ONLINE CRIMINAL IDENTIFICATION USING ML & FACE RECOGNITION TECHNIQUES

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ABSTRACT

In current days identifying criminals is becoming very complicated task for the cybercrime people because it is having a lot of factors need to be analyzed.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 eyewitnesses. 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 many software's by using recent trends to identify the criminals but no method is accurate in identifying the criminal information accurately. Some of the best methods are iris, eyes, biometric, thumb, face and lot more. One of the applications is face identification. The face is our primary focus of attention in social inter course playing a major role in conveying identity and emotion. Although the ability to infer intelligence or character from facial appearance is suspect, the human ability to recognize faces is remarkable. The operator first logs into the system by entering username and password. Then depending on the work allotted he has to select the screens from main menu screen. There are mainly three important function which he can do they are adding details, clipping image and finally construction of the face by using the eyewitness. The face that is finally formed is one the who has done the crime.

KEYWORDS:

Criminal Information, Facial Identity, Facial Emotion, Clipping Images, Cyber Crime.

1. INTRODUCTION

Face Identification is a strategy that is chiefly used to distinguish lawbreakers dependent on the signs given by the onlookers. In light of the hints we foster a picture by utilizing the picture that we have in our data set and afterward we contrast it and the pictures as of now we have. To distinguish any crooks we should have a record that by and large contains name, age, area, past wrongdoing, sex, photograph, and so on The essential job that needs to be done is, given still or video pictures require the distinguishing proof of the at least one divided and removed from the scene, where upon it tends to be recognized and coordinated. "Picture is characterized as" an accurate or similar to portrayal of a being or thing."

The picture or monochrome picture, for example, highly contrasting passage is addressed as two-dimensional light force work f (x, y) where x and y indicates spatial co-ordinates. An advanced picture is a picture of f (x, y) that has been digitized both in spatial co-ordinate and splendor. The components of a particularly computerized exhibit are called picture components, picture components and pixels or pels. Criminal record contains individual data about a specific individual alongside photo. To distinguish any criminal we need ID with respect to that individual, which are given by the observer. ID should be possible by unique finger impression, eyes, DNA and so forth One of the applications is face ID. The face is our essential focal point of consideration in friendly intercourse assuming a significant part in passing on personality and feeling. Despite the fact that it is hard to construe knowledge or character from facial appearance, the human capacity to recall and perceive faces is astounding. A face acknowledgment framework utilizes an information base of pictures and looks at one more picture against those to discover a match, in the event that one exists.

For every facial picture, distinguishing proof should be possible utilizing the RGB esteems for the eye tone, the width and tallness of the face and furthermore utilizing different proportions which was finished by Kovashka and Martonosi [1]. This framework is planned to distinguish the crooks in any examination division. In this framework, we are putting away the pictures of lawbreakers in our information base alongside his subtleties and afterward these pictures are portioned into four cuts brow, eyes, nose and lips. These pictures are again put away in another information base record in order to make the distinguishing proof cycle simpler.

This task is meant to distinguish the lawbreakers in any examination division. Here the strategy is we as of now store a few pictures of the lawbreakers in our information base alongside his subtleties and that pictures are sectioned into many cuts say eyes, hairs, lips, nose, and so forth These pictures are again put away in another data set record so to recognize any hoodlums; onlookers will see the pictures or cuts that show up on the screen by utilizing it we foster the face, which might be coordinated with our pictures. Assuming any picture is coordinated up to close to 100%, we anticipate that he is just the crook. Consequently utilizing this undertaking it gives a well-disposed climate to both administrator and onlooker to handily configuration any face can recognize criminals very simple.

This task is expected to distinguish an individual utilizing the pictures recently taken. The distinguishing proof will be finished concurring the past pictures of various people. The extent of the

undertaking is restricted to store the picture and store in the data set. At the point when an individual must be recognized the pictures put away in the data set are contrasted and the current subtleties. This undertaking can be utilized to distinguish a criminal in the examination office. The undertaking keeps up with the photos of the relative multitude of hoodlums. Each photo is cut into various parts.

2. LITERATURE REVIEW

Face detection is the first step in developing a facial recognition system. This is where the system detect the face and determines whether it is indeed a human face or otherwise. It also determines whether the system can distinguish between the subject and the background thus allowing it to detect and recognize faces easily. Eigen face is probably one of the earliest and first successful algorithm developed by [7] where it uses an information theory approach which will search for the best matching or possible face information that is encoded in a collection of faces that will best differentiate the faces. It works by first collecting several images from the database and represent it as a vector, then the algorithm will find the average face vector or the mean and it will subtract the mean face from each sample faces. This is useful in order to find the distinguishable features from each image and it will then find the covariance matrix and it will select the best matching images. It transforms the face images into a set of basis faces which essentially are the principal component of the face itself [8]. The principal components determine which directions in which it is more efficient to represent the data that will be helpful in reducing the computational effort.

