

A LITERATURE SURVEY ON MICRO-CONTROLLER BASED SMART ELECTRONIC VOTING MACHINE SYSTEM

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Abstract:

A voting system provides rules and regulations to ensure valid selection of leader by people. This survey describes a new scheme called Smart Electronic Voting Machine based on PIC Micro controller. The working process of this machine is easy to understand and easy to operate and it should be consistent and error free as compared to manual voting system where the manual design is slower, poses full day tiredness on people and chances of errors are greater. In microcontroller system voter polls a vote very easily by pressing a poll button and final results are displayed in zero time by just pressing a result button.

Keywords: Electronic Voting Machine (EVM), Direct Recording Electronics (DRE), Control Unit (CU), and smart electronic systems.

1. INTRODUCTION

Voting

People decide that who is going to rule or who gets the power through a process called "voting". The voting is not a fresh idea rather it is as old as the history of mankind itself is. All over the history different methods and techniques of voting have been adopted. This system was designed like all concerned parties acting as candidates as well as voters that are polling the votes must be satisfied with the announcement of results after elections have been conducted. Atmosphere of voting and conducting elections basically depends upon the cultural values as well as political policies.

A voting is a method in which voters make a choice between options, often in an election.

Voting System

The old methods of voting are also being changed to match the trends in the other fields of life. Now the current voting system is migrating from the conventional ballot papers and boxes to the microcontroller methods.

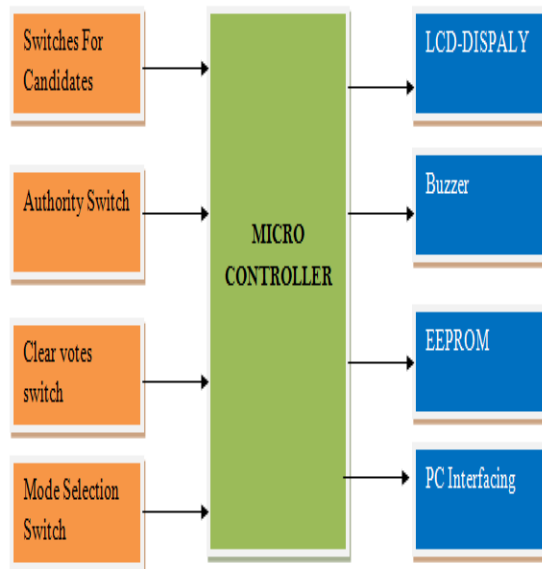
Electronic Voting

The term electronic voting is also called as e-voting which represents many different types of voting for both casting and counting of votes using electronic devices.

Electronic Voting Machine

In Electronic voting machine a citizen can poll his/her vote register through a smart card. After every poll of vote the subsequent count can be seen on LCD interface. The final result also displayed on a interface by pressing a single button.

Block Diagram:



Description in detail:

The “Electronic Voting Machine” basically consists of four main components. These components are Keypad, Microcontroller, LCD Display and Control switches.

1) Keypad:In both voting and counting mode this block is used. In voting mode the key used to poll vote. In counting mode the keypad is used to check the votes of respective candidate. When the key given for candidate is pressed and micro controller senses the corresponding signal.

2) Micro controller:Based on the output signal from switches the micro controller decides the mode of operation. In voting

mode micro controllers fetches the data from display mode to memory location block to indicate one key is pressed. In counting mode micro controllers fetch data from memory location and then send it to display devices.

3) LCD display:LCD is commonly known as Liquid Crystal Display it is also called as an Alphanumeric Display which means that it can display Alphabets (A-Z and a-z), Numbers (0-9) as well as special symbols. This is a user friendly Display device which can be used for displaying various messages unlike seven segment displays which can display only numbers (0-9) and some of the alphabets. The seven segment display is robust and be visualized from a longer distance as compared to LCD. The 16 x 2 alphanumeric displays can show two lines with maximum of 16 characters in one line.

4) Control switches:Three control switches are used here:

Clear Votes. : - the Presiding Officer will press the clear button to clear the result of the mock poll before commencing the actual poll.

Controller switch:-

Then the operator allows the voter to poll vote by pressing his/her controller switch

Mode selection switch:-Select either poll mode or count mode.

II.EXISTING SYSTEM

[1] In 2013 Atiya Parveen¹, Sobia Habib², Saoud Sarwar³, worked on “Scope and Limitation of Electronic Voting System” In Paper Based Process the election workers will visit the residential addresses to ensure that those persons actually live there and ascertain that they have given the correct information about themselves. After validation, a identification card will be issued to the voter.

A lot of paper work was concerned in the whole procedure. Appropriate training will be required for the staff members in charge of polling duty. At polling date, the concerned staff members are required to be present half hour prior to the opening of the polling booth/station to check that all arrangements have been done correctly.

Advantages:-

- Easy To Understand

[2] In 2008 Tigran Antonyan, Seda Davtyan, Sotirios Kentros, Aggelos Kiayias, Laurent Michel, Nicolas Nicolaou, Alexander Russell, Alexander A. Shvartsman, Worked on Optical scan voting system which was usually safer because they naturally provide a voter verifiable paper which enables hand-counted audits and recounts that rely on direct voter input.

Advantages:-

- General auditing procedures used to enhance the integrity of elections conducted with optical scan equipment.

