

Core election voting system

Computerization of polling station

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Abstract—introductory idea is to simplify process of voting on poll day. Normal observation as voter, it is difficult to find out problem behind the process still observable phenomena are highly manual process to the polling station. CEVS (Core election voting system) is making simple process through computerization without affecting EVM (Electronic voting system) section. CEVS not focused to online voting system instead strictly emphasis on core voting process only which is before voter reach to the EVM section. Through the system government can get accurate real time data analysis without losing any confidential information. Costing for entire election process reduced by approximately one half by actual if successfully implements CEVS. Minimum human resource requirement with maximum data efficiency is key point to CEVS. Stakeholders for the system mentioned are governments, election commission and officers on election duty.

Key Words—Core election voting system (CEVS), Electronic Voting Machine (EVM), Election Commission, democracy

I. INTRODUCTION

Core election voting system (CEVS) means internal process of election on poll day like marking presence of voter, maintaining of voter list, submission of multiple formats related to voters, maintaining stationary etc. Voting procedure plays significant role in the conduct of free and fair election in democracy. Election of union legislature at national level and state legislature at state level has certain defined procedure to be followed at each level of election. Over here emphasis on lowest level and highest important level of election procedure is booth level where more number of person requires then top level. With highly manual core system election commission cannot get accurate data as what commission requires. To reduce human error as well as simplify the process and reduce tedious load on lowest level officer CEVS will become most efficient in all manner. Of course certain level of challenges need to face while moving to technology but always it can be managed if planed properly.

II. CONVENTIONAL VOTING PROCESS PROBLEM

- Expensive: manual system covers number of documents to be prepared as to support voting data analysis which requires lots of stationary at every single booth.
- Tedious paper work: election commission has normalized formats to be filled by officers on the day of election which are tedious in manner which has main aim to get analyzed voter data.
- Costly training require: due to lots of sensitive paper work no. of time training to the election officer is require for the day of election.
- Human error during data entry: Errors are part of all human begins. Difficult get fully efficient output from human.
- Loss of formats: A manual filled form has to submit to the commission which may loss of important information if lost by any election duty officer.
- Difficult to reach out stationary to the polling station: No. of stationary required to process the election in existing system which may have chance of missing important stationary.
- Wrong interpretation of formats by duty election officers: although training given by election commission to the duty officer, there are always difference in interpretation of formats and hence wrongly filled data reach to the commission which is common major problem.
- Counting voters manually creates mismatch with EVM: Existing method follows marking on voters list manually to make voter presence. Most of the time lack of alertness of duty officer makes mistake in marking and creates count mismatch with EVM which shows actual count of voters by machine.
- Time consuming: of course, manually process has its own process delay and depends on person efficiency which creates chaos to the polling station.
- Requires more man power: minimum 4-5 person requires at every polling station on the day of election. Most of them are assigned manual voting process flow handling.

III. CEVS DESIGN AND IMPLEMENTATION

Use of computer at polling station will overcome all above mentioned problems. Conceptually it is very clear that EVM section will not get affected by CEVS hence security of voting result is not issue. Only single or two election duty officer can efficiently handle polling station.

