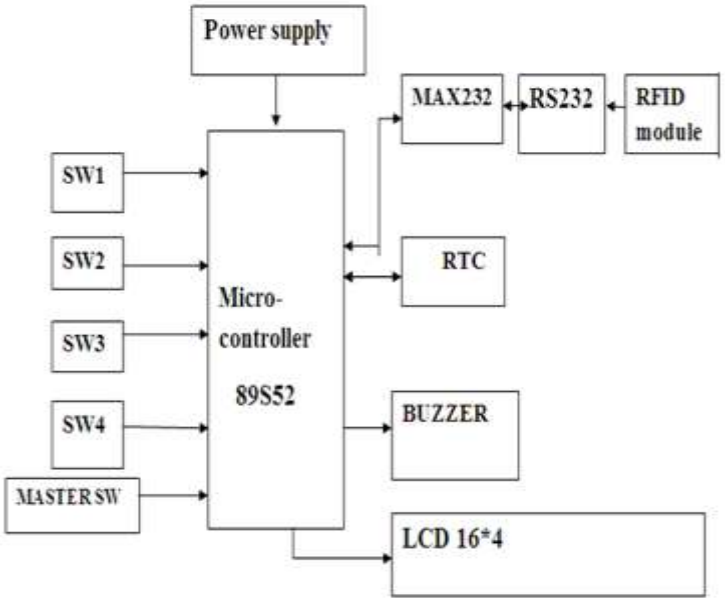

Fig a):-Block Diagram of electronic voting machine based on microcontroller.

Block Diagram Description

1. Keypad:-We have 5 keys on the keypad .Out of that four keys are used for respective candidate and one key is master switch. This block is used in both voting and counting mode.
2. Microcontroller:- In this project AT89S52 microcontroller are used. It has 8k-byte flash memory. It works on 5V DC supply, inbuilt three 16 bit timers/counters. It required 256*8-bit internal RAM. For communication, full duplex UART serial channel. Microcontroller senses the signal given from switches and decides the mode of operation.
3. RFID module:- In this project EM-18 RFID Reader are used. It operating at 125 khz is an inexpensive solution for our asked application. The Reader module comes with an on-chip antenna and can be powered up with a 5V power supply. Power –up the module and connect the transmit pin of the module to receive pin of our microcontroller.
4. RTC (Real Time Clock):-RTC is a non-volatile RAM memory. CMOS is an on-board, RTC counts seconds, minutes, hours, date of the month, month, day of the week, and year with leap-year compensation valid up to 2100. It has 56 byte RAM for data storage.
5. MAX232:-The MAX232 is an integrated circuit that converts signals from a TIA-232(RS232) serial port to signals suitable for use in TTL compatible digital logic circuits. The MAX232 is a dual driver/receiver and typically converts the RX, TX, CTS and RTS signal.
6. RS232:- RS232 is serial communication protocol it used for exchanging logic data modem to microcontroller and microcontroller to modem.
7. LCD 16*4DISPLAY:-It is a 16 pin LCD(Liquid crystal Display) four line 16 character. The same circuit which was built for a16*4 LCD display can be used with a 16*4 LCD display with no hardware changes needed at all. Even the program written for the 16*2 display works fine with the 16*4 LCD display except that we will only be able to display on the first two lines only so separate commands for setting the cursor at the required line in these displays.
8. Buzzer: - Pressing of any key in voting mode is indicated by a buzzer sound.

