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# Criminal Face Identification System

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**ABSTRACT**

A criminal record usually includes personal information about a person as well as images. To identify any criminal, we need some identification regarding the person, which are given by eyewitnesses. The clarity and resolution of the captured image segments is usually poor, making it difficult to distinguish a face. We're working on software to solve problems like these. To overcome this sort of problem we are developing software. The face is our primary focus of attentionplaying a major role in conveying identity and emotion. Although the ability to infer intelligence or character from facial appearance is difficult, the human ability to recognize faces is remarkable. The operator first logs into the system by entering credentials. Then depending on the work allotted he/she has to select the screens from the main menu screen. There are mainly three important functions which he/she can do: they are adding details, clipping images and constructing the face by using the eyewitness' help. The face that is finally formed is one who has committed the crime.

## I. INTRODUCTION

Face Identification is a technique that is mostly used to identify offenders based on eyewitness testimony. We create an image based on the clues by taking an image from our database and comparing it to the images we already have.To identify any criminals, we must have a record that generally contains name,age,gender,location, previous crime, photo, etc. The primary task at hand is, given still or video images that require the identification of the one or more segmented and extracted from the scene, whereupon it can be identified and matched. The image is then identified using the database of stored images.

## II. LITERATURE SURVEY

**1. SanikaRatnaparkhi, AamaniTandasi, Shipra Saraswat**: The process of identifying and spotting criminals is slow and difficult. Criminals these days are getting smarter by not leaving any form of biological evidence of fingerprint impressions on crime scenes. Using cutting-edge face recognition technology is a quick and simple option.

**2. P Apoorva, H.C.Impana, S.L.Siri :** This paper is real time face recognition using an automated surveillance camera. The proposed system consists of 4 steps including training of real time images, face detection using Haar-classifier, comparison of trained real time images with images from the surveillance camera, result based on the comparison.

**3. S Ayyapan, S Matilda:** Face recognition is a biometric based technology that maps an individual facial features mathematically and stores the data as a face print. It employs Machine Learning on the image and generates a feature vector which maps an object with an array of numbers. Firms like Google and Facebook use this technology to create a digital profile for its consumers.

**4. Richa vij, Baijnath Kaushik:** Face is considered as a vital fragment in the human body and humans use the face for identifying people. In the video, Face detection is a procedure to detect a person's face from a video sequence and Face tracking is the process where we track face throughout the video.

**5.A literature assessment of facial-recognition algorithms by Paramjit Kaur, Kewal Krishan, and Suresh K.Sharma, Tanuj Kanchan:** This review presents the broad range of methods used for face recognition and attempts to discuss their advantages and disadvantages. The essentials of face-recognition technology, its typical workflow, background and challenges, and possible applications are presented first. Face-recognition methods then are explored, along with their advantages and pitfalls. In the final section, the potential and future consequences for advancing the field are explored.

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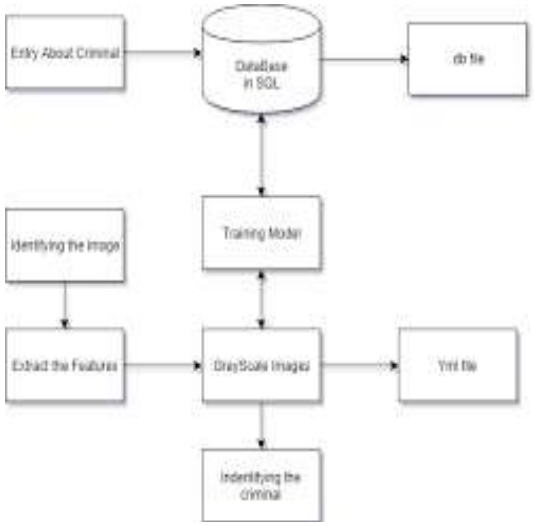
## III. PROBLEM STATEMENT

This research aims to examine a person using previously acquired photos. The classification will be based on prior acquired photographs of different individuals.

