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ijircce@gmail.com

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Criminal Identification using Face Recognition

Vishakha Rasal, Namita Shinde, Shital Nirphal, Sonali Kedar, Jayashree Parate

Department of Computer Engineering, BSIOTR, Wagholi, Pune University, Pune, India

ABSTRACT: Face acknowledgment is a standout amongst the most difficult subjects in PC vision today. It has applications running from security and observation to amusement sites. Face acknowledgment programming are valuable in banks, airplane terminals, and different organizations for screening clients. Germany and Australia have conveyed confront acknowledgment at outskirts and traditions for Automatic Passport Control. Human face is a dynamic protest having high level of fluctuation in its appearance which makes confront acknowledgment a troublesome issue in PC vision. In this field, precision and speed of ID is a principle issue. Numerous difficulties exist for confront acknowledgment. The power of the framework can be blocked by people who change their facial highlights through wearing hued contact focal points, growing a mustache, putting on serious make-up, and so on. Moral concerns are additionally identified with the way toward recording, contemplating, and perceiving faces. Numerous people don't endorse of observation frameworks which take various photos of individuals who have not approved this activity. The objective of this paper is to assess confront discovery and acknowledgment procedures and give a total answer for picture based face location and acknowledgment with higher exactness, better reaction rate and an underlying advance for video observation. Arrangement is proposed in light of performed tests on different face rich databases as far as subjects, stance, feelings and light.

I.INTRODUCTION

Face recognition is the task of identifying an already detected object as a known or unknown face. Often the problem of face recognition is confused with the problem of face detection. On the other hand is to decide if the "face" is someone known, or unknown, using for this purpose a database of faces in order to validate this input face. This project main objective is to create an efficient architecture for face recognition in playing videos using Neural Network. This product which two self contained Neural Network (CNNs) which are used to detect and recognize faces in regions containing a dense grouping of features from Accelerated Segment Test (FAST).

II.LITERATURE SURVEY

1. Mayuri S. Takore, Pallavi R. Wankhade, "Criminal Face Identification System" February 2015
Criminal record usually contains personal information concerning explicit person Alongside photograph. To spot any Criminal we need some identification related to person, that are given by viewer. In most cases the standard and backbone of the recorded image segments is poor and hard to identify a face. To beat this drawback, we tend to be developing code. Identification can be done in various ways like finger print, eyes, DNA etc. One in all applications is face identification. The face is our primary focus of attention in social interactions taking part in significant role in conveying identify and establishing emotion. Though the power to infer intelligence or character from facial look is suspect, the human ability to acknowledge face is outstanding.
2. NurulAzma Abdullah, Md. Jamri Saidi, Nurul Hidayah AbRahman, ChuahChaiWen, and IsredzaRahmi A. Hamid, "Face recognition for criminal identification- Associate Degree implementation of principal component analysis for face recognition", The second International Conference on Applied Science and Technology 2017
In this paper, an automatic face recognition system for criminal info was proposed using known Principal Component Analysis approach. This technique are going to be ready to discover face and recognize face automatically. This can facilitate the law enforcements to detect or recognize suspect of the case if no thumbprint present on the scene. The results show that about 80.
3. E-CRIME DETECTION Using FACE RECOGNITION SYSTEM 8616 Volume three, Issue 2 April 2014.
Proposed system is goes to spot criminals at numerous security place like airdrome, railway etc. Video Camera captures a hard and fast range of frames of a person coming in front of sign on counter. Proposed system compares these captured

pictures taken through the camera with the pictures of the Criminals which are stored in the database. Proposed system is connection of two stages Face detection using Haar Based Cascade classifier and recognition using Principle Component analysis with Eigen Face. The goal is to implement the system (model) for a selected face and distinguish it from an oversized range of stored faces with some period of time variations as well.

4. PrarthanaSandipPatil, PournimaPaman Patel, SnehalPrakash Sonar, ChaudhariVrushaliKishor, “Crime Identification using 3-D Face Recognition”, International Journal of Emerging Technologies in Engineering Research, 2018.