Flow Chart:-

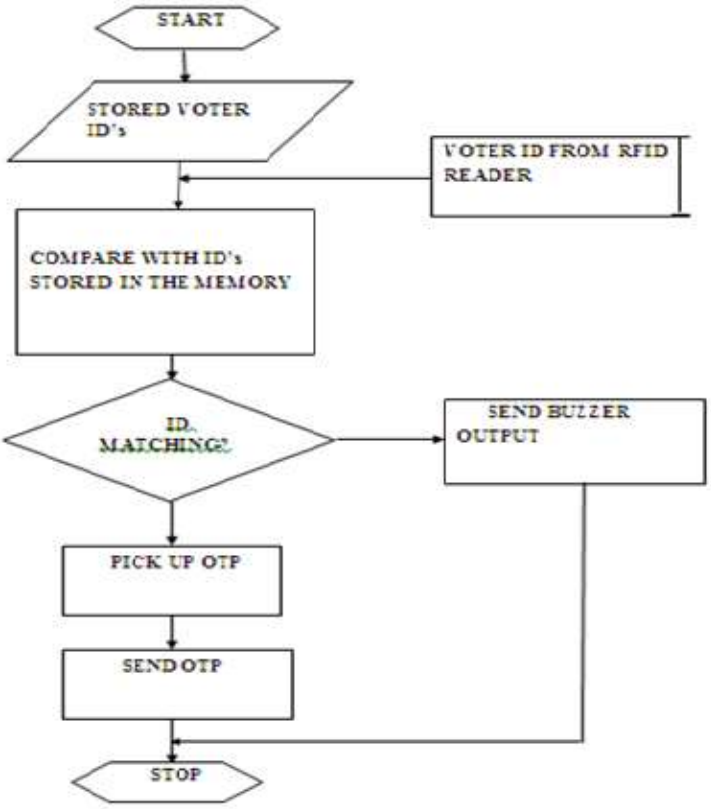

Fig b):- Flowchart of the main process in the system

CIRCUIT DIAGRAM

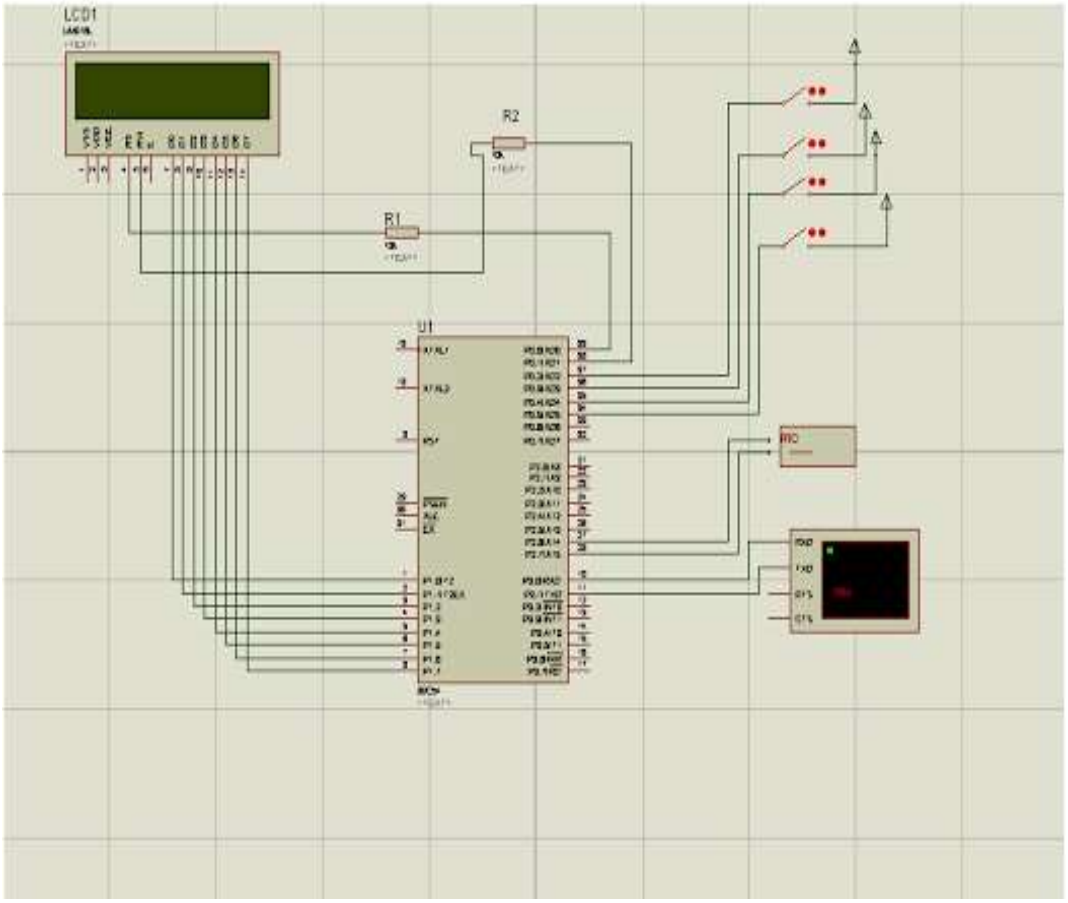

Fig c):- Circuit Diagram of Electronic voting machine

Working of project

1. 230 AC mains supply is applied to the primary winding of step down transformer after rectification and filtration we get pure DC supply for getting constant DC voltage we used voltage regulating IC 7805 .
2. This 5V DC is gives to the microcontroller for starting operation firstly swap the tag on the RFID Reader here we used tag which is passive so it not required supply.
3. A semiconductor chip attached to the antenna and some form of encapsulation.
4. The tag reader is responsible for powering and communicating with a tag. The tag antenna captures energy and transfers the tag's ID (the tag's chip coordinates this process).
5. Then Reader read tag's ID and gives acknowledgement to the microcontroller through MAX232 and RS232 protocol.
6. According to tag's ID information stored in program microcontroller send to the LCD. After displaying information microcontroller send signal to the LCD "Please any key press".
7. Then voter can gives vote which they want to any candidate. Then voter which keys is pressed related to that result is occurred and that result is display on LCD with gives proper timing by using RTC and RTC is communicate to the microcontroller through I^2C bus protocol.These procedure is repeat again and again up to its time limitation but this can do different voter not single voter vote again and again.
8. In counting mode check the votes of respective candidate and display final result in LCD.
9. When any key is pressed then buzzer indicates sound.

ADVANTAGES

1. It is economical.
2. Less manpower required.
3. Time conscious, as less time required for voting and counting.
4. Avoids invalid voting during voting process.
5. Saves transportation cost due to its compact size.

6. Low maintenance and improves its security.

DISADVANTAGES

1. Interference due to EMI waves.
2. In actual polling both the number of voters will be much more. So an external memory can be used.

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FUTURE SCOPE

1. In future this can be replaced with face-detection technology.
2. GSM technology should be used for voting.

CONCLUSION

In previous voting machine more manpower required so we used in this project RFID module for reducing manpower and for more security. This machine is more convenient than older voting machine for this purpose we used electronic voting machine by using RFID module.

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