BANKING TRANSACTION USING FACIAL RECOGNITION

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Abstract: The emergence and use of facial recognition payment technology has brought new challenges. Although credit-card payment is quick and easy, it is easy to lose a card or forget the password.Because people use simple passwords and reuse them on different accounts and services, passwords can be shared and cracked. QR payment is inseparable from smart phones, smart phones may be lost, signals may be unstable, and batteries may be exhausted. However, facial- recognition technology, which detects and describes feature vectors without physical contact, directly contributes to overall efficiency, performance, and accuracy. Currently, studies of technical issues of facial recognition technology and facial-recognition payment systems are very popular. There are many studies that emphasize the working principle of the facial- recognition system, the system's reliability, and the future development trend. However, for non-technical issues, such as from the perspective of consumers, research on the characteristics of facial recognition payment and the factors affecting consumer's intent to use is rare.

Now a days, Face recognition has a wide range of possible applications from person identification and surveillance to electronics marketing and advertising for selected customers. Facial recognition is a form of inheritance authentication – the kind that requires biometrics. This type of technology is more efficient than other forms of authenticating a person's identity,since it does not require to remember the logging information or no need to worry about lost, stolen, or entry cards. The algorithm which we used in our project is Haar Cascade Algorithm to detect the faces. The latest trend of making financial transactions is done by the use of cards or internet banking.A person may have multiple bank accounts across several banks which makes it difficult for him/her to manage the transactions i.e. he/she either has to carry several cards or use a bunch ofbank websites for accomplishing his/her transaction purposes. This situation demands the need of a simple, secure and hi-tech system for achieving the purposes of making transactions. We propose such a system that uses the latest technologies like Near Field Technology NFC and multifactor authentication which can be used on any NFC enabled Smartphone. The multi factorauthentication system uses a 4-digit PIN as the knowledge factor, an NFC enabled Smartphone,instead of cards, as the possession factor and the face of the user as the inherence factor for the purpose of authentication. The proposed system which can be implemented as cross-platform mobile application, not only allows the user to make secure transactions, but also allows him/herto make transactions from his/her multiple accounts.

1. INTRODUCTION

In the past few years, the Indian banking sector has completely transformed. The banks are facingmany challenges. Many financial innovations like ATMs, credit cards, debit cards, mobile bankingetc. have completely changed the face of Indian banking. But still there is a need to have more innovative solutions so that the challenges can be solved and opportunities can be availed efficiently by the Indian banks. We can overcome this problem by using Facial Recognition. Facerecognition is the process of taking a face in an image and actually identifying who the face belonged

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to. Facial Recognition is secure , cost effective , smart integration and easy to manage.

Machine learning (ML) is the scientific study of algorithms and statistical models that computer systems use to perform a specific task without using explicit instructions, relying on patterns and inference instead. It is seen as a subset of artificial intelligence.

 Machine learning algorithms build a mathematical model based on sample data, known as "training data", in order to make predictions or decisions without being explicitly programmed toperform the task. Machine learning algorithms are used in a wide variety of applications, such as email filtering and computer vision, where it is difficult or infeasible to develop a conventional algorithm for effectively performing the task. we can use machine learning technology, open CV,sqllite database and Haar Cascade algorithm

Face recognition is a biometric software application adapted to identify individuals via tracking and detecting. The main intention of this paper is to recognize the faces of people.

To identify the individuals, Surveillance camera with face recognition system can be provided. Face recognition system has the dexterity to mitigate the danger and ultimately ward off any futureassault from happening. There are countless applications for this Face recognition system over theworld. It has also elevated in applications like facebook , instagram and in many social media platforms. It will suggest the user to tag the person who has been detected in images.

 There are three steps: face detection, face extraction and face recognition. In this proposed work,Viola Jones algorithm is adapted for face detection. AdaBoost algorithm is united with Viola Jonesalgorithm to make a strong classifier. Haar like features are adapted by Viola -Jones for face detection.

Proposed System

Although there are many methods to detect the face. But in this project, we are going to use haar cascade model to detect the face. The haar cascade algorithm makes use of a kind of **filter to perform feature extraction from the given image**. These filters inspect only one portion of the image at a time. Then the intensity of the pixels in the white portion and in the black portion is added. The result of subtraction of these two summations is the feature extracted value.

2. PREVIOUS WORK

[1] From "Real Time Face Detection and Tracking Using OpenCV" paper we found that they wereusing eigen faces for face detection which has less accuracy than LBPH which labels each pixel of the image based on label of neighboring pixels if similarities are found in the pixels. In this paper we got to know about OpenCV module made by Intel in C++ language which can be used in Python for object detection.

 [2] From "Facial Recognition using OpenCV" paper we were able to deduce how to train datasetthat contains images of users stored in them. In training the first step is to check whether the size of all the images is same. As the images are only stored in gray scale for this algorithm to work the LBP operation is executed which creates boundaries of

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various objects present in the image bycomparing the light and intense dark contrast in the gray image using histogram. The dark and light contrasts in the picture are used by the computer to create virtual lines on the picture and using this line as comparison parameters along with already stored basic line structures the computer is able to detect the objects in the picture and if programmed can be used to specially tomark out faces in the picture.

