

# Criminal Identification by using Face Matching

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**Abstract :** In today's scenario, crime charges are growing at an alarming rate. It is equally essential to capture the thief and to stop theft. Most of the time, thief escapes due to lengthen in motion taken through worried authorities at that time. In this paper, we existing the format of a protection gadget which solves this problem. Our intention is to notice crook in the public locations and purchasing department stores and supply statistics to the close by police stations and person and acquire records about man or woman that whether or not the individual is a desired crook or not. For this we collect statistics of the criminals from police and save the picture in database. We in shape the captured photograph with the database and locate the similarities. If 80% of the photo fits with individual then we will ship alert message to the user, this is achieved with the aid of picture processing. This is done with the help of image processing and image-recognition software. We are then able to send an alert alert to the end of the image, if the image fits with the user's individual

then the alert message will be sent to the person who took the photo.

**Keywords**—Machine Learning, Django, HTML, CSS, JAVASCRIPT, Python, Image processing.

## INTRODUCTION

A new machine of criminal detection the use of face focus which provides us the distinct photograph of the criminal and it moreover detects the faces which we have already saved in our database. If the criminal has entered into our desktop then the software program application suggests hazard with small print of that criminal or if the face or photograph is no longer matched then it suggests patron no longer located in the database it will keep a document of all the timings of his/her entry, which will be beneficial for future reference.

For figuring out a individual face is the decisive phase of the human mind. Facial consciousness is a challenge that finds utility for authentication in [2], safety structures, searching, identifying (or) personal amongst others. A human can without difficulty understand the face, it requires an completely distinct process. A face focus system is anticipated to perceive faces existing in photos or videos. It can function in both or each of two modes: (1) face verification (or authentication),(2)face identification.

## 1.LITERATURE SURVEY

Biometrics is the size and statistical evaluation of people's physical and behavioral characteristics.

This technological know-how is broadly used by means of a safety association for identifications, authentications and get admission to manipulate purpose. It is additionally used by using a crime investigation unit in order to pick out folks based totally on matters like thumbprints, voiceprints and faces

Biometrics is got here from Greek words, Bio which capacity "life" and Metrics, which ability "to measure". According to [6], an editor from techtarget.com, biometrics is the size and statistical evaluation of people's physical and behavioral characteristics. This technological know-how is broadly used by means of a safety association for identifications, authentications and get admission to manipulate purpose.

Totally on matters like thumbprints, voiceprints and faces or even their bodily condition. Based on matters like thumbprints, voiceprints and faces or even their bodily condition. In general, there are two sorts of biometric method, the first one is Physical Biometrics which is used for verification purposes. This approach makes use of fingerprints, face, hand, and eyes, however no longer confined to this 5 matters solely due to the fact biometrics cover a lot of area. The 2d one is Behavioural Biometrics. It is used for identification and additionally verification process. This approach appears at our behaviour. Example of this technique is a keystroke consciousness and speaker identification.

Facial cognizance machine has been used by using groups like Federal Bureau of Investigation (FBI), Central Intelligence Agency (CIA), Facebook and different large businesses such as Apple, ASUS and so on. It is being used for a number motive however now not confined to assist customers in identifying, verifying and looking the face of a character over a massive database of faces. Basically, face focus works by means of first studying the enter photograph and pre-process the image, in which undesirable factor in the face is removed. After that, the picture is in contrast to the one in the database and the device show the matching image.

Face detection is the first step in creating a facial cognizance system. This is the place the gadget notice the face and determines whether or not it is certainly a human face or otherwise. It additionally determines whether or not the device can distinguish between the problem and the historical past for this reason permitting it to discover and apprehend faces easily. Eigenface is probable one of the earliest and first profitable algorithm developed through [7] the place it uses an facts principle method which will search for the first-class matching or viable face records that is encoded in a series of faces that will fine differentiate the faces. It works via first accumulating various pix from the database and symbolize it as a vector, then the algorithm will

locate the common face vector or the suggest and it will subtract the suggest face from every pattern faces. This is beneficial in order to discover the distinguishable points from every photograph and it will then discover the covariance matrix and it will pick the great matching images. It transforms the face pics into a set of groundwork faces which if truth be told are the most important thing of the face itself [8]. The essential aspects decide which instructions in which it is greater environment friendly to signify the facts that will be beneficial in lowering the computational effort .

