

Design of Electronic Voting Machine using Microcontroller

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Abstract:

This project describes a microcontroller based Electronic Voting Machine which can be used in real time systems. The system is constructed using AT89C51 (microcontroller), Voltage Regulator 7805 and its software program is written with assembly language. It is an effective tool for voting ,it is a combination of mechanical electromechanical and electronic equipment and is used to display election results and to maintain and produce any audit trial information which can be used in real time systems.

Keywords: microcontroller, lcd screen, led, switch, piezobuzzer, voltage regulator.

I. INTRODUCTION

The AT89C51 microcontroller used in this project is a low-power high-performance cmos 8-bit microcomputer with 4k bytes of flash programmable and erasable read only memory (perom). The device is manufactured using atmel's high-density nonvolatile memory technology and is compatible with the industry standardmcs-51 instruction set and pinout.The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89C51 is a powerful microcomputer which provides a highly-flexible and cost-effective solution to many embedded control applications.

The AT89C51 provides the following standard features: 4K bytes of Flash, 128 bytes of RAM, 32 I/O lines, two 16-bit timer/counters, a five vector two-level interrupt architecture, a full duplex serial port, on-chip oscillator and clock circuitry. In addition, the AT89C51 is designed with static logic for operation down to zero frequency and supports two software selectable power saving modes. The Idle Mode stops the CPU while allowing the RAM, timer/counters, serial port and interrupt system to continue functioning.

II. MY PROJECT

Electronic Voting Machine (EVM) retains all the characteristics of voting by ballot papers, while

making polling a lot more expedient. Being fast and absolutely reliable the EVM saves considerable time, money and manpower. It also helps to maintain total voting secrecy without the use of ballot papers. The EVM is 100% temper proof and at the end of the polling, just press a button and you get the result.

Electronic voting machine has become a very effective tool since it was introduced. Because of its precision, reliability and secrecy while voting it has become very popular. Since it doesn't require any manpower it is more economical and also avoids any kind of malpractice and invalid votes. It is also convenient to the voter as he/she has to just press one key whichever belongs to the candidate.

III. BLOCK DIAGRAM

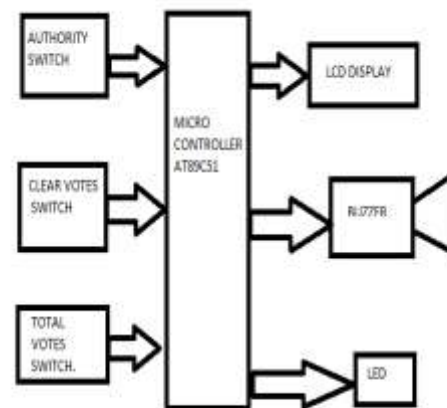


Fig.1 Shows block diagram of EVM

IV. BLOCK DESCRIPTION

1.MICROCONTROLLER

Microcontroller sends the signal given from switches and decides the mode of operation. In voting mode, it increments the data for corresponding key i.e., respective candidate as well

as it sends signal to display block to indicate one key is pressed. In counting mode, microcontrollers fetches data from memory location and send it to display devices.

2.LCD

Liquid Crystal Display which is commonly known as LCD is an alphanumeric display it means that it can display alphabets, numbers as well as special symbols thus LCD is a user friendly display device which can be used for displaying various messages unlike seven segment display which can display only number and some of the alphabets. The only disadvantages of LCD over seven segment is that seven segment is robust display and can be visualised from a longer distance as compared to LCD. Here I have used 16*2 alphanumeric display which means on this display i can display two lines with maximum of 16 character in one line.

3.LED

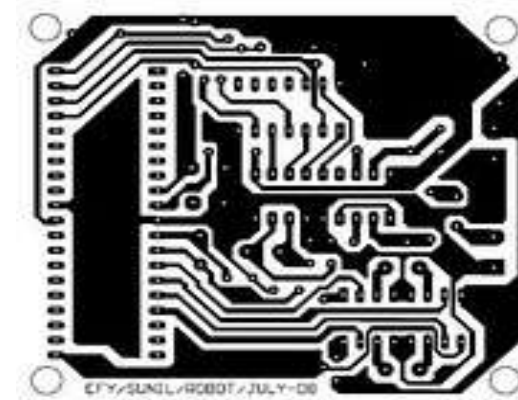
Light Emitting Diode is a semiconductor light source. LEDs are used as indicator lamps in many devices and are increasingly used for other lighting. LEDs are used in application as driver as replacement for aviation lighting, automotive lighting (particularly brake lamps, turn signal and indicators) as well as in traffic signal.

4.CONTROL SWITCHES

There are three control switches:
Clear Votes,Controller Switch,Total Votes.

followed by “please vote”. After a vote being given, control switch being pressed by the voting authority.
ii) Counting Mode: when toggle switch is in the counting mode “Counting Mode” is displayed on the screen and total number of votes to respective candidate can be displayed on the screen by the pressing the respective key assigned to them.
3. Clear Mode: clear switch should be pressed before voting procedure.
4. Buzzer indication: Buzzer sound indicate the pressing of key in voting mode.
5. Controller switch: this switch is provided for enabling the keypad in voting mode. This switch is under the control of voting authority.

VII. PCB LAYOUT



VIII. CONCLUSION

In this paper, we have described the specification and architecture of a Electronic Voting Machine. Various fault-tolerance and security issues are delegated to the platform itself, therefore relieving the application designer from accommodating these features in application design itself. This approach allows for the easy development and deployment of applications. The project is further economical as less manpower is required and also saves transportation cost due to its compact size. It is also time conscious, as less time is required for voting and counting. It avoids any invade voting and the secrecy of the voter is highly maintained. Overall it is a very effective project and convenient on the part of voter.

V.CIRCUIT DIAGRAM

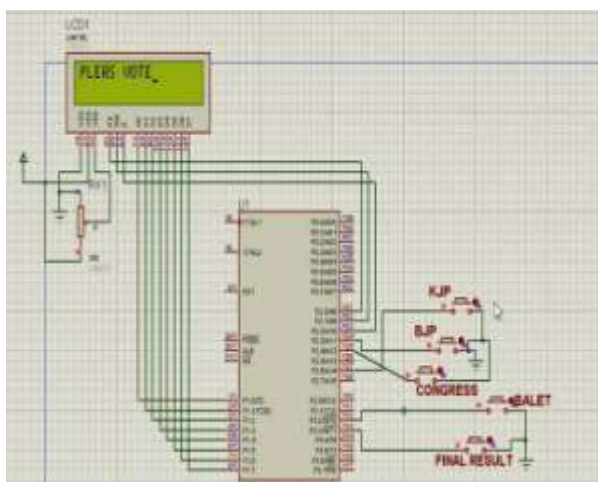


Fig. 2:Shows the proteus version of the system.

VI. CIRCUIT DESCRIPTION

1. Power on: when supply is turned on RED LED glows.
2. Mode selection: i) voting mode: when toggle switch in voting mode “voting mode” is displayed

IX. RESULT AND ANALYSIS

- The voting machine works accordingly as per the system design

- There are two three switches for voting and one is for the result each of them is working accordingly
- The result is displayed on the LCD screen and the number of votes for the respective parties are displayed
- The reset button is also used and the button works accordingly.

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