[3] From "Multiple Face Detection and Tracking using Adaboost and Camshift Algorithm" paperwhich uses adaboost algorithm which uses the boundaries created by LBP operations to try and figure out which boundary in the image is closest to human face. It removes the weak features thatare present in the integral images like the boundary feature of background and non-facial region in the picture.

 [4] From "Image-based Face Detection and Recognition: "State of the Art"" paper imageprocessing using local binary pattern histogram where they were using histogram data for image training and prediction. Prediction is made by comparing histogram of the real time image with the trained image.

3. ARCHITECTURAL DESIGN

The architecture of the System consists of three modules, namely:

- Take image: It captures the digital image of a human being
- Train image: which handles comparison of the captured data withstored data.
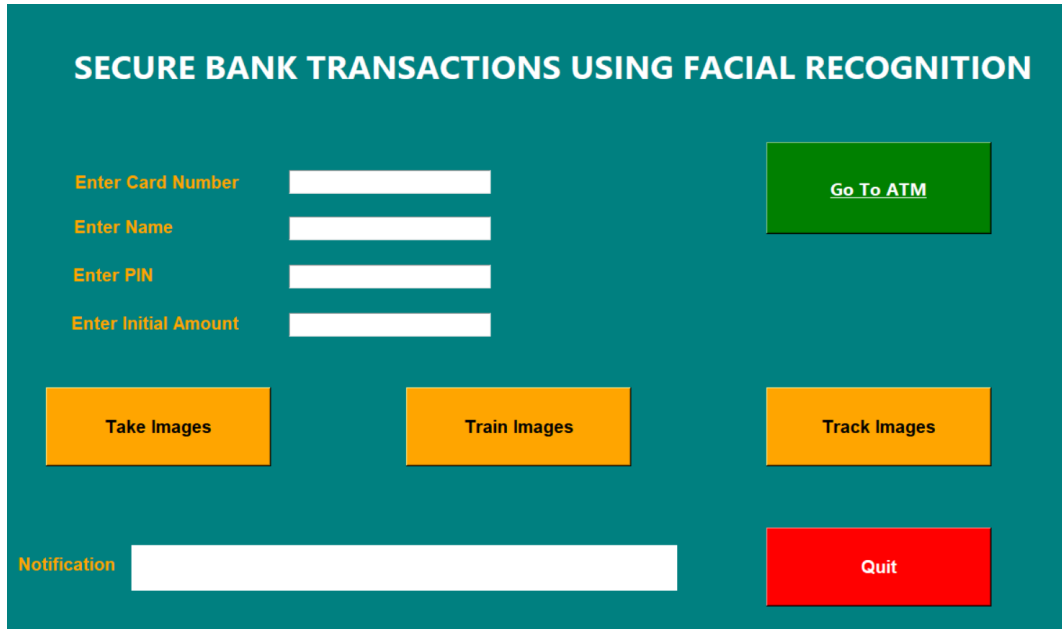- Track image: Recognizes the face which is trained.
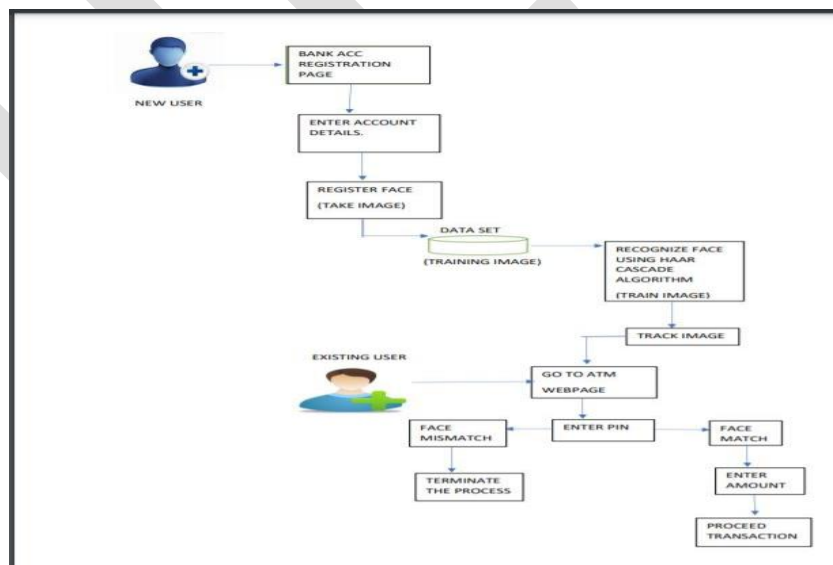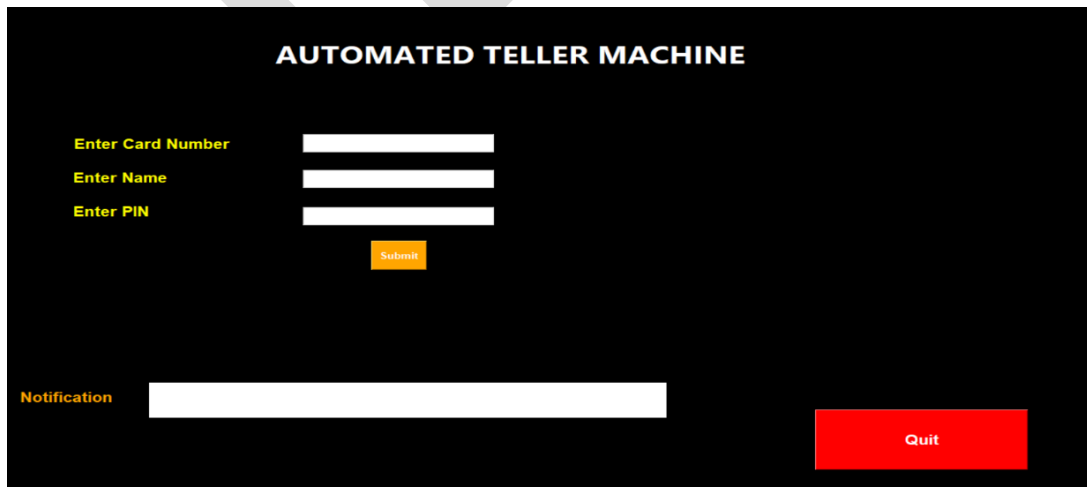

