

Face Recognition on E-Voting Using Fisher Face Algorithm

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ABSTRACT

E-voting is most of researchers focusing the e-voting it is the main concept of our democratic country. Voting system, people votes is denoted by whose are governed by the government. So, voting is more secure and perfect. we propose the face recognition technique it is the face recognition, voters face are captured by the webcam then it is match by the previously stored the voter database, voter face are matched by the voter database, which Fisher face algorithm to be used that the face compared by the data variance algorithm, that the people can eligible to vote otherwise that the face is doesn't be matched that the people cannot be eligible to vote, whether that person is right to vote or not it compared by the face recognition using fisher face algorithm. That the eligible persons are to be voted and then votes are calculated and viewed it. The illegal votes are avoided. So, face recognition using Fisher face algorithm to be more secured by voting.

KEYWORDS: Election details, fisher face algorithm, and secured database.

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I. INTRODUCTION

Voting system it is a primarily data to be stored and then the appropriate voting person register and then voting to be hacked. And illegally vote from the same proof to another person, it will be overcome the proposed to face recognition technique using Fisher face algorithm to compare the face it will be avoid the false voters and hackers.

Face recognition is the process of Online voting system it is the voting system is election data to be stored in database, peoples are register from the registration details and then webcam to captured the image and recognize the face then the image is compared to the election database and compared by the eyes, nose, lips, height and width of face that all are denoted by the Fisher face algorithm. Human face pixel to be denoted and data variance to be save database.

II. LITERATURE SURVEY

1. Face Recognition:

In a work proposed by R. Chellappa, P. J. Phillips, A. Rosenfeld entitled „Face Recognition: A Literature Survey“[3] describes face recognition has recently received significant attention, especially during the past several years, as one of the most successful applications of image analysis and understanding. This paper provides an up-to-date critical survey of still- and video-based face recognition research. There are two underlying motivations for them to write this survey paper: the first is to provide an up-to-date review of the existing literature, and the second is to offer some insights into the studies of machine recognition of faces. To provide a comprehensive survey, they not only categorize existing recognition techniques but also present detailed descriptions of representative methods within each category. In addition, relevant topics such as psychophysical studies, system evaluation, and issues of illumination and pose variation are covered.

2. Eigen faces for Recognition:

In the work proposed by Matthew Turk and Alex Pentland in „Eigenfaces for Recognition“[4], they have developed a near real-time computer system that can locate and track a person’s head and then recognize it by comparing the features of this face with those of known individuals. They treat the face recognition problem as an intrinsically two dimensional recognition problem. The system functions by projecting face images onto a feature space that spans the significant variations among known face images. The significant features are known as „eigenfaces“, because they are the eigen vectors of the set of faces, they do not necessarily correspond to features such as eyes, ears and noses. The projection operation characterizes an individual face by a weighted sum of the eigenface features, and so to recognize a face it is necessary only to compare these weights to those of known individuals. Some particular advantages of the proposed approach are that it provides for the ability to learn and later recognize new faces in an unsupervised manner, and that it is easy to implement using a neural network approach.

3. Face Recognition using Principal Component Analysis:

In the work proposed by Kyungnam Kim entitled „Face Recognition using Principal Component Analysis“[5] illustrates that the Principal Component Analysis (PCA) is one of the most successful techniques that have been used in image recognition and compression. The purpose of PCA is to reduce the large dimensionality of the data space to the smaller intrinsic dimensionality of feature space (independent variables), which are needed to describe the data economically. The main idea of using PCA for face recognition is to express the large 1-D vector of pixels constructed from 2-D facial image into the compact principal components of the feature space. This is called Eigen space projection. Eigen space is calculated by identifying the eigenvectors of the covariance matrix derived from a set of facial images (vectors). The paper describes the mathematical formulation of PCA and a detailed method of face recognition by PCA.

III. EXISTING SYSTEM

In existing system, voting to be digitalized, then the voters data to be stored and then voting is processed using principle component algorithm it is statistical procedure by eyes, nose, ear etc... it is low dimensional feature space to be allocation then compared to data’s .

Disadvantages of existing system:

- Voters image are compared to use limited among then the assumption it’s assigned by deviation, PCAmethod may costlier.

- It is the process of dimensionality reduction performed in PCA, its losses the information. .
- Unexpected collisions destroyed the data.