The objective of this paper is to assess confront discovery and acknowledgment procedures and provides a complete image based mostly face location and acknowledgment with higher truth, higher reaction rate associated an underlying advance for video observation. Arrangement is planned in light of performed tests on totally different face made databases as so much as subjects, stance, feelings and light.

5. Ashutosh Chandra Bhensle, Rohit Raja, “An Efficient Face Recognition using PCA and Euclidean Distance Classification”, IJCSMC, 2014.

Person identification using face is incredibly exigent and knotty drawback. Recognition of a person from an arbitrary perspective is crucial necessities for security measures and access management. Recognition of a specific face may be useful for countless issues like person laptop interaction, criminal detection, etc. The present system has additional calculation because of higher dimensional and no more effectual still. Rather than feat of face vectors with high speciality it is higher to use face vectors with lower speciality. This enforced face recognition system is easy and comparatively simple to recognize the faces from videos taken from a distance and web cams. The improved PCA rule removes facial expressions and classification is performed by minimum distance classification.

III.PROPOSED SYSTEM

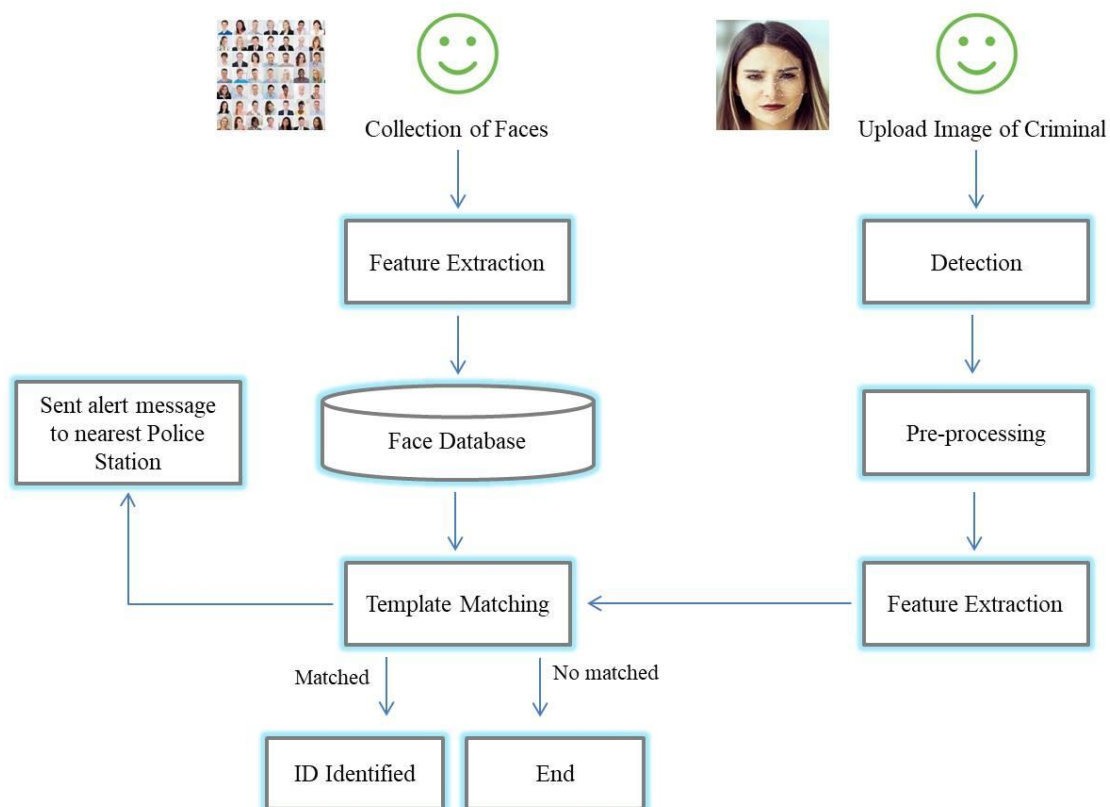


Fig. 1 Proposed System



In this project, System propose a Criminal Detection through Face Recognition. To overcome the drawbacks that were in the existing system we develop a system that will be very useful for any investigation department. Here the program keeps track of images from different sides of faces. Based on this record number the program retrieves the personal record of the suspect (which face from comparing and get result more than 90% match then show that person location and information also) on exercising the 'locate' option.

