

# Secure Internet Voting System using QR code and Face Recognition

Madhuri Borkar  
SAE, Kondhwa, India

Rohini Deshmukh  
SAE, Kondhwa, India

Ritika Jujgar  
SAE, Kondhwa, India

Mrunal Kaware  
SAE, Kondhwa, India

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## Abstract

*In earlier times people were using various systems for electing their representative. But those systems were inefficient and had many drawbacks such as process were very time consuming, location constrained was crucial problem, less secured, laborious work etc. The proposed system i.e. "Secure Internet Voting System Using QR Code And Face Recognition" resolves all drawbacks of existing system. Important advantage of the system is that less time consuming, secured, location constrained is avoided, accuracy, minimum requirement of equipment's and skills.*

**Keywords-** QR code, Face recognition, EMV, DRE, RSA.

## 1. Introduction

This paper has been developed in an attempt to provide an objective introduction to the internet voting system including the information about the voting system technologies into the voting process. In this paper we are going to present the various Electronic voting methods like voting by Internet, telephone, punch card, and optical scan ballot, pros and cons of all voting types. I have also described how the evolution of various voting machines has been carried out. There is a discussion on some of the problem found in e-voting system.

This section is mainly concern of the discussion of the definition of the voting, importance of the voting. The subsequent section discuss the types of voting system and our new proposed secure voting system.

## 2.Literature Survey

There are various types of internet voting system. Following are the types of voting system:

1. Raise Your Hand or Raise Your Voice or Put Stick inBox-

Earlier days election was held by raising hands or shouting out 'Aye' or 'Nay'.



Figure1.Raise your hands

2. Paper Ballot (1858 Australian paper ballot introduced)-

Voter used to write eligible person's name on the paper and put that paper in ballot box secretly.



Figure2.Paper ballot

3. Lever Machine (1892, Mechanical lever voting machines)-

On mechanical lever voting machines, the name of each candidate or ballot issue choice is assigned a particular lever in a rectangular array of levers on the front of the machine. The voter pulls down selected levers to indicate choices.

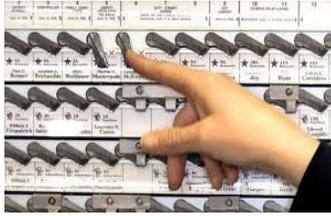


Figure3. Lever machine

4. Postal voting-  
 People also cast their votes through posting their votes on the place of voting.



Figure4.postal voting

5. Optical Scanning (Mark sense)(~1970, Optical mark-sense ballots)-  
 Voters mark their choice in a voting response location, usually filling a rectangle, circle or oval, or by completing an arrow. Then the sheet is scanned by optical scanner for final results.



Figure5. Optical Scanning

6. SMS and Phone through voting-  
 People can also cast their votes through messages or making call.



Figure7. SMS voting

7. Electronic voting machine system-The EVM consist of the electronic voting machine to cast a vote by pressing button in front of corresponding candidate.

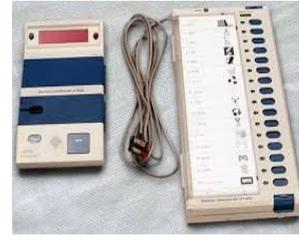


Figure8. EVM

8. Remote Electronic Voting [REV] (Online Voting) ~2000, Internet voting-  
 People can also cast their votes through internet in this system but the main disadvantage of it was the system get overloaded rapidly. Hence functionality of system affects.

### Proposed system:

In proposed machine that is "Secure Internet Voting System Using QR Code and Face Recognition" machine is made intelligent which can determine the eligibility of the voter by scanning the QR code and also the vote count is not kept into the same machine itself instead of it is stored in the remote server. Here there is no chance of increasing the vote count of machine. Even in case of damage to voting machine there will not be harm to continuity of the election process. This system having main four processes: firstly, application control process which involves the identification and authentication phases for the applied citizens. Secondly, the voting process which will be done by voter information. In Third section confirmation process, in this system check the image captured in application duration and match the image of voter which is online for giving vote for their identification. Finally the election server, administrator will sort out the final result by decipher the received encrypted information using private key.

### 3. Objective and scope

1. E-Voting machine is made intelligent which can determine the eligibility of the voter by scanning the QR code and also the vote count is not kept into the same machine itself instead of it is stored in the remote server. [12][6]
2. The web based e-voting system is more secure than the present system.
3. The location constraint is avoided in our system.

4. In future we can extend our project to cast a vote through mobiles.
5. New encryption algorithms can be applied in future to provide more security. [10]
6. Each and every person eligible to vote should get the opportunity to vote even if he is away from his native place or unable to cast a vote due to some problem.
7. To increase the percentage of voting.

#### 4. System Architecture

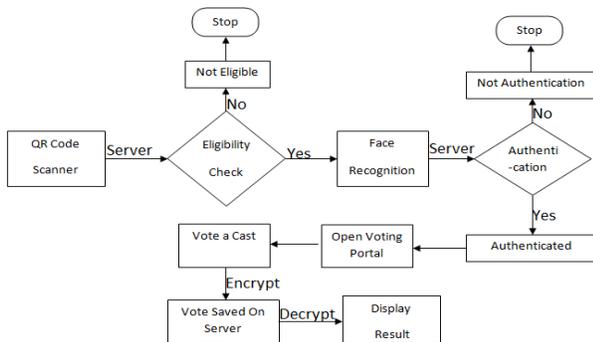


Figure9. System Architecture

Steps for internet voting system:

1. QR Code scanning - Used for data access and data validation. Cross check the data present in the database with scanned Adhar card.
2. Eligibility check - Check the age of user
3. Face recognition - Used for authentication.
4. Voting portal - Open voting web page for casting a vote
5. Display result.

#### Advantages:

1. Eligibility and authentication.
2. Uniqueness.
3. Accuracy.
4. Secrecy.
5. Minimum skill requirement for voter.
6. Minimal requirement of equipment.

#### Disadvantages:

1. Sufficient power supply required.
2. System is little bit complex.

#### 5. Conclusion

Thus this machine can be used for any level voting purpose. The secure web-based e-voting system provides high level of security, authentication, reliability, and corruption-free mechanism. In this e-voting system minimum manpower is utilized, hence mechanism is error free.

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