

# Secured online voting system using face recognition

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**ABSTRACT**— Now a day, voting for any social issue is important for modern democratic societies. Manual voting system is implemented for election from many years in our country. We have proposed online voting system and we are using face recognition to secure the system. System captures image and makes their shares and if the shares are matched then and then only the user can proceed for voting Otherwise, the user is considered as invalid user or voter.

## I. INTRODUCTION

As we seen there are many disadvantages of the manually voting system which is preferred now a day in India. Every person who wants to give vote has to stand in queue at the election booth. This will be more time as well as energy consuming process. To overcome these problems we are proposed online voting system. To make the system more secured the method introduced of biometrics technique like face recognition for voter's authentication.

By using the online voting system the voters can give vote to the right candidate and the frauds which are done at the time of election can be reduced. Frauds like bogus voting, dummy voting is identified. The purpose of this system is to reduce complexity and to improve the reliability towards the democracy.

## II. EXISTING SYSTEM

In the India, the manual voting system is still preferred which is accomplished in a single day, so the security of our valuable vote is not as much as considered. The huge amount of man power is required to maintain security. The poll allocation is done in advance by the election commission. Normally the polls are the schools or the community halls.

For voting purpose EVM i.e. Electronic Voting Machine is used. Voter has to press button on EVM machine against the name and symbol of candidate to give a vote to candidate of voter's choice. This voting method is preferably used for voting.

## III. PROPOSED SYSTEM

1. We proposed the Online Voting System using face recognition to provide more security for our valuable vote in election of leaders for our country.
2. First voter must register themselves, then they are valid voter to choose their leader after log-in to online voting system using user ID, system generated password. To use voter's voting rights from anywhere in country. The online voting system enables this feature which contains:
3. Voter's details as well as image captured by web-cam in database.
4. Candidate's details in database.
5. Collection of total number of votes to produce result.