[3] In 2007 Michael D. Byrne, Kristen K. Greene, Sarah P. Everett, propose a scheme called “Punch Card Method” based on the Votomatic system. This system uses a special cards where each possible hole is pre-scored and allowing perforations to be made by the voter pressing a stylus through a guide in the voting machine. Scoring of the punch cards was also done by hand and not by a punchcard reader

Advantages:-

- They do not suffer touchscreen calibration problem

[1] In 2013 Atiya Parveen¹, Sobia Habib², Saoud Sarwar³. Worked on “Scope and Limitation of Electronic Voting System”. This paper explains “document ballot voting system” which were marked by hands on ballot paper in this scheme. Counting of votes done electronically. The examples of this system are Punch card voting, mark sense and Digital pen voting systems.

Advantages:-

- The government is to store voter's information on a database, which can be retrieved on a paper along with photo on the election date to facilitate security.

[4] In 2014 Sahibzada Muhammad Ali, Chaudhary Arshad Mehmood, Ahsan Khawja, Rahat Nasim, Muhammad Jawad, Saeda Usman, Sikandar Khan, Saqib Salahuddin, Mian Atif Ihsan, Worked on "Micro-Controller Based Smart Electronic Voting Machine System" which uses mechanical or electro-optical component like touch screen to provide ballot display. This machine was programmed to record voting data and then tabulates the voting data. Finally the results may be stored on removable memory or provided as printed copy. There may be a means of transmitting the individual ballots or vote totals to a central location for formation of final results.

Advantages

- Security.
- Reliability.

[1] In 2013 Atiya Parveen¹, Sobia Habib², Saoud Sarwar³ worked on "Scope and Limitation of Electronic Voting System". A public network Direct-Recording Electronic voting system is an election system that uses electronic ballots and transmits vote data from the polling place to another location over a public Network. The Vote data may be transmitted as individual ballots as they are cast or

periodically as batches of ballots throughout the Election Day or as one batch at the close of voting. This scheme includes Internet voting as well as telephone voting. Two methods are used in Public network DRE voting system they are pre count or central count method. The central count method forms a table from multiple precounts at a central location. The Internet voting can use remote locations (voting from any Internet capable computer) or can use traditional polling locations with voting booths consisting of Internet connected computers. Corporations and organizations can use Internet voting to elect officers and Board members and for other proxy elections.

Advantages:-

- Unity, reliability, isolation, reusability, eligibility, justice, and verifiability.
- Low computation complexity is required in portable communication devices because of the blind signature scheme.

A.PROBLEM STATEMENT

- **Paper Based Process-Time** Consuming.
- **Optical Scan System**-Suffer from various security vulnerabilities.
- **Punch Cards**- A problem with this system is the incomplete punch; this can lead to a smaller hole than expected

- **Paper-based electronic voting system-** This process can be boring and error prone and costly.
- **Direct-Recording Electronic (DRE) voting system-**
 1. Expense
 2. they will still ultimately fail if there are substantial usability problems
 3. Use of telephonic network, private computer network and internet.
- **Public Network DRE Voting System**
 Frustrated workers attempting to determine voter intent from ambiguous punch cards.

III. PROPOSED SYSTEM

The voting machine design proposed in this system is appropriate and highly secured. The simulation of the machine is working properly under normal conditions. Votes can be casted by pressing the switches on the machine and infrared sensors have been used to track the voter entries. The count of the voter entries previously stored in the register is matched with the total votes casted to avoid any mistakes thus making the system more protected. After entering the valid password the result button will be pressed to view result.

Table 1:-Comparative Study on Existing vs. Proposed System

| Methods | Existing | Proposed |
|--------------------|--|---------------------------------|
| Technique | <ul style="list-style-type: none"> • Paper Based Process • Optical Scan System • Punch Cards • Paper-based electronic voting system • Direct-Recording Electronic (DRE) voting system • Public Network DRE Voting System | MICRO-CONTROLLER BASED E-VOTING |
| Components | Ballot papers and boxes | electronic methods |
| Calculation | Machine/Manual Calculation | Machine Calculation Only |

Advantages

- It is economical
- Less manpower required
- Time conscious, as less time required for voting & counting
- Avoids invalid voting
- Saves transportation cost
- Convenient on the part of voter.
- The proposed EVM could be used for voting purpose at any required place.

Features of Proposed System

- **Electronic ballots**

This system makes use of electronic ballots which eliminates the risk of ballot paper supply and cost of printing the ballot papers. It can be easily programmed so which comes in different languages by using a single machine. It saves a lot of effort because otherwise the country has to make more types of ballots for each state with different languages.

- **Accessibility**

Persons with disabilities can fully access the electronic voting machines. Blinds or visually impaired cannot use punch card and optical scan machine. Electronic machines can provide necessary accessibility by making use of headphones and other adaptive technology.

- **Voter's intent**

Voter's intent can be successfully determined using immediate feedback system.

- **Transparency**

Electronic voting reduces the possibility of fraud on a large scale. Because its code is not accessible and cannot be changed once it is burnt.

IV. CONCLUSION

The implementation of Electronic Voting Machine is surveyed successfully and validated from software and hardware

point of view. So it is a fast method of conducting elections and fair counting.

V. REFERENCES

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