IV. PROPOSED WORK

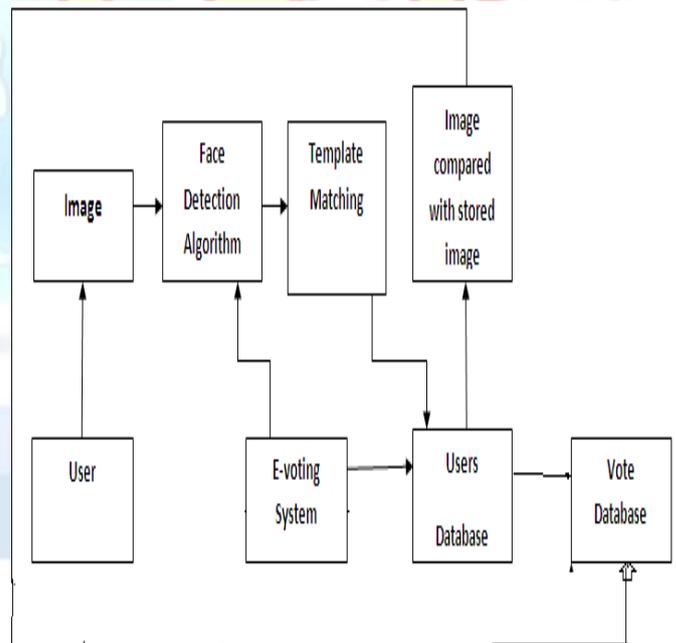
In proposed system using Fisher face algorithm is specially denoted by the large variations to be identified using linear discriminant analysis, it is used to compare between election data and webcam captured image face detection and recognition. Voters face compared to points and ratio to be denoted using Fisher face algorithm. It is mainly secured by hackers.

Advantages of proposed system

- Avoid false voters.
- To overcome the loss of information and time complexity.
- Secure Login.
- Large number of task to be performed.

SYSTEM ARCHITECTURE

System architecture, it is consists the overall process for e-voting system. Each action to be performed by the certain task.



TECHNIQUE USED FOR ALGORITHM:

FISHER FACE ALGORITHM:

- Accuracy.
- Face recognition and detection algorithm.
- Freshness.
- Highly performed.

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from the same proof to another person, it will be overcome the proposed to face recognition technique using Fisher face algorithm to compare the face it will be avoid the false voters and hackers.

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We propose **the Fisher face algorithm** it is reduced the time and data variance to be denoted accurately.

To compute the Fisher faces, we focus the data variation in each class is normally distributed. We denote the multivariate Normal distribution as $N_i(\mu_i, \Sigma_i)$, with mean μ_i and covariance matrix Σ_i , and its probability density function is $f_i(\mathbf{x} | \mu_i, \Sigma_i)$.

In the C class problem, we have $N_i(\mu_i, \Sigma_i)$, with $i=1, \dots, C$. Given these Normal distributions and their class prior probabilities P_i , the classification of a test sample \mathbf{x} is given by comparing the log-likelihoods of $f_i(\mathbf{x} | \mu_i, \Sigma_i) P_i$ for all i . That is, $\text{argmin}_{1 \leq i \leq C} d_i(\mathbf{x})$,

Where $d_i(\mathbf{x}) = (\mathbf{x} - \mu_i)^T \Sigma_i^{-1} (\mathbf{x} - \mu_i) + \ln |\Sigma_i| - 2 \ln P_i$ are known as the discriminant scores of each class. The discriminant scores thus defined yield the optimal solution.

The discriminant scores result in quadratic classification boundaries between classes. However, for the case where all the covariance matrices are the same, $\Sigma_i = \Sigma, \forall i$, the quadratic parts of d_i cancel out, yielding classifiers. The Analysis, where all are identical is known as Normal distributions.

Assume that $C=2$ and the classes are homoscedastic Normals. Project the sample feature vectors onto one-dimensional subspace to the classification given by the discriminant score.

IMPLEMENTATION:

Implementation is the process to project of theoretically representation of the result denoted. it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence the new system will work and be effective. The implementation is the stage involves careful planning, investigation of the existing system and its constraints implementation, designing of methods to achieve changeover and evaluation of changeover methods. It is efficiency of the security for E-voting.

MODULES:

- Registration page
- Forget password
- Login page
- Face detection algorithm
- Election page
- Store the data into database

Registration page:

Registration is the process of users to enter the all correct details in voting person and voter image is captured by the webcam; it helps to enter into the login page.

Forget password:

Registered users forget password to enter login page, to be remember to get the password in the forget password page.

Login page:

Login page voter to enter into the login to enter the username and password it is unique for all voters.

Face detection algorithm:

Face detection algorithm, it is the process of captured the voter image, it will be compared to the election database using Fisher face algorithm; it is avoid the false voters, high efficiency and reliability.

Election page:

Election page, it contains all nominees by the government council, voter to be voting to particular candidate.

