

Criminal Identification by Using Real Time Image Processing

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Abstract :

The main goal of this paper is to help in real time for face recognition by using automated face surveillance camera. The proposed system has of 4 steps, it include training of real time images, face detection using Haar based classifier, comparison of trained real time images with images from the surveillance, camera result based on the comparison between them. Main application of interest is automated surveillance, the aim of automated surveillance to acknowledge people around watch list. The main goal of this paper is to compare an image with several images, which is already trained. In this paper, we represent a methodology for face detection strongly in real time environment. Haar cascading is one of the algorithm for face detection. In that we use Haar like classifiers to track faces on OpenCV platform. The correctness of the face recognition is very high. The proposed system can successfully recognize more faces which is useful for quickly searching suspected persons, as the computation time is very low. In India, we have a system to accept citizen called Aadhaar. If we use this as a citizenship database then we can differentiate between citizen and foreigner as well as we will be able to investigate whether the identified person is criminal or not.

Keywords: Automated surveillance camera, face detection, face recognition, Haar cascade, OpenCV.

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I. INTRODUCTION

In this paper, an automated facial recognition system for criminal database is proposed using Haar feature based cascade classifier. This system will be able to detect face & recognize face automatically in real time. In this we have taken a pre-captured image & it performed processing techniques on it. We intend to take a real image & perform "real time image processing" on it. In the modern world, security is a one of the main concerns. There is a significant rise of threats to the society with increasing rate of crimes and terrorist activities. Even have many ways of identifying a person, biometric identification approaches have had a huge attraction because of the accuracy and the uniqueness of the biometric factors of a person. Finger print recognition, voice recognition, palm recognition iris and voice recognition are the approaches of biometric identification. The advantage of face recognition approach is people do not need to look into an iris scanner or to place their hands on a fingerprint reader, or to speak to close by microphone. And also face recognition techniques can be very useful in footages taken by surveillance and applications. This project is aimed to identify the criminal faces. In here the technique which going to use is, manually we already store some images of the criminals in our database along with his details. By surveillance camera system residing at some public place which automatically matches the input faces with criminal database and gives alert if the results are matched.

1.1 Motivation of Project

- In recent , crime increases rapidly.
- We used large face databases which already exists
- Accuracy of face recognition is very high.
- At a time, multiple images detects using video's or CCTV footage.

II. PROPOSED SYSTEM

A. Input Image:

This page will use the pc webcam to capture the video frames in real time. After this it will use face detection module on each frame to detect and recognize criminals in the video in real time. User can also see the profile of the criminal by clicking on detected criminal names.

B. Image Processing:

In this image processing first get the image from system and perform operation on it . To make the diagram in the proper format in the sense scale size. So that every image is in the proper or same format for the detection image processing convert image into digital format . So separating and identify the feature from that image is easy.

C. Feature Extraction:

Feature extraction is most important part. For feature extraction the Haar classifier is best algorithm . In feature extraction Haar classifier compare the trained images that are already stored in the database with the real time images that we are taking from either camera, CCTV camera.

In the face extraction we extract the features like eye, nose, mouth, forehead, etc. It is machine learning algorithm so, it can go from lots of positive and negative images.

D. Face Matching:

In this it matching the both faces from trained dataset with the real tie image. If the faces means the feature like eye, nose, mouth, forehead are match then it means the criminal is identified or face is match.

E. Notification;

After matching the faces means after identification of criminal it send notification in the form of alert or mail message.

Alert means it generate buzzer and send mail message on the specified g-mail. It shows message like ‘Criminal is Found’ .

