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EXCELLENT VOTING SYSTEM BASED ON FACE RECOGNITION

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ABSTRACT: Today we are using two voting system they are secret ballot paper and electronic voting machine. Both these techniques have some disadvantages that are adopting new technique online voting system. In this paper use new Authentication techniques face recognition in online voting system. In this system we have use three level security the first is the verification of unique id number, second is verification of voter ID card number and the third is face recognition. Through face recognition the security level of the system is increased a lot.

Index Terms- Electronic voting, Face recognition, Eigen face, Gabor filter

I. INTRODUCTION

An online voting system is a software platform that allows groups to securely conduct votes and election. High quality online voting systems balance ballot security, accessibility, and the overall requirements of an organizations voting system. In this system protect the integrity of vote by preventing voters to cast the multiple votes or fake votes.

Election means selecting a candidate through voting to hold a official position. In India two types voting systems are used. In this system voters need to go polling booths to cast their vote and they are stand in a long queue to cast their vote so this reason some people were not ready to cast their vote. The voter who is not eligible to cast the vote by fake this leads to various problems. To overcome this situation we adopt a new way that is voting through online we can avoid these problems. In our paper we provide three level of security. Face recognizes is the most important security level where the system recognize the faces of real voters from current database of face images given by the election commission. If the captured image is matched with respective image of the voter in the database then voter can cast their vote.

II. METHODOLOGY

In online voting system new authentication technique is used that is face recognition. This authentication involves two stages that is face detection and face recognition. The first algorithm is face recognition using Gabor filter and second is face recognition with Eigen face.

Gabor filter is a linear filter used for texture analysis, which essentially means that it analyzes whether there is any specific frequency content in the image in specific direction in localized region. The Eigen faces form a basic set of all images used to construct the covariance matrix. This produces dimension reduction by allowing the smaller basis set of images to represent the original training images .classification can be achieved by comparing how faces

are represented by the basic set. The voter image is captured using webcam to detect the faces. Before entering to Gabor filters it must be normalized by three steps first is input size, second is pixel adjustment, and then third is borders are smoothed.

It consist of 40 filter used to detect faces from captured images. but this system we use different Gabor filters on the image to generate 40 images with different angles and orientation.

Second algorithm is Eigen face to detect and recognize face from image the system can be divided to two main segments that is creation of the eigenface basis and recognition of a new face. Eigen face needs a database of known faces in which all images are same ion size. Each image is converted in to vector of length N. The output is first point extraction of the face which is used to verify the voter face. The voter will enter hid id number provided by commission which is used to fetch his image from database this image will be considered as the first point. The voter image is captured using webcam is the input to detect the face from image and will be second point. The two points are matched using pattern matching algorithm

Step first is user id created at the registration. User needs to fill the fields in registration page .the user id and password created at that phase will be used as first level of security level. Both user id and password is correct the system allows user to enter to the next level of verification. The next level is to enter voter id number provided by the election commission. If the voter id entered by the user matches with existing details in the database then user go to the next level. Then face is captured through the webcam and matches with database which interrupts false voting and proposed system provides more secure and precise.