Key goal of computer vision researchers is to create automated face recognition systems that can equal, and eventually surpass, human performance. To this end, it is imperative that computational researchers know of the key findings from experimental studies of face recognition [1]. These findings provide insights into the nature of cues that the human visual system relies upon for achieving its impressive performance and serve as the building blocks for efforts to artificially emulate these abilities. The face recognition problem has been studied for more than two decades. The approaches proposed in the literature so far can mainly be classified into two categories: model based and appearance based as described by Fu Jie Huang and Zhihua Zhou [5]. The model based method tries to extract geometrical parameters measuring the facial parts while the appearance based approach use the intensity or intensity-derived parameters such as eigen faces coefficients to recognize faces. Due to the changes of lighting condition, expression, occlusion, rotation, etc., the human face appearance could change considerably.

In the early years of the 21st century, we found ourselves continually moving further away from the necessity of physical human interaction playing a major part of everyday tasks. Striding ever closer to an automated society, we interact more frequently with mechanical agents, anonymous users and the electronic information sources of the World Wide Web, than with our human counterparts. It is therefore perhaps ironic that identity has become such an important issue in the 21st century. It would seem that in an age where fraud is costing the public billions of pounds every year and even the most powerful nations are powerless against a few extremists with a flight ticket, it is not who we are that is important, but rather, that we are who we claim to be. For these reasons, biometric authentication has already begun a rapid

growth in a wide range of market sectors and will undoubtedly continue to do so, until biometric scans are as commonplace as swiping a credit card or scrawling a signature [4].

3. EXISTING SYSTEM AND ITS LIMITATIONS

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. 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. The development of face identification has been past from the year to years. In recent years to identify any criminal face they used to make a sketch or draw an image based on the eyewitnesses. It used to take more amount of time and it was very difficult task for any investigation department to easily catch the criminals within a stipulated time. In order to catch the criminals first they used to search their record whether to find out is there any record about that particular person in the past. In olden days each and every record was maintained in the books or registers or files which used to contain information about previous criminals with their names, alias name, gender, age, crime involved, etc. Here each and every task used to take the help of the person because they used to write in them and it needed very much of manual effort.

LIMITATIONS OF THE EXISTING SYSTEM

The following are the main limitations of the existing system. They are as follows:

1. Need of extra manual effort.
2. It used to take much time to find any criminals
3. Not very much accurate.
4. Danger of losing the files in some cases.
5. Need Good Knowledge in drawing.

4. PROPOSED SYSTEM AND ITS ADVANTAGES

To overcome the drawbacks that were in the existing system we develop a system that will be very useful for any investigation department. Here the program keeps track of the record number of each slice during the construction of identifiable human face and calculate maximum number of slices of the similar record number. Based on this record number the program retrieves the personal record of the suspect (whose slice constituted the major parts of the constructed human face) on exercising the "locate" option.

ADVANTAGES OF THE PROPOSED SYSTEM

The following are the some of the advantages of using proposed system, they are as follows:

1. Very fast and accurate.
2. No need of any extra manual effort.

3. No fever of data loss.

4. Just need a little knowledge to operate the system.

5. Doesn't require any extra hardware device.

6. At last very easy to find the criminals

5. IMPLEMENTATION PHASE

A module is a small part of our project. This plays a very important role in the project and in coding concepts. In Software Engineering concept we treat it has a small part of a system but whereas in our programming language it is a small part of the program, which we also called as function in, some cases which constitute the main program. Importance of modules in any software development side is we can easily understand what the system we are developing and what its main uses are. At the time of project we may create many modules and finally we combine them to form a system.

5.1 ADD IMAGE MODULE

Add Image is a module that is considered with adding image along with the complete details of the person of whom we are taking image. In this we add Image by importing from the Internet and store them in our system and database. This module is mainly considered for adding details of the criminals like name, age, alias name, gender, location, state, Arrested Date, etc. At the time of the adding image we give some criminal id to that particular person, so that it can be easily added to the database with any duplication of the data.

5.2 CLIP IMAGE MODULE

This modules main function is to divide the images into different pieces such as hairs, forehead, eyes, nose and lips and store them in the database and also creates the files onto our system.

