



e-ISSN:2582-7219



# INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

Volume 5, Issue 6, June 2022



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

Impact Factor: 7.54



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ijmrset@gmail.com



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# CrimDect: Criminal Detection Using Face Recognition

Pratik S. Chopade, Kanchan. P. Patil, Shivai Gore, Gaurav Sutar

Department of Computer JSPM'S Rajarshi Shahu College of Engineering, Tathwade, India

**ABSTRACT:** Criminal Face Detection project aims to build a automated Criminal Face Detection system by leveraging the human ability to recall minute facial details. Identification of criminals at the scene of a crime can be achieved in many ways like fingerprinting, DNA matching or eye witness accounts. Out of these methods eye witness accounts are preferred because it stands scrutiny in court and it is a cost effective method. It is possible that witnesses to a crime have seen the criminal though in most cases it may not be possible to completely see the face of the perpetrator. The Criminal Face Detection System will be built of an existing criminal database. Input would be provided in the form of sketch or an image and matched against the existing database and results would be provided. 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 .The human face is a complicated multidimensional visual model and hence it is very difficult to develop a computational model for recognizing it. The paper presents a methodology for recognizing the human face based on the features derived from the image. The proposed methodology is implemented in two stages. The first stage detects the human face in an image using viola Jones algorithm. In the next stage the detected face in the image is recognized using a fusion of principle.

**KEYWORDS:** Criminal Detection Using Face Recognition

## I. INTRODUCTION

Over the years, a lot of security approaches have been developed that help in keeping confidential data Secured and limiting the chances of a security breach. Face recognition which is one of the few biometric methods that possess the merits of both high accuracy and low intrusiveness is a computer program that uses a person's face to automatically identify and verify the person from a digital image or a video frame from a video source. It compares selected facial features from the image and a face database or it can also be a hardware which used to authenticate a person.

In developed countries, the law enforcement create face database to be used with their face recognition system to compare any suspect with the database. In other hand, in India most cases are investigated by using thumbprint identification to identify any suspect for the case. However, because of unlimited knowledge through internet usage, most criminals are aware of thumbprint identification. Therefore, they become more cautious of leaving thumbprint by wearing gloves except for non- premeditated crimes..

## II. LITERATURE REVIEW

[8]This section reviews the basic concepts of the criminal face detection system. We firstly need to understand the various components of the face detection system under the criminal detection. Or we can say in this we will remove the complexity from the image, which we get to match with the criminal record or data . in the past ,we were not able to remove the complexity from the image which we get through the cctv or any camera.



Technique used--The work based on high order tensor to construct a multi linear structure and model the multiple factors of face variations.

Conclusion-- The paper introduced the new concept that appearance factor, the factor of person’s identity modeled by a tensor structure can be used for better recognition system, specially for different types of appearance of same faces.

### III. PROPOSED METHODOLOGY

- To improve the current existing criminal face detection system.
- To provide a fast detection of a criminal in a mean time.
- To remove the complexity from the image.
- Easy detection of criminal by using a sketch or getting an image through the cctv camera or difficulty in detection of a criminal or to match the data with the criminal record.