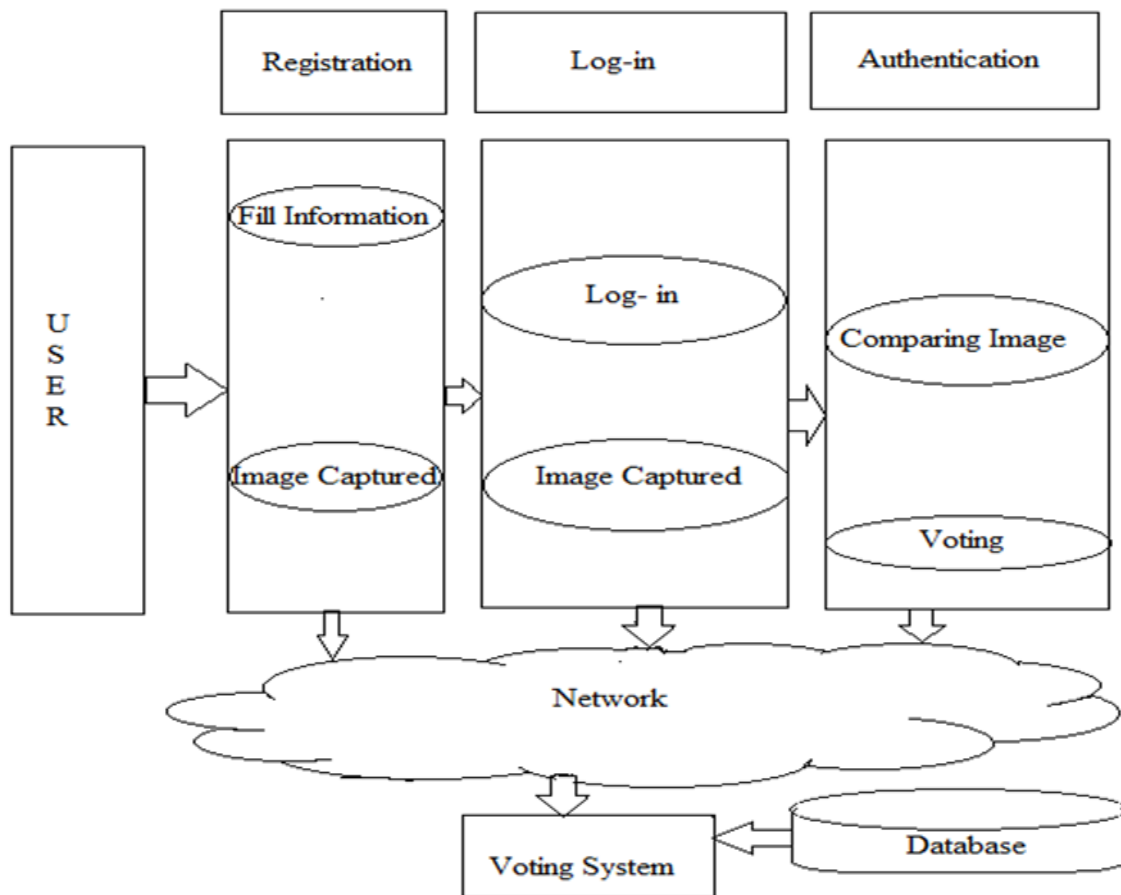


Fig. 1 Proposed System Architecture

The image captured at the time of registration as well as login phase is stored into the cloud database which is converted into gray-scale. That means the images will be black and white. The converted images are then matched by applying matching criteria which will be we decide. If match is found then and then only the user can proceed for voting Otherwise, the user is considered as an invalid user or voter. For confirmation of voting SMS can send to the voter from server to indicate voting is successfully done.

#### IV. METHODOLOGY

Phases in Proposed System:

In this system there are three phases and they are as follows

1. Registration Phase
2. Log-in Phase
3. Authentication Phase

##### Registration phase:

In This phase the voter have to register his/her name, address, voter ID, Email-ID etc.(Personal details) as well as the photo of a voter is taken by web-camera for security purpose. The image taken at this phase is divided into share1 and share2 and share1 is send to the email of the voter and share2 is send to the cloud. From this information we will get the password to login on the day of voting. This password is send to the mail of the voter.

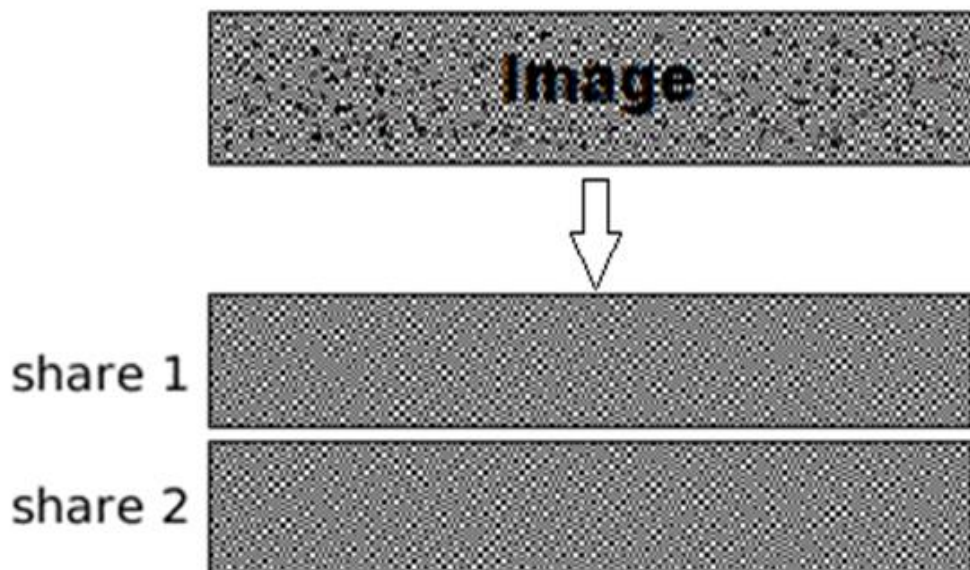


Fig. 2 Registration phase

**Log-In Phase:**

On the day of voting the voter should fill the information like session id, user name and password to login to the system. Here also the photo of voter is taken by web-camera for verification purpose. After login the session the area of voting is given, in the next form the candidates who are participated in election is given, by clicking on them the information of each candidate is displayed to the voter.

**Authentication Phase:**

This phase is essential in this system because it provides security to the system. We have taken an image of voter at the time of registration which is stored like shares. The image taken at the login phase and the combine image of share1 and share2 are compared for valid voter. There is a criterion as 60% or 80% image should be matched then and then only the voter will be valid voter. Then voter can give the vote and that is considered as a valid vote of valid user.