A. FACE RECOGNITION ALGORITHM

Eigenfaces Face Recognizer-

This algorithm considers the fact that not all parts of a face are equally important or useful for face recognition.

Fisherfaces Face Recognizer

This algorithm is an improved version of the last one. As we just saw, EigenFaces looks at all the training faces of all the people at once and finds principal components from all of them combined.

Since EigenFaces also finds illumination as a useful component, it will find this variation very relevant for face recognition and may discard the features of the other people's faces, considering them less useful.

In the end, the variance that EigenFaces has extracted represents just one individual's facial features.

There are three easy steps to computer coding facial recognition

Data Gathering: Gather face data (face images in this case) of the persons you want to identify.

Train the Recognizer: Feed that face data and respective names of each face to the recognizer so that it can learn.

Recognition: Feed new faces of that people and see if the face recognizer you just trained recognizes them.

K-mean Clustering Algorithm:

Input: K- the number of clusters

Dataset: a data set containing n objects

Output: A set of k clusters

Step 1: Randomly select k data objects from dataset D as initial cluster centers.

Step 2: Repeat

Step 3: Calculate the distance between each data object d_i ($1 \leq i \leq n$) and all k cluster centers c_j ($1 \leq j \leq k$) and assign data object d_i to the nearest cluster.

Step 4: For each cluster j ($1 \leq j \leq k$), recalculate the cluster center.

Step 5: Until no changing in the center of clusters.

