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Criminal Face Detection

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Abstract – Criminal Face Detection project aims to build an automated Criminal Face Detection system by levering 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. 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 – Privacy, Artificial Intelligence, Algorithms, Investigation.

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INTRODUCTION

The origin of tern biometrics is from Greek language, where bio literally means life and metrics refer to measuring something. Biometrics comes from the Greek languages, Bio meaning "life," and Metrics, meaning "to measure." Biometric application usually helped in proper assessment and statistical analysis of the physical and physiological features of people. This technology is frequently used by a safety company to identify, authenticate and regulate access purposes. It is useful in finding out suspect persons in criminal cases based upon their thumbprint, voice/face identification and medical necessity for a criminal investigation. There are two types of biometric methods which are generally prevalent among official practices. Physical biometrics is usually useful for the objective of verification. It facilitates in getting fingerprints, facial recognition and identification though eye/hand. The other category is Biometrics of Comportment which is also used to identify and verify processes. Our behavior is examined with this approach. The keystroke recognition and speaker identification are an example of this approach. There are different law-enforcement agencies established in western nations and corporate entities like Facebook, Apple,etc have employed the face recognition technology. It is used for several purposes, but not just to assist users to identify, check and search a person's face via a vast facial database. The technique of facial recognition is applicable through scanning of basic facial features and its measurement through which a mathematical formula in the form faceprint can be created. The image is then compared to the database image and the corresponding picture is shown in the system. In the year 2020, The National Crime Records Bureau (NCRB) put a public proposal to facilitate the technique of automated facial recognition system called as AFRS. The NCRB is targeting to update new database through which identification of criminals through pictures and videos can be possible. This application can be made compatible to identify unrecognized corpses and also detecting possible crime. Integration with different existing database of criminals and technology like CCTV footage may help further in analyzing accurate analysis and information exchange in the interest of criminal investigation.

LITERATURE REVIEW

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, especially for different types of appearance of same faces.

Project Objective

This project is intended to identify a person using the images previously taken. The identification will be done according the previous images of different persons.

Project Scope

The scope of the project is confined to store the image and store in the database. When a person has to be identified the images stored in the database are compared with the existing details.

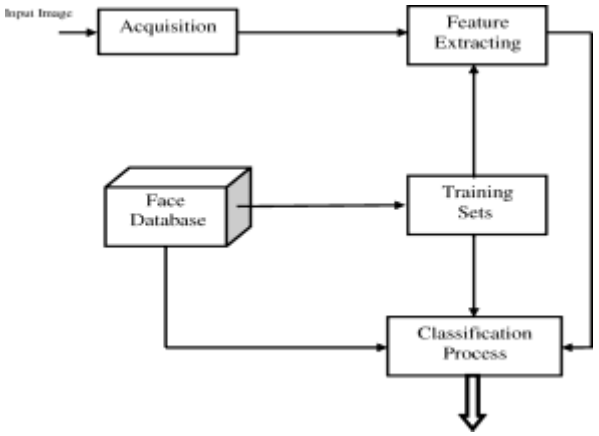
Overview of the project—

This project is aimed to identify the criminals in any investigation department. Here the technique is we already store some images of Criminal Face Identification System.

The criminals in our database along with his details and those images are segmented into many slices say eyes, hairs, lips, nose, etc. These images are again stored in another database record so to identify any criminals; eyewitnesses will see the images or slices that appear on the screen by using it we develop the face, which may or may not be matched with our images. If any image is matched up to 99% then we predict that he is only the criminal. Thus using this project it provides a very friendly environment for both operator and eyewitness to easily design any face can identify criminals very easy.

WORKING:

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.



ADVANTAGES:

As a key element in facial imaging applications, such as facial recognition and face analysis, face detection creates various advantages for users, including:

- Improved security. Face detection improves surveillance efforts and helps track down criminals and terrorists. Personal security is also enhanced since there is nothing for hackers to steal or change, such as passwords.
- Easy to integrate. Face detection and facial recognition technology is easy to integrate, and most solutions are compatible with the majority of security software.
- Automated identification. In the past, identification was manually performed by a person; this was inefficient and frequently inaccurate. Face detection allows the identification process to be automated, thus saving time and increasing accuracy.

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