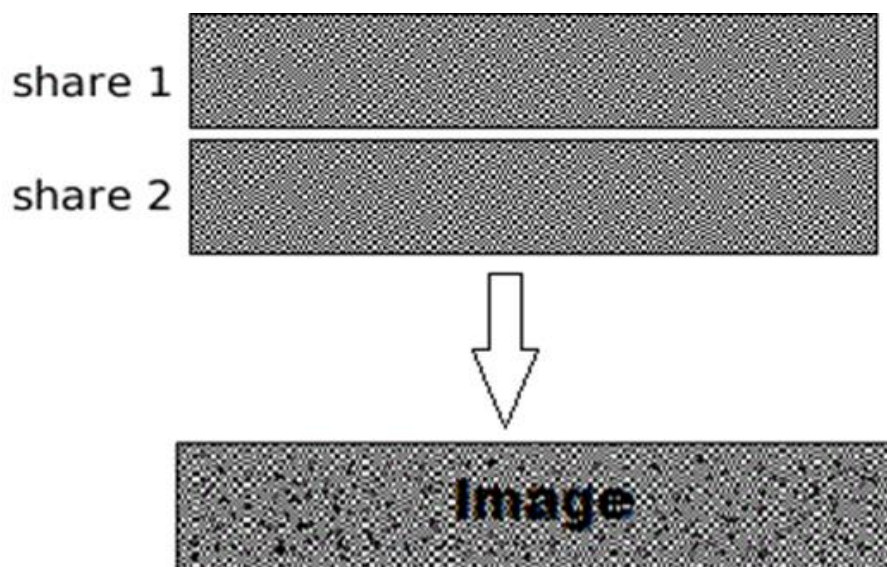


Fig.3 The working flow of the system

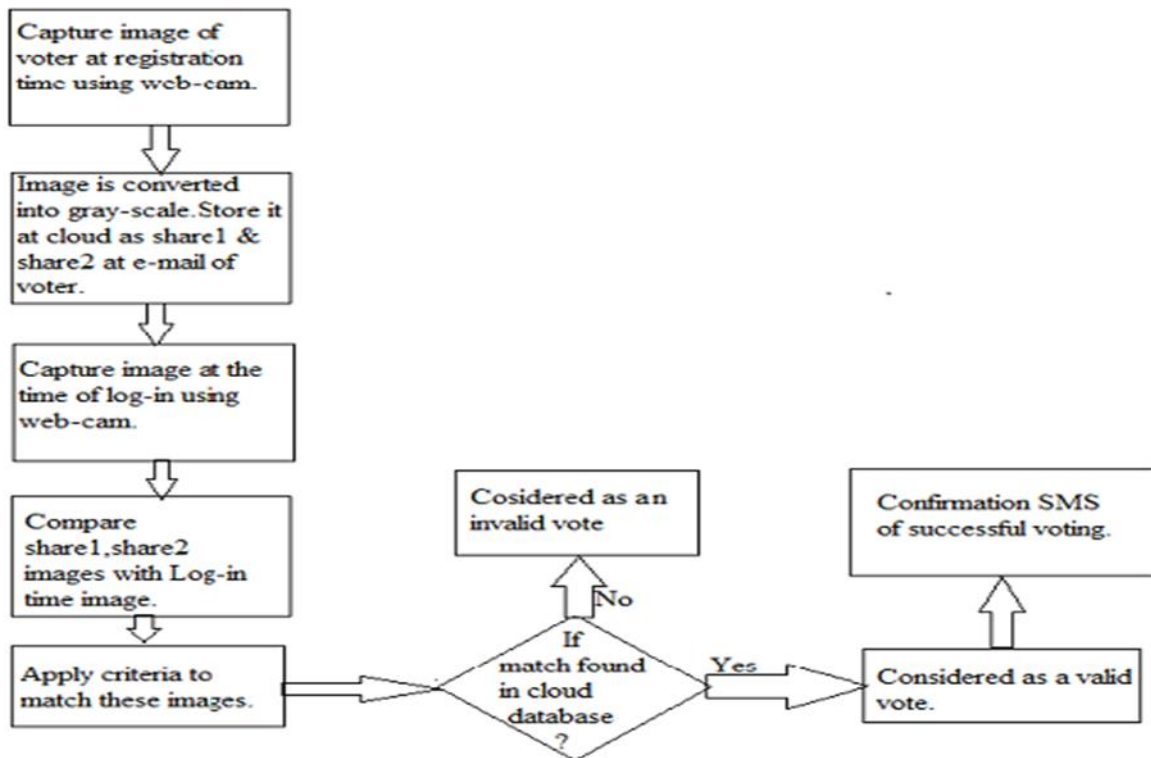


Fig. 4 The working flow of the system

**Algorithm used:**

Visual cryptography is a cryptographic technique which allows visual information (pictures, text, etc.) to be encrypted in such a way that decryption becomes the job of the person to decrypt via sight reading. The visual secret sharing scheme, where an image was broken up into  $n$  shares so that only someone with all  $n$  shares could decrypt the image, while any  $n - 1$  shares revealed no information about the original image. Each share was printed on a separate transparency, and decryption was performed by overlaying the shares. When all  $n$  shares were overlaid, the original image would appear. There are several generalizations of the basic scheme including  $k$ -out-of- $n$  visual cryptography.