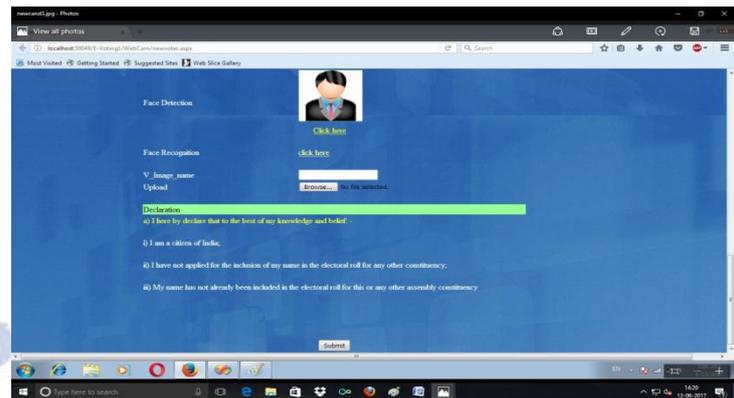
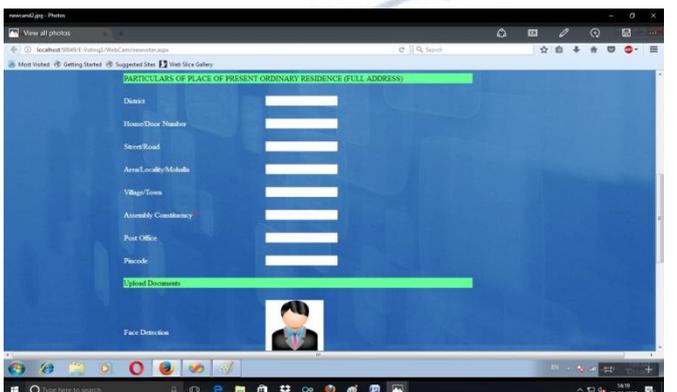
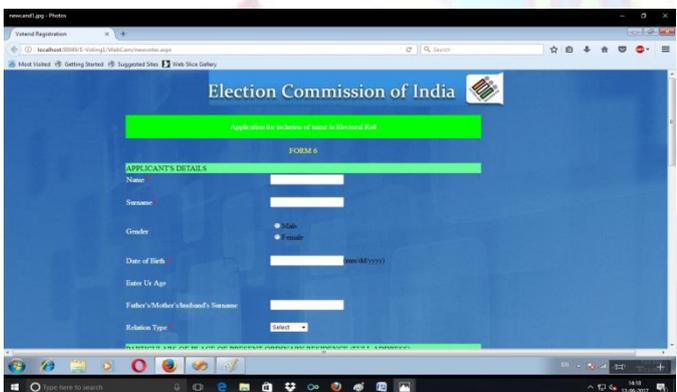
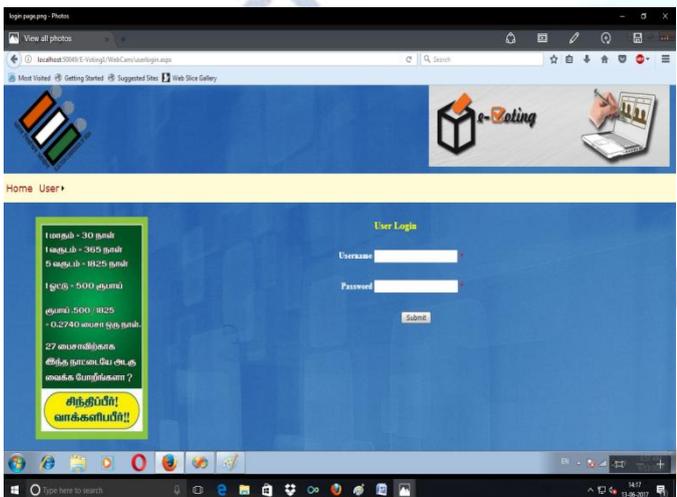
Store the data into database:

Voting details to be stored into database it is easy to viewed and count, it is contained in secure manner.

V. CONCLUSION

We proposed an online voting to be comfortable for allow vote from anywhere in state or out of state. In this research we propose a face recognition using fisher face algorithm it is captured the image using webcam and stored election database image that the two process to be performed, in this algorithm to compared by the two images, verify to accurately in data variation, such the image to be matched that the person to be enter into voting, otherwise images not to be matched it will be rejected into the page. Fisher faces algorithm to be highly performed and efficiency. Analysis of the previous PCA algorithm it will be take more time using image, efficiency is less and loss of information while the dimensional reduction process. We propose fisher face algorithm to be processing time less and high efficiency.

VI. EXPERIMENTAL RESULTS:



VII. REFERENCES

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