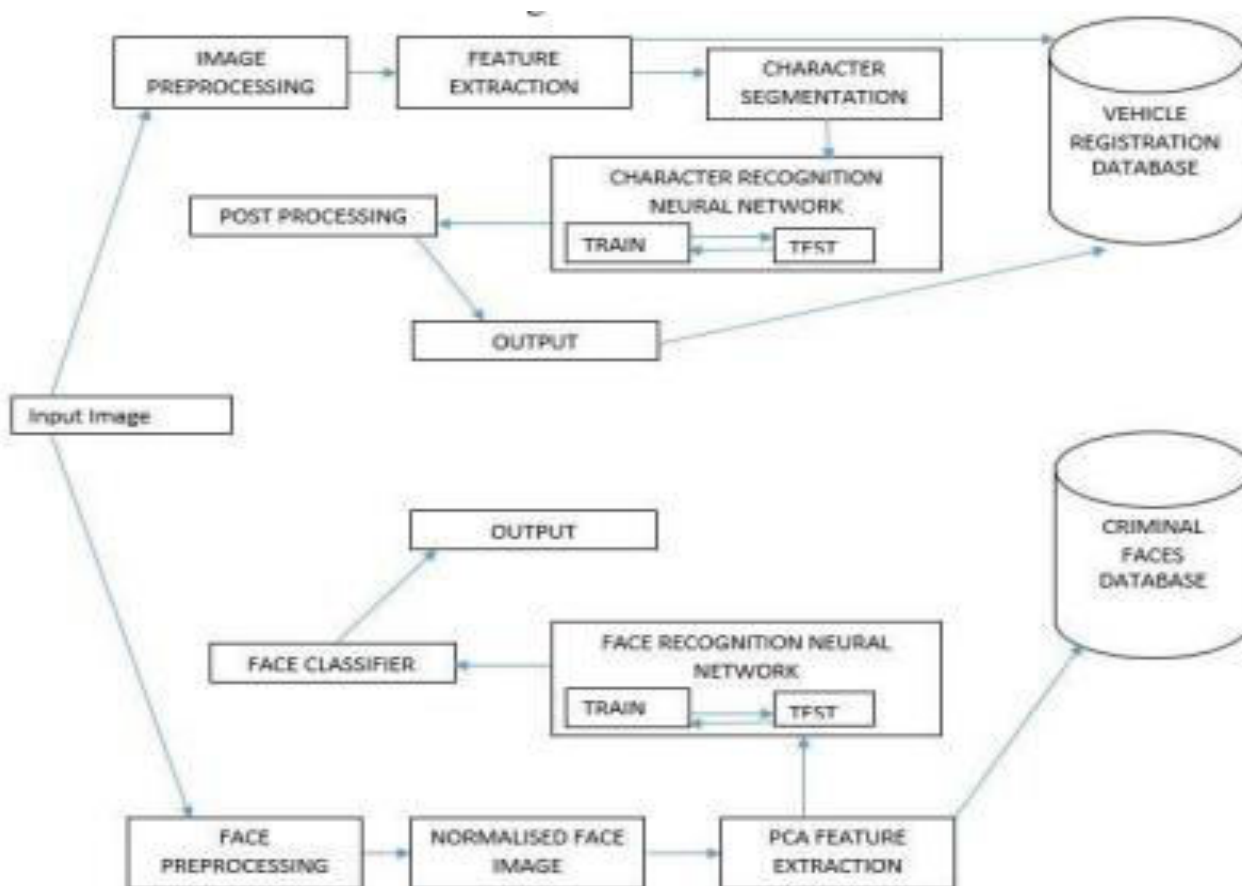


Fig.CRIMINAL FACE DETECTION SYSTEM

### IV. PROBLEM DEFINITION

There is no consult thing regarding criminal face detection in India , although India is a developing country and are working / using these face detection projects by which they are able to find the criminals easily by matching the face in their criminal database by removing the complexity or by matching the victim’s face organs like eyes,ears,nose,by which they can easily recognize the face of the criminals in any difficult condition,so this project help the police of our country and help them by matching the imaginary datasketch or the image with the complexity of photo matching .so we remove the complexity from the image and then matches with the criminal database ,if the data has been matches with the current existing record it will be very beneficial for the department



#### V. FUNCTIONAL AND NON-FUNCTIONAL

The proposed method implement an efficient Face Detection and Recognition technique which is independent of variations in features like color, hairstyle, different facial expressions etc using Viola Jones algorithm.

##### PRE PROCESSING:

A standard image database which is readily available either in color or gray scale is considered. In the Pre-processing stage contrast stretching is performed on the acquired image where the white pixels are made whiter and black pixels are made blacker.

##### FACE DETECTION:

After contrast stretching viola-Jones algorithm is applied for detecting the face in the image. Viola-Jones detector was chosen as a detection algorithm because of its high detection rate, and its ability to run in real time. Detector is most effective on frontal images of faces and it can cope with 45° face rotation both around the vertical and horizontal axis. The three main concepts which allow it to run in real time are the integral image, Ada Boost and the cascade structure.

#### VI. CONCLUSION AND FUTURE WORK

CFD project aims to build a automated Criminal Face Detection system by leveraging the human ability to recall minute facial details. Dedicated Criminal Face Detection System to assist in facial detection of criminals rather police technicians have to go through to different pictures of criminals and manually slice each picture to generate images, this will usually lead to the generation of low resolution and blurred images. This system is aimed to identify the criminals in any investigation department.

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Impact Factor  
7.54

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