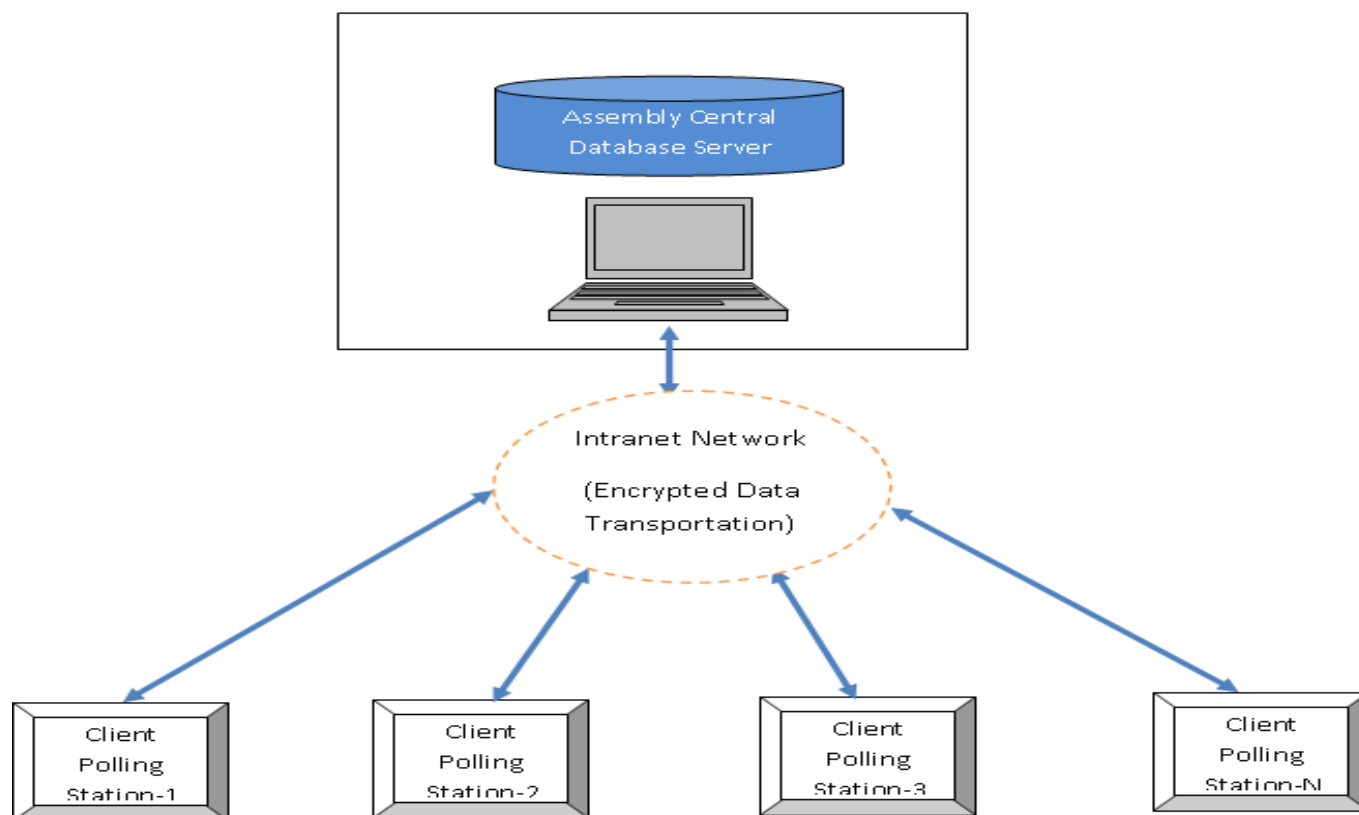


Fig. 1 CEVS system architecture

Technical Description

Assembly Central Database server: it is collection of voter's database which can be accessed by client or polling station system. Each voters identity can be verified by means of any unique id like aadhar no, voter id etc. to the polling station itself. Certain SSL certification can encrypt data with highest level possible security to meet secure transaction of data from server to client.

Client polling station: It is nothing but simple computer system with power backup which can handle 8 or more hours of backup. It requires security certificate to be installed to access central database. Web base software can handle all operation of poll day including identification and marking. Against manual process, software can handle complex reports and relevant real time information to the different level control users.

User clients and servers available on almost all platform http has now gained wide spread popularity in computer application. Online web base application can also be used at intranet level network and such network usually protected by dual home gateway and packet filter (firewall). Intranet network can be protected by cryptographic mechanism which is to transmit data in encrypted form or unreadable format, technically know as cipher text. It can be classified into two types,

- Public key cryptography
- Private key cryptography

Purpose of cryptographic mechanism over here is to provide security function to the environment. System integration with aadhar enable can improve utility of the system. Multiple mode of voter identification can make system more redundant like biometric, retina, chip base smart voter id card or manual verification.

IV. CEVS ELECTION PROCESS FLOW DESCRIPTION

Voter enters to the polling booth, first have to verify identity by any kind of devices like aadhar enabled biometric devices, retina scan, aadhar number, voter id card number and many more techniques or combination of this techniques. System will check identity and further check for the duplication of voter. If system finds duplicate voter or any other discrepancy during identity, straight generates error which is not allowed to process voter.

In case of unique voter found system will make new entry and change presence status of the voter to the system. Next step is to put physical mark on left hand of the voter. Next voter enters to the EVM section where voter puts votes for the candidate and walk out to the exit.

Process flow is same as what followed earlier except system verification and marking presence by system instead of manual.