The computational complexity of the algorithm is $O(nkt)$

Where, n: the total number of objects

k: the number of clusters

t: the number of iterations

IV.EXPERIMENTAL RESULTS

A.DASHBOARD

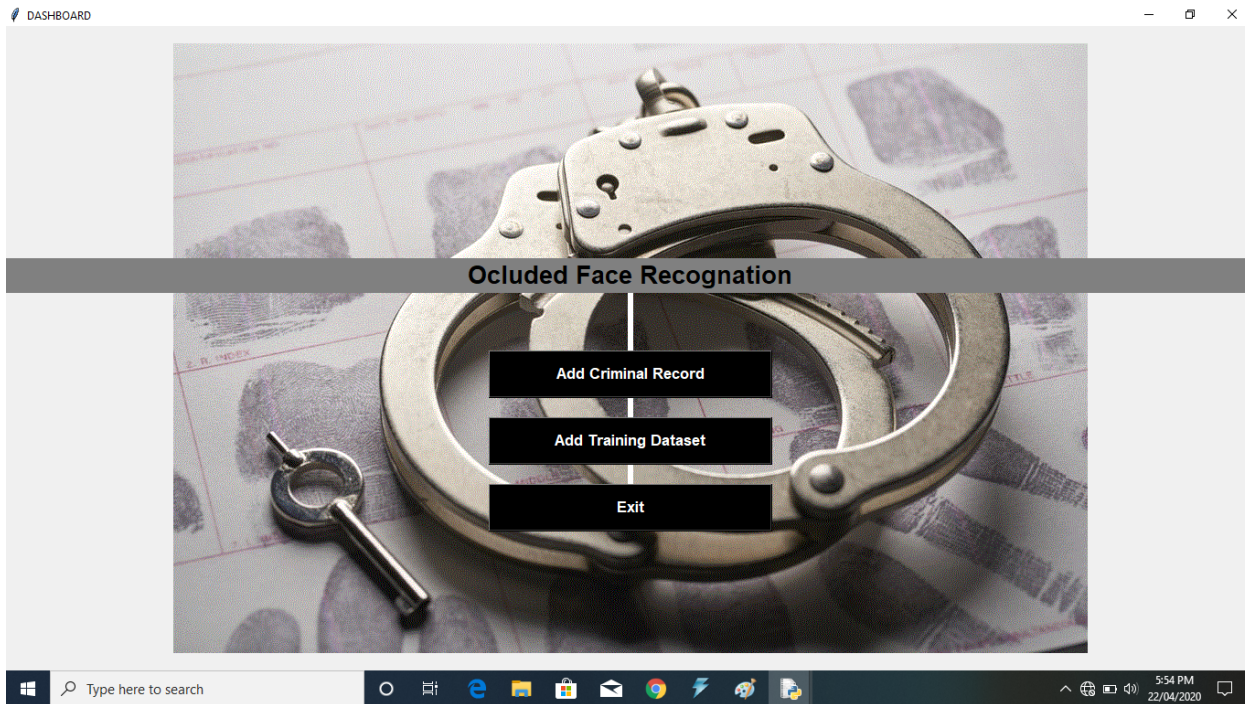


Fig.2 Dashboard

B.ADD CRIMINAL RECORD

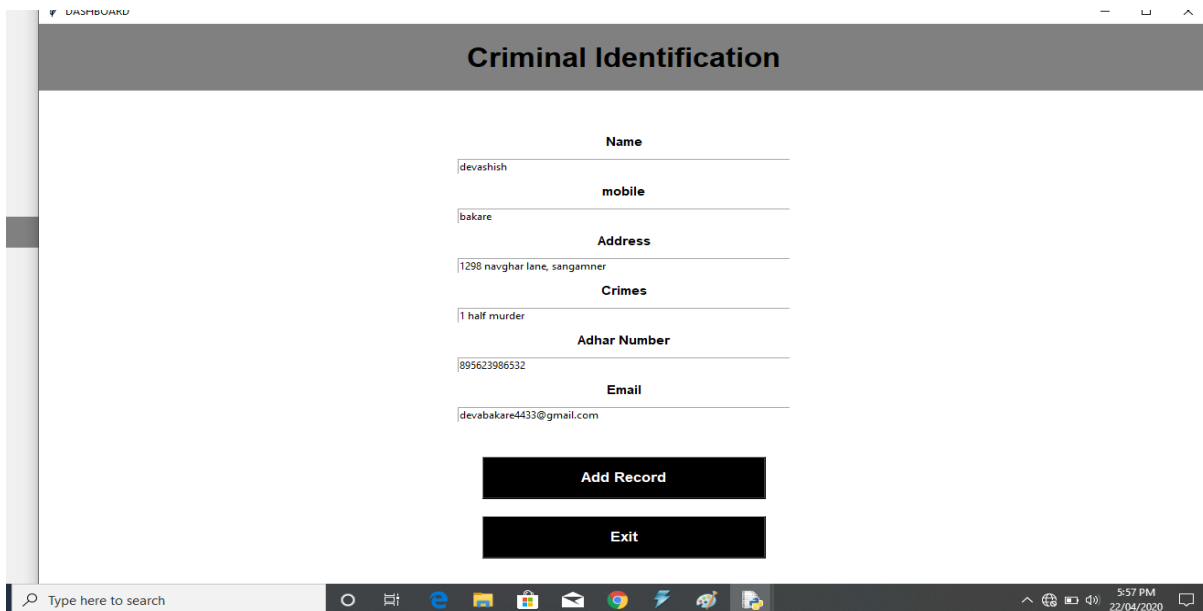


Fig.3 Add Criminal Record

C. CRIMINAL DETECTED IN CCTV FOOTAGE

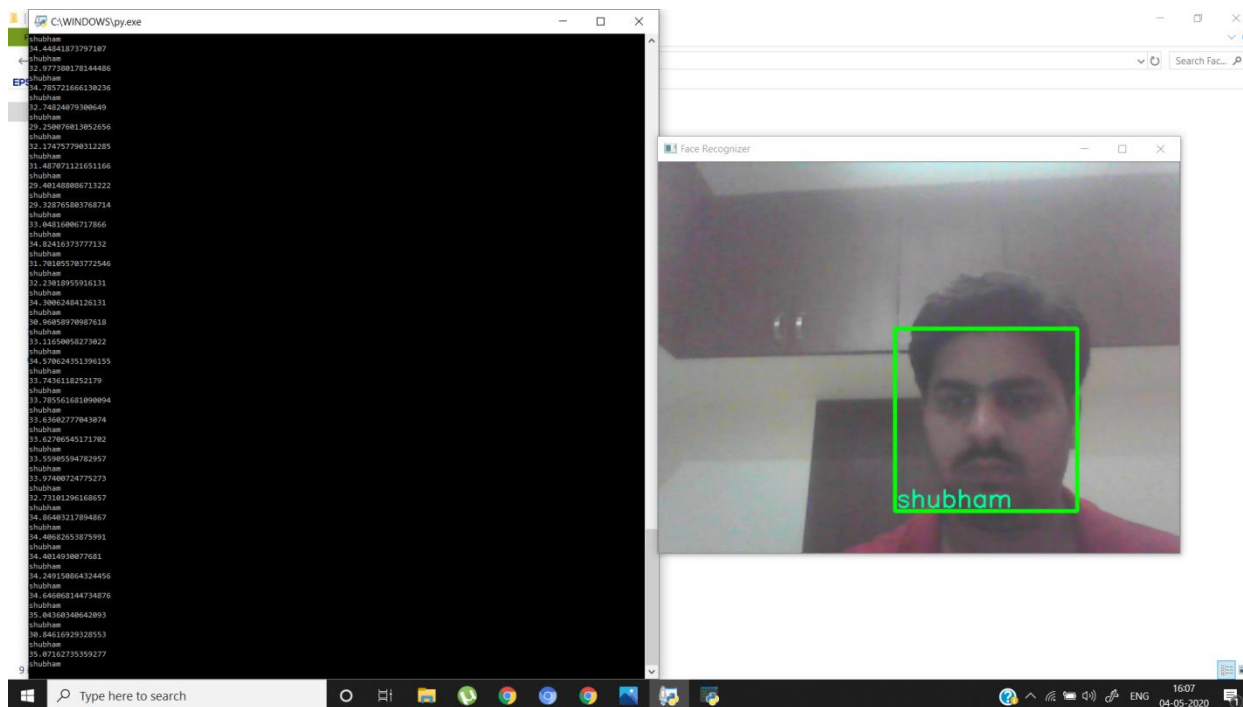


Fig. 4 Criminal Detected In CCTV Footage

V. CONCLUSION

We have proposed Face recognition using Fisherfaces and Neural Network. The system aims to find solutions for a robust method for face recognition from videos, reducing the time requirements for face recognition with introduction of Fisherfaces on key frames. This system provides better approach to detect criminal. We have demonstrated various concerns related to the face recognition process, such as the lighting and background condition in which the facial images are taken.

In future we introduce a new face recognition technique to accomplish a system to handle video based images under variety of pose and illumination conditions. And also we make use of PCA, FLDA technique to obtain virtual frontal face for Dimensionality reduction and Presentation respectively. LLR technique to obtain virtual frontal face and we appoint DCT for illumination normalization. We also intended to introduce a new algorithm which is more efficient than NN, SVM, HMM.

VI. FUTURE SCOPE

There is a huge scope of this technology and it can help improve the country in various aspects. Preventing the frauds at ATM. A database of all customers with ATM cards can be created and facial recognition systems can be installed. So, whenever user will enter in ATM his photograph will be taken to permit the access after it is being matched with stored photo from the database. Passport and visa verification can also be done using this technology. It can also be used during examinations such as SSC Exam, IIT, MBBS, and other to identify the candidates.

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