Indian J.Sci.Res. 16 (2): 144-146, 2017 ISSN: 0976-2876 (Print)
ISSN: 2250-0138(Online)

SCRUTINIZED ELECTRONIC VOTING MACHINE

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ABSTRACT

Elections in a democratic country are of utmost importance, providing peoplethe right to choose their representatives. If majority of these elected representatives are from the same group, then they rise to form a government. To ensure continuous and sustainable growth of a country in the right direction,it is very important for this voting system to be fair and for the citizen be vigilant towards their votes. The introduction of systems like Electronic Voting Machine into the election process makes the whole process very easy as any person can vote by justpressing of a button, which further responds with a long beep sound indicating a successful vote. The EVM makesvoting process very convenient and fast. But being sensitive in nature, it encapsulates what is inside, which invites suspicion to the authenticity of the process. Therefore, this voting process through electronic system must be designed and implemented in a way that incorporates transparency.Every voter should be eligible to see the vote he/she has casted, at the time of final result,thus assuring that the vote is casted to the desired candidate but not somebody else. The proposed system upgrades the existing Electronic voting machine by adding to it the vote scrutinize feature.

KEYWORDS: Electronic Voting Machine (EVM), Election, vote

The Electronic voting machine (EVM) as shown in Fig.1 has been in use for quite long but has not seen any major advancement even in this extremely upgrading and advancing technological world. The voting process is extremely crucial for a country. Therefore, its authorization and authenticity has to be ensured, thus making sure that the nation does not suffer. Such assurance could be achieved if we improve our voting process thatis, improving the EVM by incorporating the proposed Vote Scrutinize feature which provides reliable and immaculate results. This system will generate a Random Unique Identification(RUI) number at the moment an individual casts a vote. This RUI number specifies the Voter, the Political Party to whose candidate the vote was being casted, the date and time of casting the vote and the Poll Booth number. All this information will be issued to the voter andhe/she will be provided with a printed slip of paper with a RUI barcode.

RUI number is generated through a middleware between the Balloting Unit and Control Unit. Further the data from different databases is consolidated to get to the result and hence the final result with RUI and political party name is uploaded to the web servers of the Election commission. These results could be accessed by voters and hence could be reviewed.

A similar project named as Voter's Verifiable Paper Audit Trail system was implemented by The Election Commission of India at Chennai Central parliamentary constituency, Tamil Nadu. This system aimed at helping the voter to see the printout of the symbol of the candidate for whom they have cast their vote.

The symbol being printed by the machine was visible through a glass panel attached to the machine. This all new system was to facilitate the voters to check if their votes are casted to the desired candidates or not.

Fig.1: EVM, at the Election Commission, in New Delhi on June 21, 2011

EVM ELECTRONIC VOTING MACHINE (EVM)

An Electronic Voting Machine comprises of two Units:
1. Control Unit
2.Balloting Unit
These two units are joined together using cables as shown in Fig. 2.

The Balloting Unit is places inside the voting section where the voter casts theirvote whereas the Control Unit is operated by the Polling officer. Thus, the Polling officer operating the Control Unit enables the voters to cast its vote by pressing the Ballot button against his name. This does not require any ballot papers to be issued.

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Further, the voter casts his/her vote by pressing the blue button on the Balloting Unit against the candidate and symbol of his choice.

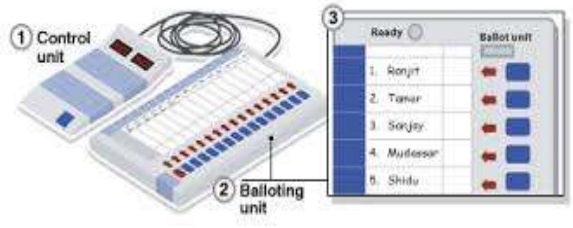

Fig. 2:The block diagram of EVM

The four main blocks of an Electronic Voting Machineare as follows:

Control Switches

i) Clear Votes switch
ii) Controller or Authority switch
iii) Mode selection switch

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LCD Display

LCD displays the number of Votes and other messages which may include warnings.

Microcontroller

Under the voting mode a Microcontroller receives signal from switch against the selected party or candidate and further increments the data in the memory for corresponding key i.e. for the respective selected candidate as shown in Fig. 3. The display unit also receives signal which further displays that a key is pressed.

The microcontroller fetches data from memory location under the counting mode andwhich is sent to the LCD display unit.

Keypad

Each key specify a candidate Keypad used for both modes that is voting and counting. Each key species a candidate therefore in voting mode, when the key against respective candidate is pressed, the microcontroller senses the corresponding signal and updates the database.

In counting mode, keypad is used to check the votes of respective candidate.