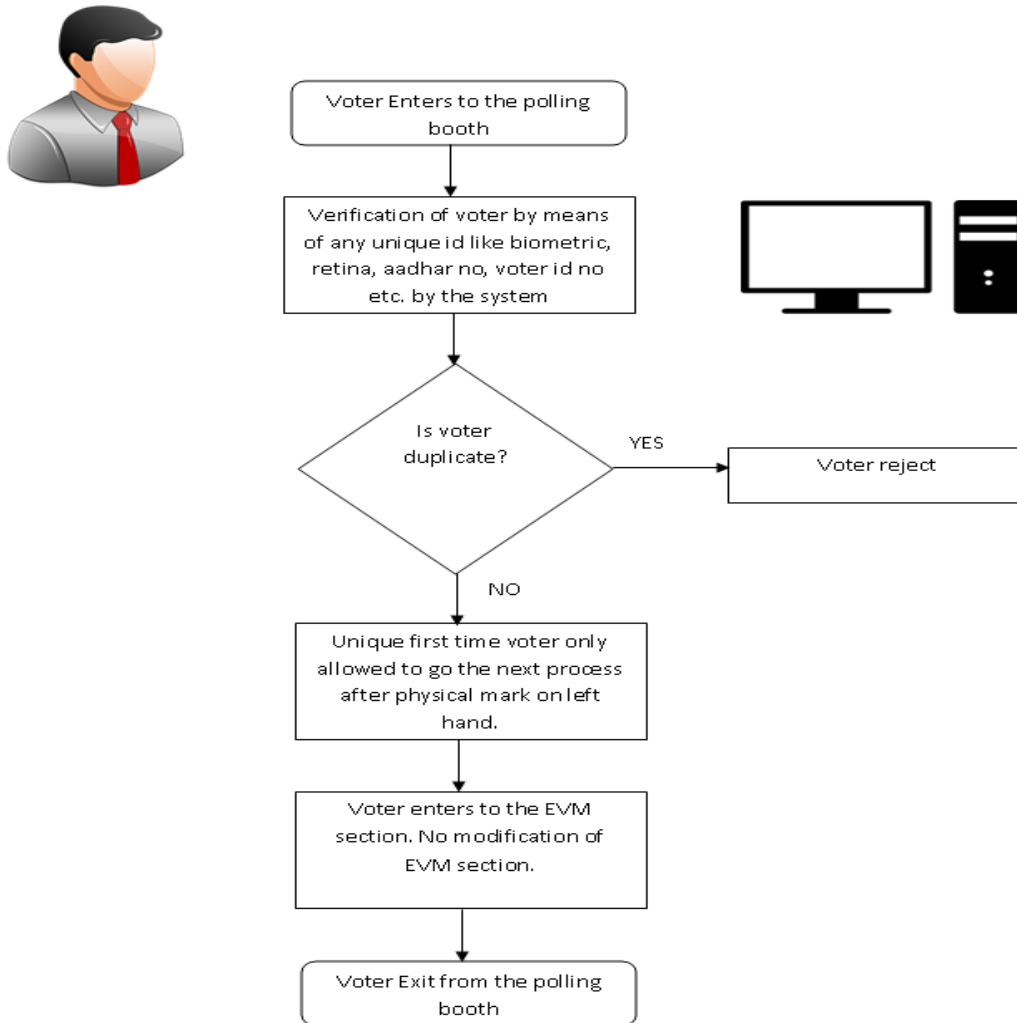


Fig.2 CEVS process flow diagram

CEVS doesnot change any conventional flow guided by election commission. CEVS meant for reduce human error, electoral fraud, manual labor etc.

V. CEVS ADVANTAGES

- Reduce man power required to conduct election
- Reduce wastage of stationary and hence money involve in that.
- Government money can be saved in large amount.
- Reduce training cost to the personal each time.
- Efficient data handling
- Real time analysis
- Prevention of electoral fraud



VI. CEVS CRITICAL TECHNICAL CHALLENGES

- Robust intranet network establishment and standby connectivity
- Data security up to highest level
- System requirement with battery backup

VII. CONCLUSION

Effective implementation of CEVS improves system flow by means of cost and labor. Overall universal trend is to make system totally online in secure manner which is still not set to the democratic voter's mind as transparent fair system. CEVS proves both the parameters integrity and effectiveness of the system.

VIII. REFERENCES

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