## 2. Research Gaps

After reviewing the literatures, we found research gaps as follows:

- I. Researchers worked with similar architecture based on Face Matching Model to identify the criminal on the basis of characteristics of person's face image as an input and system give desired information.
- II. Some research work is done by using machine learning and python concepts.

## 3. Research Objectives

In this research, we found our research objectives from research gaps which we found from literature reviews. Research objectives in this work are as follows:

- I. To perform comparative analysis of the proposed Face Matching trained models for detection of Criminal Identification with least cost .
- II. To develop this we have use database in which we stored images from different angle in system.
- III. To develop an application for the implementation of proposed models for detection and identification of criminal in police investigation .

## 4.METHODOLOGY

The proposed machine used for identify the criminal by using the face image as an input and compared it with different photos stored in database and give desired information about the criminal by using image processing method in recognition model.

The working can be referred to as follows:

I.The proposed machine works through first presenting a easy adequate interface which prompts the police to create an account .

II.After that the admin got a e- mail and then the admin activate the account of the police

III. After that police can login in the system and search the criminal by name.

IV.If he wants to search criminal by image, we can take image of criminal as an input then system process the image by comparing with different criminal images stored in database and give desired output which we want.

V.Police can register a new criminal in the system. Police can insert, update and delete the information of criminal.

VI This system very accurate in giving accurate results after making changes in image, this will give as an input.

VII The database in which we have used has stored different angle images,that is why the system give accurate and correct output.

## 5.Implementation

Our system consists of three modules. They are namely

I. User Interface Module                      II. Admin Module  
III.Client Module: Database Operations

**I.User Interface Module :** Actually every

application has one user interface for accessing the entire application. In this application also we are providing one user interface for accessing this application. The user interface designed completely based on the end users. It is provide friendly accessing to the users. This user interface has attractive look and feel. Technically I am using the C# for preparing this user interfaces.

**II.Admin Module:** User requirements Elaboration Further Elaboration Create Assign new user id & password for an employee. Delete Administrator can delete the user id & password of unwanted employee. Update First the details of criminals are to be obtained by using CrimeID.

### III. Client Module:

Our system's database perform following operations—

**a. ADD MODULE or INSERT MODULE:** The add module is helpful in adding the details of the criminals along with the details of the criminal photo. While adding the details of the criminal, we crop the image of the criminal and store those cropped parts in a separate database

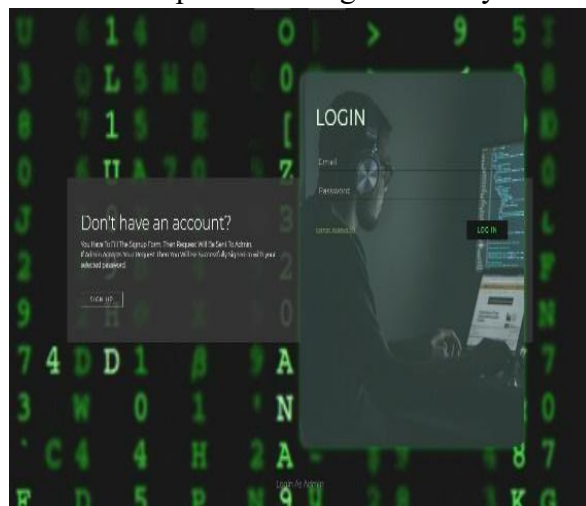
**.DELETE MODULE:** This module deletes the criminal details along with the photo. The operator first submits the criminal id and searches for the availability of the id in the database. If that id is available in the database, then the operator may delete the record of that particular criminal.

**III.UPDATE MODULE:** The operator first enters the criminal id and searches for the availability of that id. If that id is available in the database, then the details of that criminal are retrieved and the operator can update the details of that criminal and that updated details of the criminal are stored in the database again for future retrieval.

## 6. SNAPSHOTS OF MODULES

### I.Login Module

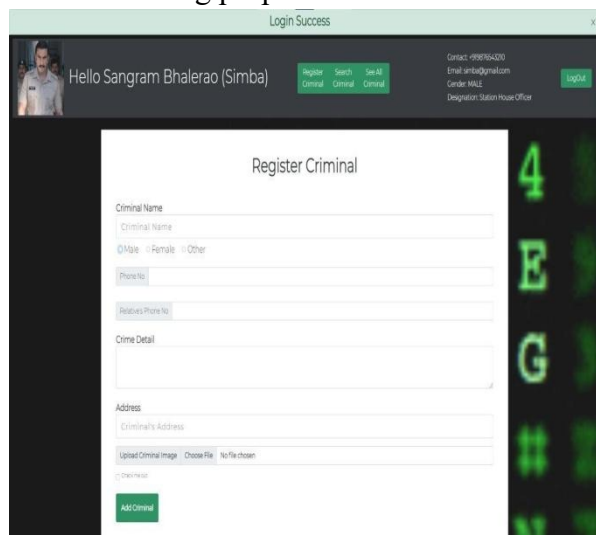
In this user have to sign up and after activation of account then police can login in the system.