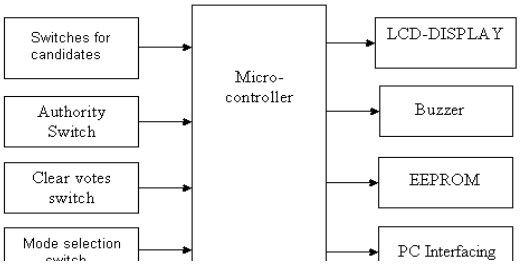

Fig. 3:Scrutinized Electronic Voting Machine (SEVM)

Scrutinized Electronic Voting Machine (SEVM) as shown in Fig 4is an enhancement to the already existing(EVM) which comprises of a (RUI)that generates a number with information about the voter and the chosen candidate. It also has a Balloting unit connected to the Control unit, and the connecting interface is handled by the RUI handling the transmission of signals between the respective units.

Such Enhancement increases the Authenticity and Reliability of the voting process which lacks the Electronic Voting Machines. Voting process being more reliable will attract people to vote and hence will collectively benefit the nation and nationals.

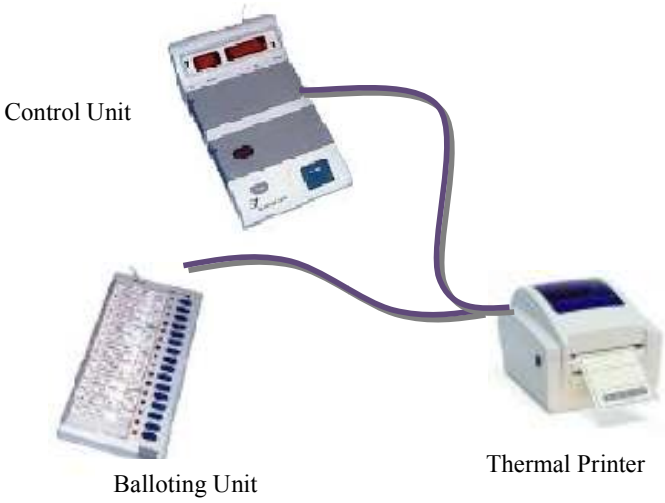

Fig. 4:SEVM *Equipment*

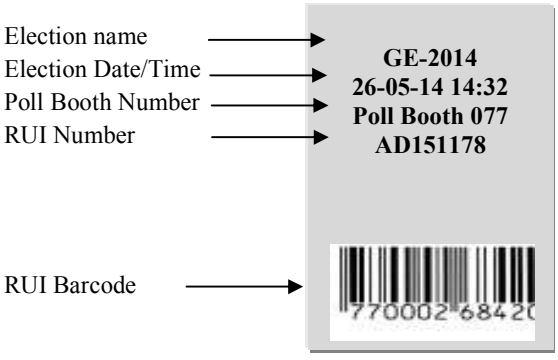

Fig. 5:*Acknowledgement Slip*

PROCEDURE FOR IMPLEMENTATION

Enhancement of the (EVM) with theincorporation of RUI unit will play very important role. This unit assigns a randomly generated (RUI) to every vote casted by the voter followed.

It further prints the RUI number on a small piece of paper for the voter as shown in Fig 5.

Procedure for the implementation of the proposed technique of SEVM is divided into stages so that the process could be understood with ease.

Each stage requires practical implementation which may incorporate four stages as follows:-

Stage 1

The Polling Officer who is in-charge of the Control Unit will press the Ballot Button thus enabling the voter to cast his/her vote. The voter further cast his/her vote by pressing the blue button on the Balloting Unit, which further sends the signal to the Controlling unit so that the data could be updated the Database.

Stage 2

Upon pressing a button on the keypad of the Balloting Unit of his/her choice the voter enables transmission of a signal, say **007** will transmit to the Control Unit through RUI . The RUI unit will capture and save the key data **007** along with an 8 character long (RUI) say **AD151178** in its internal nonvolatile memory as shown in the Table 1.

RUI number	Key Data
AD151178	**007**
AD131471	**005**
AD123194	**007**

Table 1:RUI unit Table

Stage 3

Election name, Election Date and Time, Poll Booth number, RUI number and an encrypted Barcode are printed on a small slip of paper using a Thermal Printer as shown in Fig. 5. This slip will be issued to the voter.

Stage 4

After election is over, all the RUI data will be uploaded on the web server, where a voter can verify the status of his/her vote through RUI number in the respective constituency area.

CONCLUSION

This paper emphasized on very important issue i.e. SEVM which is the heart of democratic countries like India .Such type of implementation makes the voting process effective ,fast and easy .It will also help in reduction of papers which will further serve more trees .Hence it will also help in improving environment also. Moreover it provides the facility of checking their votes that whether they have cast their vote to the desired candidate or not. Further if any kind of discrepancy occurred like (court case),in that case it will help much more than simple EVM.

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