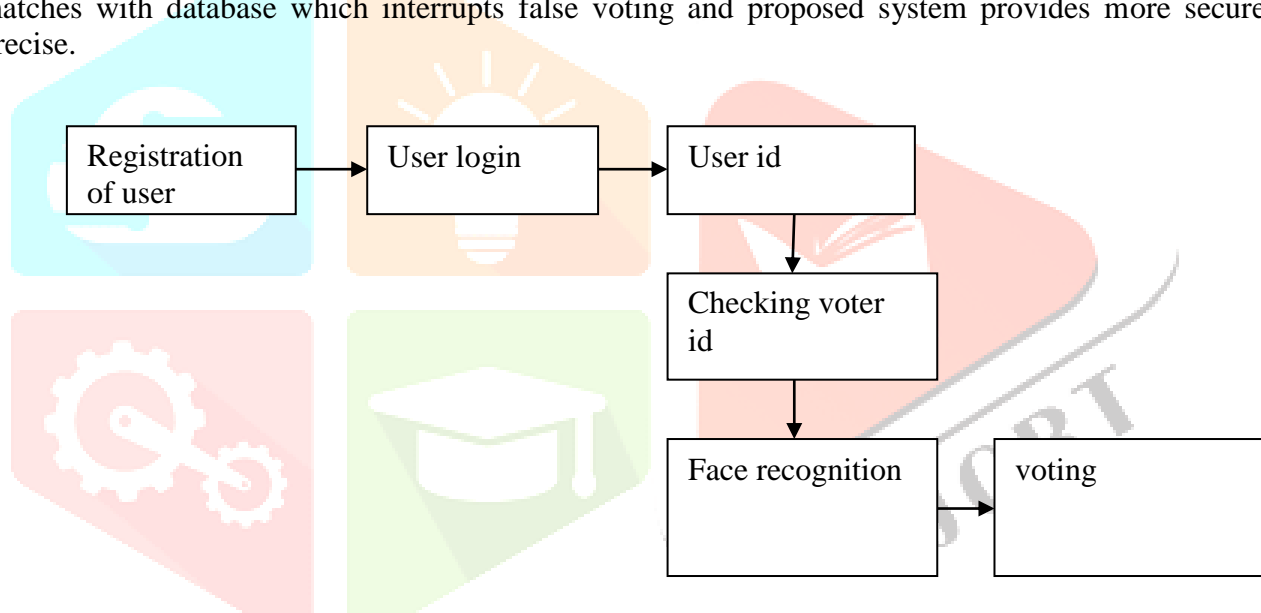


Fig2.1: block representation of online voting system

III. RELATED WORKS

In overall research paper several voter identification methods and authentication techniques were introduced to secure voting platform. Some techniques are highly securable online voting system with multi security using biometric and steganography, the basic idea is to merge the secret key with the cover image on the basis of core image. The result of the process produce a steno image which looks quite similar to the cover image. The core image is a biometric measure such as fingerprint image. The stego image is extracted at the server side to platform the voter authentication function.

Local temporal in signatures are shifted to estimate output of gabor filter then applied to signature signals. An input signature undergoes preprocessing procedures including smoothing and correction and profile is extracted from the signal. A Gabor filter with the predefined frequency is applied on a feature profile and profile is computed from output phase. The difference between two profiles is calculated at corresponding pair and accumulated in to arranged feature with dissimilarity. The decision boundary is represented as straight line in the space and two axes are the dissimilarity measure. The slope and the position are computed with the distribution of sample signatures in the enrollment procedures.

IV. EXISTING SYSTEM

In the existing system, two type of voting they are secret ballot paper and electronic voting machine. To maintain the discipline and security requires a huge amount of man power so it is bit difficult to complete the election in a single day. Allocation of polls done by commission. Polls are setup in schools and colleges and voters card is distributed in before two weeks. Time and place is predefined .each polling station open in 8 hours to cast their votes on Election Day. First step is voter to reach the polling booth and officer check the voter's card and officer marks of inedible ink on voters left forefinger thereafter voter has to sign in register. To mark a vote a voter has to press blue candidate button on EVM machine against the name and symbol of their party. When button is pressed red is glow that means vote is successfully recorded and the voting is done.

V. PROPOSED SYSTEM

The proposed concept uses face recognition using image processing more secure than the already existing one. The main security level is where the system recognizes the face images by the election commission if the image captured matches the respective image of the voter in the database, then voter can cast their vote. Gabor filter and Eigen face algorithm is used to recognize the faces.

Working of Gabor filter:

- The voter image is captured by webcam in the voter system is used as the input
- Before entering to Gabor filter it is normalized in three ways that is input image resizement,adjustment of pixel and border are smoothed
- In the proposed system we different gabor filter to generate images with different angles
- Maximum intensity is calculated
- Gabor wavelet expression is changed to sinusoid
- Then Gabor filter is applied to input

Working of Eigen face algorithm:

- Initialization
- Acquire training set and calculate Eigen faces
- When a new face is entered, calculate its weight
- Check if the image is face
- If correct, classify the weight patterns as known or unknown
- When the same unknown face is seen several times incorporate it into known faces
- Eigen face follows the principal component analysis approach, in which free space forms a cluster in image space

The output of the Eigen system is the first point extraction of the persons face which is used to verify the voters identity. The voter enter his ID number which is used to fetch the images from database is considered as first point. The voter image is captured by webcam is the input to the Eigen algorithm it is considered as second point. These two points are checked by the using the matching algorithm to detect that whether the person is right to vote or not.