Every pixel from the secret image is encoded into multiple subpixels in each share image using a matrix to determine the color of the pixels. In the  $(2, N)$  case a white pixel in the secret image is encoded using a matrix from the following set, where each row gives the subpixel pattern for one of the components:

{All permutations of the columns of}:

While a black pixel in the secret image is encoded using a matrix from the following set:

{All permutations of the columns of}:

For instance in the  $(2,2)$  sharing case (the secret is split into 2 shares and both shares are required to decode the secret) we use complementary matrices to share a black pixel and identical matrices to share a white pixel. Stacking the shares we have all the subpixels associated with the black pixel now black while 50% of the subpixels associated with the white pixel remain white.

**V. RESULT AND ANALYSIS**

This system uses account identification number to maintain the voters account , face image as biometric security & onetime password for cross verification of the database. Thus the proposed system provides a multilevel security which is the advantage of this system over the earlier election system.

**Performance of the system**

The proposed system was applied to shares of face images at each time & it achieved satisfactory results. The performance of the proposed technique can be evaluated in terms of comparison between quality of the shared image & original image.

**The result is given as:**

The image is captured by the system and admin confirms the voter for valid

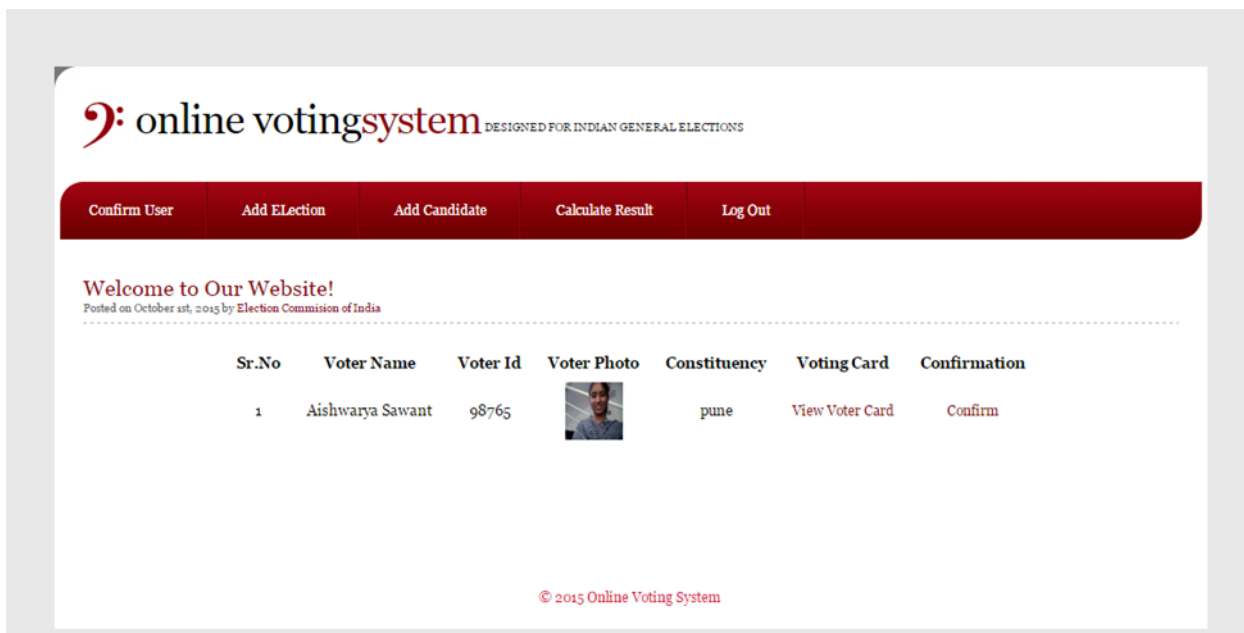


Fig. 5 Admin confirms the voter from her photo and uploaded voter card

The vote is given to the candidate the result is shown as



Fig. 6 Vote is given to Bhartiya Janta Party

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**VI. CONCLUSION AND FUTURE SCOPE**

In this system we have proposed a method of highly Secure Online Voting System. The security level of our system is greatly improved by the new idea of matching real time captured image on the basis image shares. The system is usable as it is very reliable system in real life. By using this system, time required to vote the candidate is very less, so it is definitely helpful to a voter who wants to give a vote to the desirable candidate. Then the votes will be counted and after voting to the candidate by using online voting system using face recognition. Face image is used for security purpose. For the future enhancement the system can Send SMS to the voter for confirmation of voting i.e. vote is given successfully.

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