5.3 CONSTRUCT IMAGE MODULE

Based on the eyewitnesses we are going to construct the images. The witness will give us instruction by looking onto the screen on which there will be the parts of the images like eyes, hairs etc.
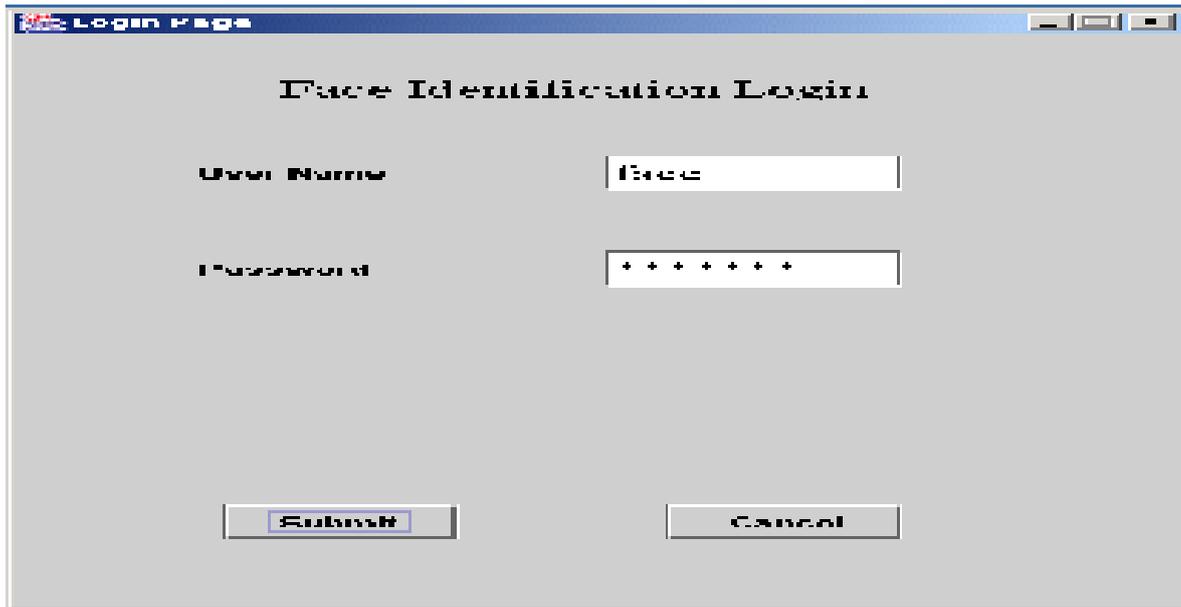
5.4 FACE IDENTIFICATION MODULE

This module contains the interface to take the image from above module and it compares or searches with the images already there in the database. If any image is matched then we identify him/her as the criminal else we add that new image again to the database.
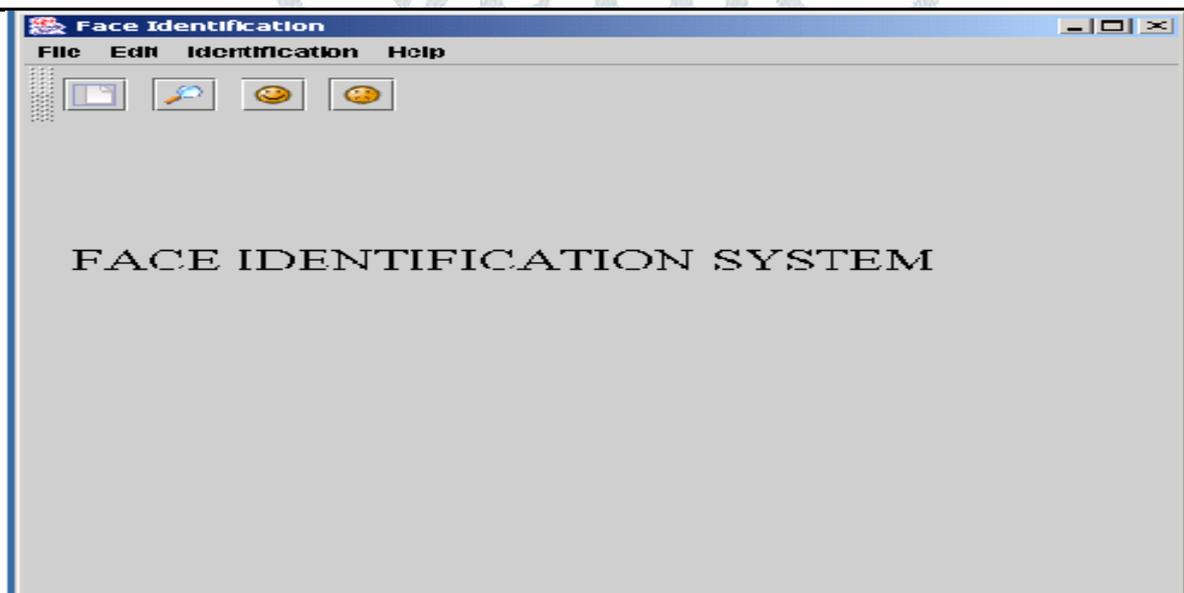
6. EXPERIMENTAL RESULTS