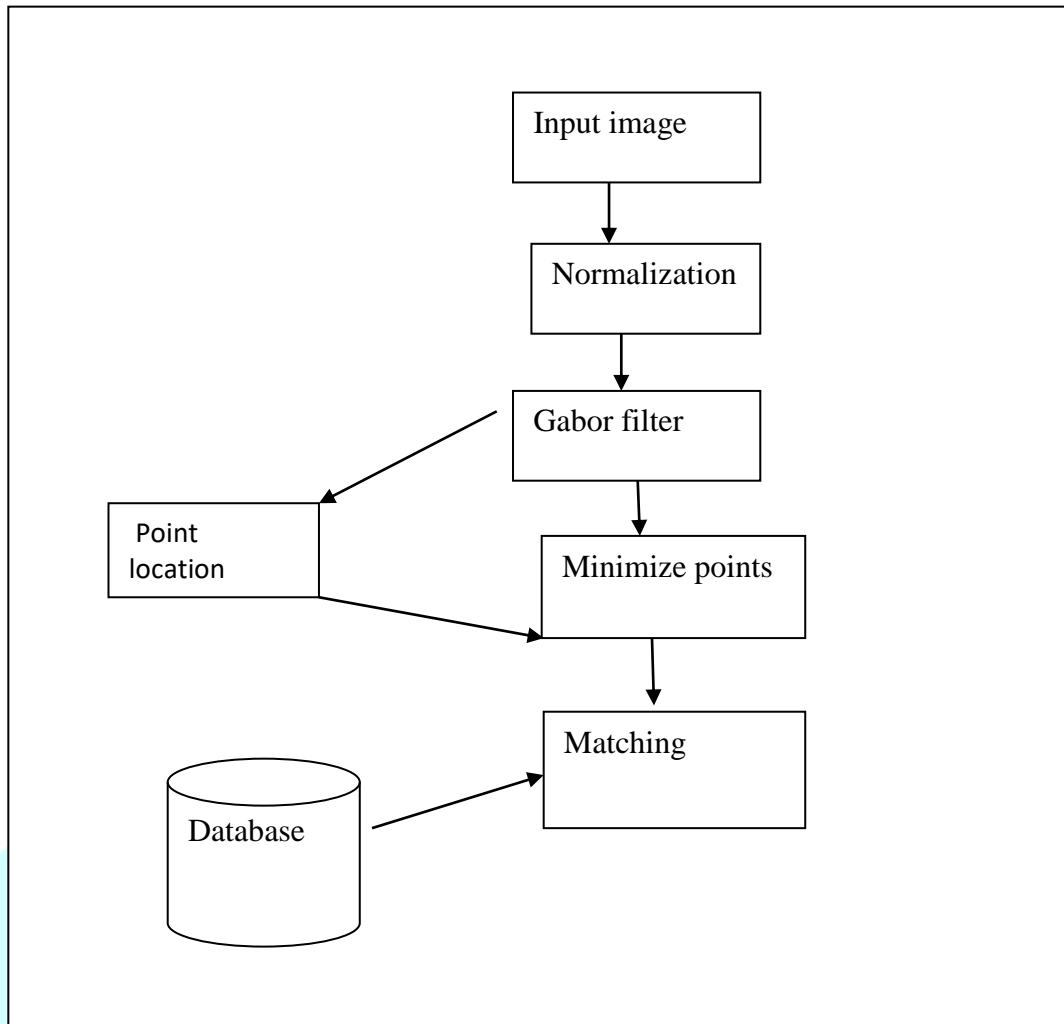


Fig5.1: normalization method

VI. ANALYSIS

To measure the performance of the proposed system the database is used. The number of matched images and execution time are calculated in the proposed system. The average execution time of proposed system is increased by the use new technique by Gabor filter and eigenface. Gabor filter is not efficient that's why we using Eigen face algorithm for getting more accuracy. In the cases of eigenface, the recognition rates increased a lot. This indicates that the implementation of such recognition is meaningful advantage by using eigenface that provide the desired level of accuracy and speed.

VII. COMPARISON OF BOTH SYSTEM

Here we can say proposed system is more secure than existing system. In existing system no security option is not there but in proposed system security level is given but in proposed system three level of security is there. A new authentication is emerged in proposed system that is face recognition. if the voter fails to vote that means voter fails in any level of security. In existing system person has to go their allocated polling booth to cast their vote it is a time consuming process. But in proposed system he do not go anywhere he cast vote through systems. Proposed system has so security features are added to avoid fake votes. Proposed system has so many advantages due to time consuming and accuracy

VIII. ACKNOWLEDGEMENT

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IX. CHALLENGES

This section discusses possible challenges that can occur while making the online system. While registration what data is needed is necessary. Collecting the data and troublesome task it is important to bind accurate data. It is important to have a database to handle it.

X. CONCLUSION

Online voting system allow voter to vote 24 hour per day and also allow voter to vote anywhere in his state or out of the state.

In this research we proposed new authentication face recognition using Gabor filter and Eigen face techniques in online voting. System detects face from a webcam and recognizes face from database and check the images using Gabor filter and Eigen algorithm that provide the accuracy and speed. In future work we plan more extensive experimental with large image database. We also plane gap performance by using algorithm and face detection to increase efficiency and improve time

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