## IV. PROCESS FLOW DIAGRAM




The system follows the architecture below, which describes a conceptual model that defines the structure, behaviorand software components, but also a software-to-hardware architectural mapping and interpersonal behavior with these components. The face recognition processing flow, consists of four modules: detection, alignment, feature extraction, and matching. Preprocessing and recognition stages are the two basic stages that the entire system modules or steps can be subdivided into. Face detection and alignment, as well as localization and normalizing, are part of the first step. The excision and matching of facial features are the final stage. Face detection creates "nonface" segments that separate the face from the background. Face alignment is used to obtain more accurate localization and to standardize faces, helping it to deal with the coarse approximations of the location and scale of each detected face provided by the face detection module.

## V. DATABASE OPERATIONS MODULES

ADD MODULE: It is helpful in adding the details of the criminals along with the details of the criminal photo. We crop the criminal's photograph and save the trimmed bits in a variety of databases while adding the criminal's details.

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

UPDATE MODULE: The administrator enters the criminal id and then searches for that availability. If that id is registered, the details of that criminal are retrieved, and the operator can edit those details. The new details of the criminal are then stored in database for future retrieval.

IDENTIFY MODULE: The eyewitnesses observe the cropped portions of the offenders as well as the criminal Id.The eyewitness selects a particular cropped part of the criminal and it is frozen by the operator. The complete face of the criminal is constructed and the details of the criminal are retrieved.

## VI. EXISTING SYSTEM

This system is manual only.We have a storage facility for criminal files here. It is a laborious process to compare the criminal shots with the existing images. The result of this process is somewhat slow. Discovering criminal data is quite essential.

## VII. PROPOSED SYSTEM

To address the shortcomings of the existing system, we created a system that will be extremely valuable to any investigation department.Here the program keeps track of the record number of each slice during the construction of an identifiable human face and calculates the maximum number of slices of the similar record number.When the "locate" option is used, the implementation acquires the personal record of the suspect (whose segment formed the critical components of the generated human face) based on this record number.

## VIII. ARCHITECTURE

As layers, we divided our system into three subsystems.The three layers are closed architecture formsGUI layer, Network layer, and I/O layer are the three layers. The GUI layer's goal is to create a user-friendly interface for interacting with the system. It is based on the Network layer,

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which provides rudimentary FTP functionality. The lowest layer is the I/O layer that provides services like reading or writing files to and from local and remote systems. 35 When top-level subsystems are identified, the designer should show the information flow among the subsystemsExisting systems typically use one of several architectural frameworks. Batch transformation, continuous transformation, interactive interface, dynamic simulation, real-time system, and transaction manager are the different types of transformations.In the architectural frameworks specified above, our system will best suit interactive interface architecture, since there are a large number of interactions between system and userAn interactive interface is a system in which interactions between the system and external agents, such as humans, devices, or other programs, are the primary focus. The external agents are independent of the system, so their inputs can't be controlled, although the system may solicit responses from them.

## V. CONCLUSION

The purpose of the face identification system is to identify criminals. In past years this process was carried out by humans. This process gives the exact image of the criminal but it is very difficult to identify the criminal details and also it requires a large amount of human burden.

The main aim of our project is to overcome the drawbacks of human based systems by using the machine-based face identification process. In this process we store the details of the criminal into the database along with his photo or image. The image is then segmented into clips containing hair, forehead, eyes, nose, lips, and chin, that are then recorded. When a crime happens, we compare results provided by the eyewitness to the clips already saved in the database to identify the perpetrator. Using Image Processing Techniques, this project can be expanded to fix the gaps between the clips after the image has been constructed to create a flawless photograph.

## VI. FUTURE WORK

As for the future work, a lot more testing and debugging is needed as this system was developed in a very limited time and resources. However, since it is an open-source software, developers can easily add new functions and improve the default function. Additionally, the system can feature an image processing where the input image can be made less blurry so the system can detect faces on lower quality images. Aside from that, the system can access a database that has the personal information of the people in it, so once FRCI analyzes a face, it will show it.

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