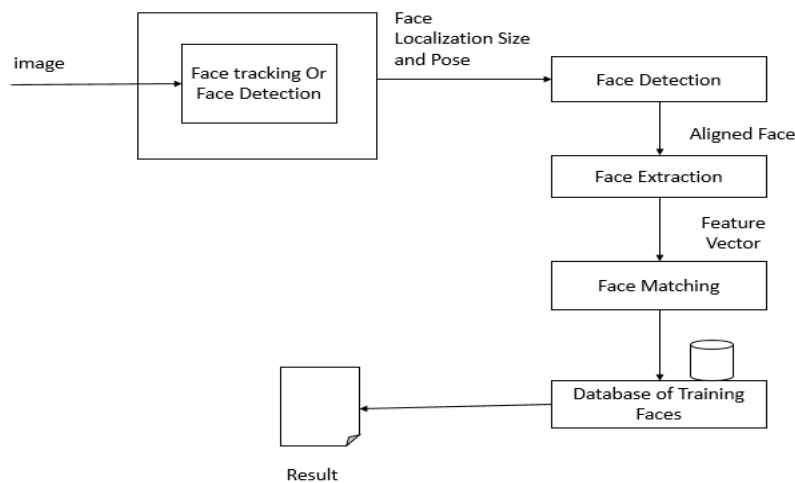


Fig. Proposed Architecture

III. LITERATURE SURVEY

A. Criminal Identification System Using Face Detection & Face Recognition

There is an abnormal increase in the crime rate and also the number of criminals is increasing, this leads towards a great concern about the security issues. Crime preventions and criminal identification are the primary issues before the police personnel, since property and lives protection are the basic concerns of the police but to combat the crime, the availability of police personnel is limited. With the advent of security technology, cameras especially CCTV have been installed in many public and private areas to provide surveillance activities. The footage of the CCTV can be used to identify suspects on scene. In this paper, an automated facial recognition system for criminal database was proposed using known Haar feature-based cascade classifier. This system will be able to detect face and recognize face automatically in real time. An accurate location of the face is still a challenging task. Viola-Jones framework has been widely used by

researchers in order to detect the location of faces and objects in a given image. Face detection classifiers are shared by public communities, such as OpenCV.

B. Opportunity & challenge on face recognition: generic to specific feature representation & recognition strategy

In this paper, we conduct survey about research in face recognition method. The purposes of this survey paper are to give brief about development challenge and opportunity related with state-of-the-art in face recognition method. Face recognition is multi-arearesearch field covering computer vision, pattern recognition, and biometric. Application of face recognition in many areas such as entertainment, access control mechanism, law enforcement field, population field, security system become one of the factors driving the development of research in the field of face recognition. Recently there were shifting focuses in face recognition research, which is performance evaluation in dataset, that build in uncontrolled environment with very large number of subject. Opportunities and challenges related with the shifting focuses describe and discuss which cover: 1) dataset for face recognition, 2) robust feature extraction and representation, 3) recognition strategy. We also purpose the idea to develop generic-to- specific feature representation and recognition strategy that close to how human recognition identity from face image.

C. Face recognition based real time system for surveillance

Criminal record generally contains personal information about particular person along with photograph. To identify any Criminal we need some identification regarding person, which are given by eyewitness. In most cases the quality and resolution of the recorded image segments is poor and hard to identify a face. To overcome this sort of problem we are developing software. Identification can be done in many ways like finger print, eyes, DNA etc. One of the applications is face identification. The face is our primary focus of attention in social inters course playing a major role in conveying identify and emotion. Although the ability to infer intelligence or character from facial appearance is suspect, the human ability to recognize face is remarkable.

IV. PROPOSED ALGORITHM

Training Steps to Create a Haar-like Classifier:

- Collection of positive and negative training images
- Marking positive images using objectmarker.exe or ImageClipper tools
- Creating a .vec (vector) file based on positive marked images using createsamples.exe
- Training the classifier using haartraining.exe
- Running the classifier using cvHaarDetectObjects()

V. OVERVIEW OF PROJECT MODULE

A. Addition of criminal record:

In this module we add the criminal with their information. Information of different type but adding all the information. It is not easy means type wasting time so it is necessary information to add all the important so criminal can identify with their name. In this we add name Gender image crime and address of the criminal. Crime tells us crime of the criminal , image for easily identification.

B. Create Dataset:

Create dataset means it create different form of the one image. We can create different dataset of one image or person means in different different positions .It is not possible that we criminal can directly stand in front of camera , it goes away from camera that time his face not captured accurately. At that time if we have lots of images of criminal that time, it identified easily or capture easily in front of camera so creation of dataset is necessary task.

C. Train Faces:

After creating dataset it is necessary to train the dataset or faces. At the time of training dataset positive or negative samples are created. In positive samples actual object is detected means the face of criminal is detected i.e. that we want to detect and negative samples means everything of the object is detected not necessary also.

Training of dataset is necessary because we need to give proper input to the computer , computer operate like human but all the condition set by human so , in proper size format purpose images are train.

D. Identification of Faces:

Identification of those peoples that are stored in the database. We compared our database with the live images that are captured by camera, CCTV camera. It is only real time image processing system. For the identification it consider different features like eye, mouth, forehead , nose, etc. if any one feature is matches then it means it is criminal.