**Fig.1.: Login Module**

### II.Criminal Registration Module

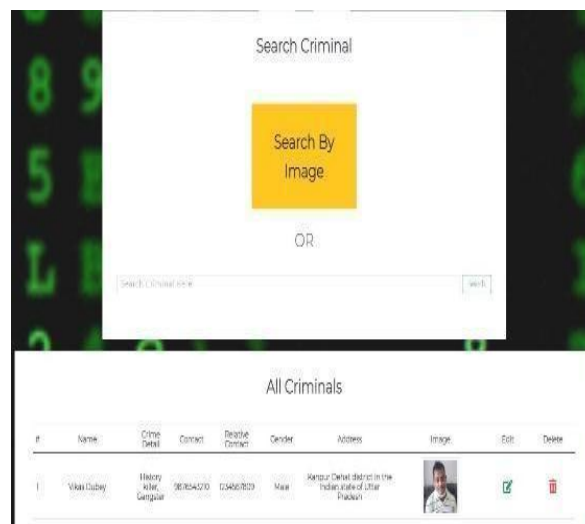
In this police is going to register the criminal for further matching purpose.



**Fig.2: Registration Module**

### III.Criminal Searching Module

In this user or admin search criminal by image processing or by entering criminal name



**Fig .3: Searching Module**

## 7. Conclusion:

In this project, we will be able to detect and recognize faces of the criminals in an image obtained from a camera . We will use Haar feature-based cascade classifiers in OpenCV approach for face detection. It is a machine learning based approach where a cascade function is trained from a lot of positive and negative images. It is then used to detect face in the image. This system can be used to identify the criminals. These models are very useful to find out the criminal background details based on face image, by name and crime details.

### 8.Limitation and Future Scope:

The following are the limitation of system-

- Time wastage in identify individual who has been not present in our software.
- No accurate system to correctly identify a criminal.
- Not an accurate system to correctly recognize face of a criminal based on previous image.
- The system will need internet connection.

In future we can also identify criminal by using eye scanning, thumbsprint etc. We can also track location using gprs and also access the live location of criminal.

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#### **REFERENCES:**

- [1] R. Chellappa, et al. Human And Machine Recognition Of Faces: A survey. Proceedings of the IEEE, 83 (1995), pp. 705- 741.
- [2] R. Padilla, C. F. F. Costa Filho And M. G. F. Costa “Evaluation Of Haar Cascade Classifiers Designed For Face Detection” International Journal Of Computer, Electrical, Automation, Control And Information Engineering Vol:6, No:4, 2012.
- [3] Snehal Humne1, Prachi Sorte2 ” A Review On Face Recognition Using Local Binary Pattern Algorithm” International Research Journal Of Engineering And Technology (IRJET) Volume: 05 Issue: 06 (2018).
- [4]<https://www.learn.sparkfun.com/notification/blynk>
- [5]<https://www.journaldev.com/python-numpy-tutorial>
- [6] Shervin Emami, Valentin Petruț Suciu “ Face Recognition Using Open Cv” Journal Of Mobile, Embedded And Distributed Systems, Vol. Iv, No. 1, 2012.
- [7]<https://www.blog.pythonlibrary.org/pil>
- [8] Python Using Idle By Herb Norbom. Publisher: Createspace Independent Publishing Platform; First Edition Edition (2013).
- [9] Monirul Islam Pavel, Israth Chowdhury, Afrin Akther “Raspberry Pi For Image Processing” International Journal Of Scientific & Engineering Research(IJSER) Vol. 5(2018).
- [10] S.Kalas, Mamata “Real Time Face Detection And Tracking” International Journal of Computing and Artificial Intelligence Volume:2 Issue :1(2014).
- [10][www.IJARIT.com](http://www.IJARIT.com).
- [11]<https://www.wikipedia.org>.