For showing the performance of our proposed application, we try to deploy the current application using JAVA as programming language. First we used below dataset to train the application.
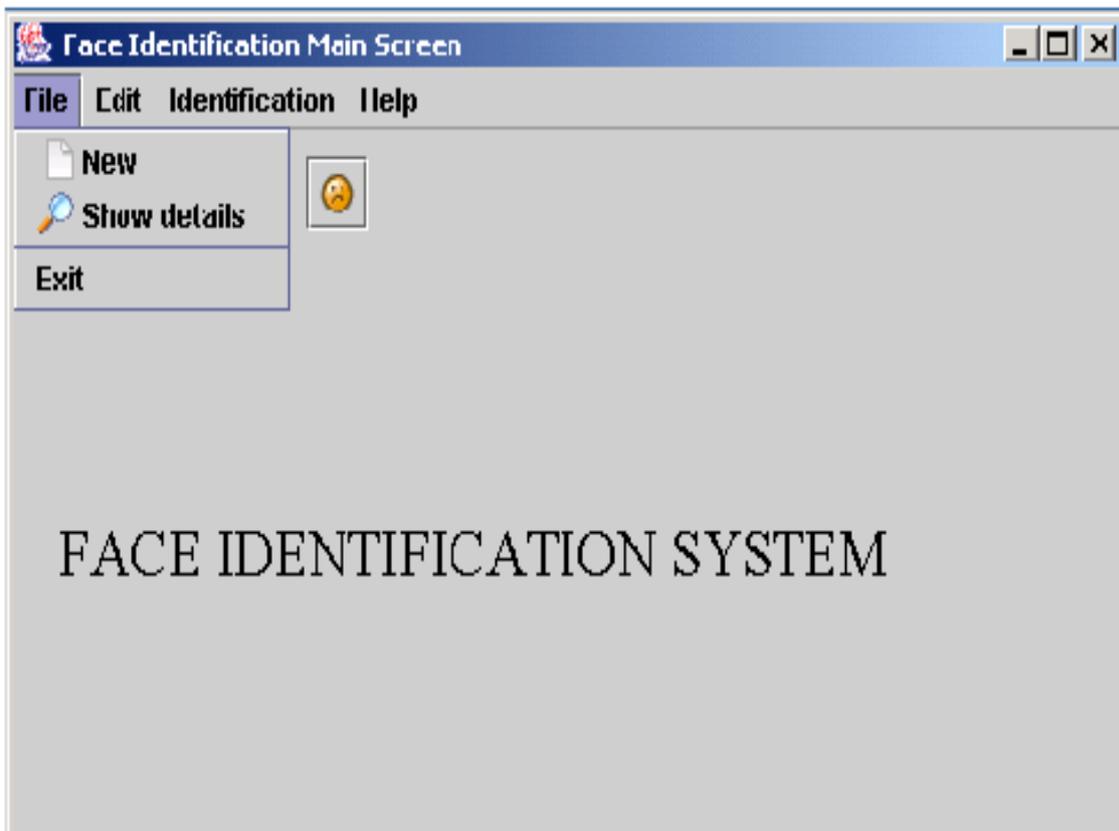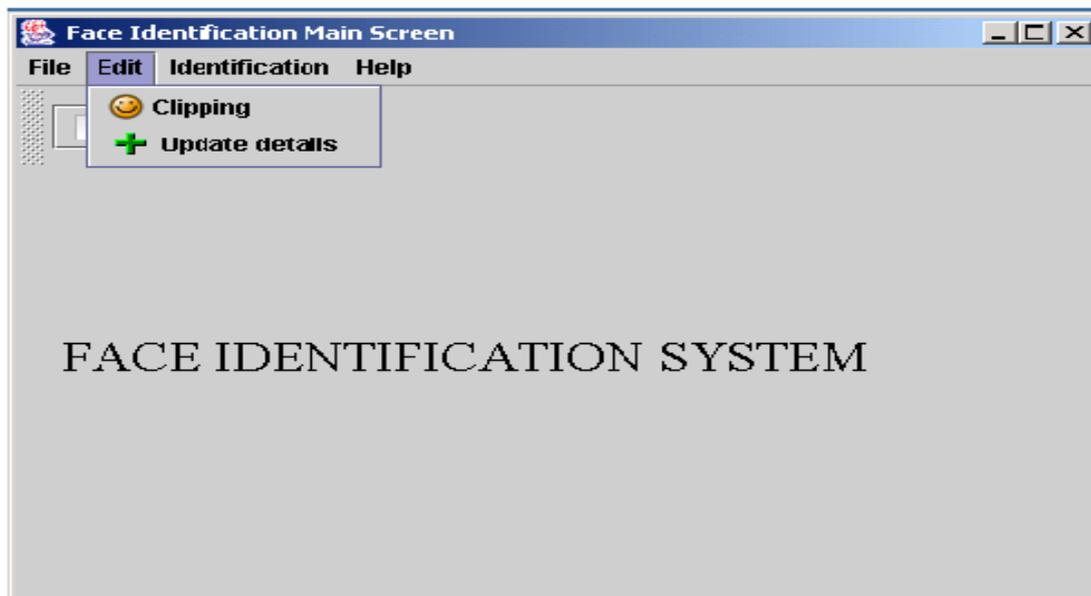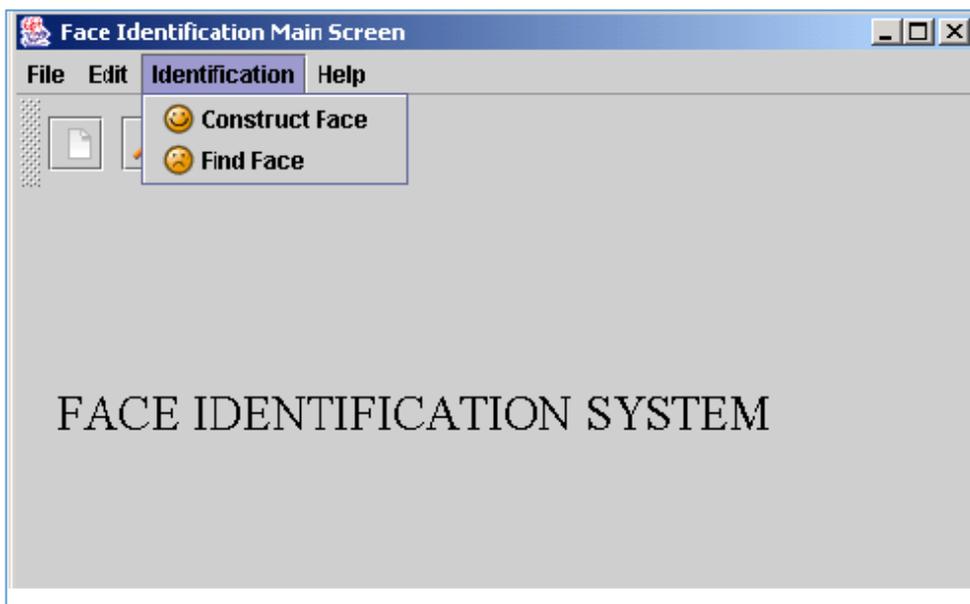
LOGIN SCREEN

MAIN SCREEN

FILE MENU

EDIT MENU

IDENTIFICATION OF FACES

NEW CRIMINAL FORM

CLIP IMAGE SCREEN

CONSTRUCT SCREEN

FIND FACE

In the above screen we can clearly identify the criminal information based on image clippings based on the face recognition.

7 . CONCLUSION

The purpose of face identification system is to identify criminals. In past years this process is 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 much amount of human burden. The main aim of our project is to

overcome   the drawbacks of human based system by using the machine based face identification process. In this process we store the details of criminal   into the database along with his photo or image. Then we make the image into different clips containing hair, forehead, eyes, nose, lips and chin   and store these clips into the database. When   any   crime occurs we compare the details given by the eyewitness with the clips already stored in the database and we will identify the criminal. This project can be extended to adjust the gaps between the clips after construction of the image to be a perfect photograph using Image processing Techniques.

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