E. Detection of Criminal:

Now a days crimes are increases rapidly so detection of criminal without reducing time is very necessary . If the system gives us notification on when finding criminal then it is easy to arrest or search it. In out project we did the same . when criminal is identified by the captured by camera then it will send message to the specified mail id and also generate the buzzer , So criminal are identified easily.

EXPERIMENTAL RESULT

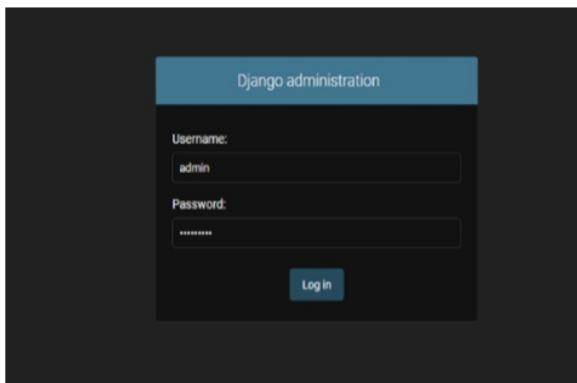


FIG 1: ADMIN LOGIN

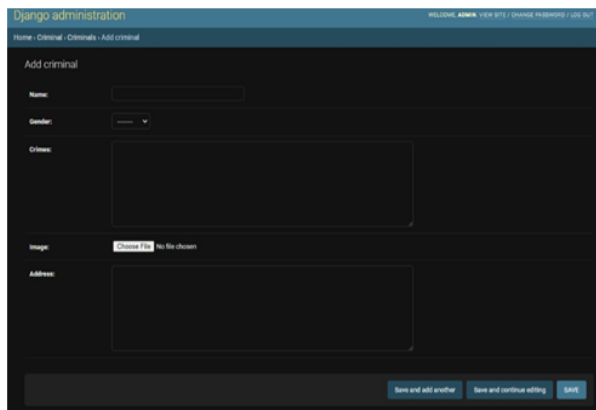


FIG 2: DETAILS OF CRIMINALS

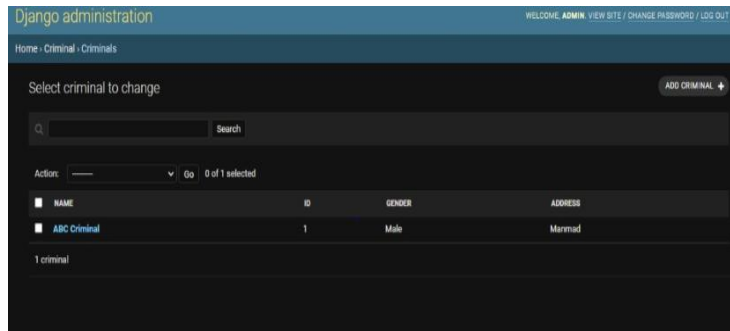


FIG 3. ADDITION OF CRIMINAL RECORD



FIG 4: DATASET CREATOR



FIG 5: TRAIN DATASET

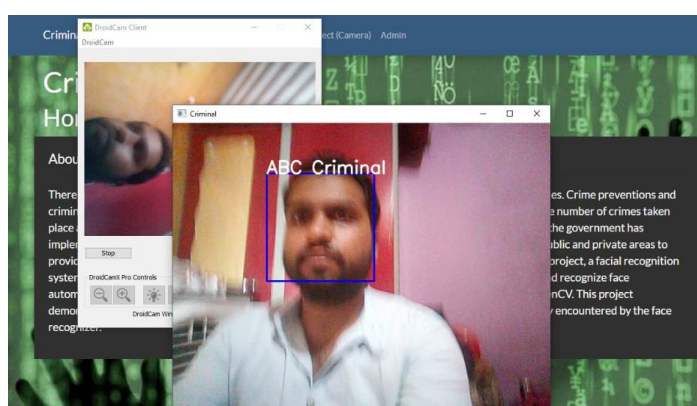


FIG 6: IDENTIFICATION OF FACES



FIG 7. DETECTION OF CRIMINAL

VI. APPLICATION

- Forensic Department
- Police Department
- Investigation department
- Media Departments

VII. CONCLUSION

The proposed face recognition system based on Haar cascade will be implemented. Even though the stored set of images of the person in the database differ from the real time image, the system serves as a fruitful

method of identifying the faces. Thus, some changes in the new face image to be recognized can be allowed. The main advantage is that we use citizenship database which already exists.

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