Fig No. 3.1 Architecture

4. LAYOUT OF WEBPAGE:

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The layout of the designed webpage

Fig No. 4 .1 Bank Acc Registration

ATM:

Fig No. 4.2 ATM

5. RESULTS
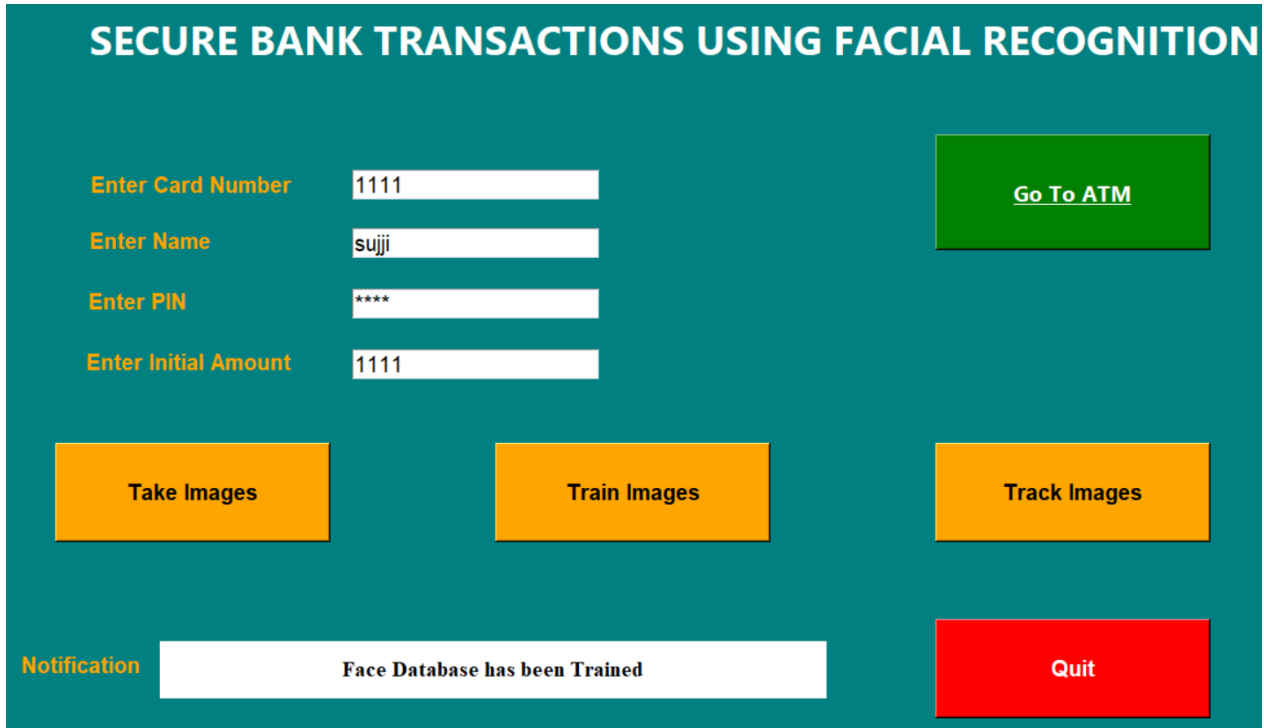
In this chapter the results obtained using proposed model are
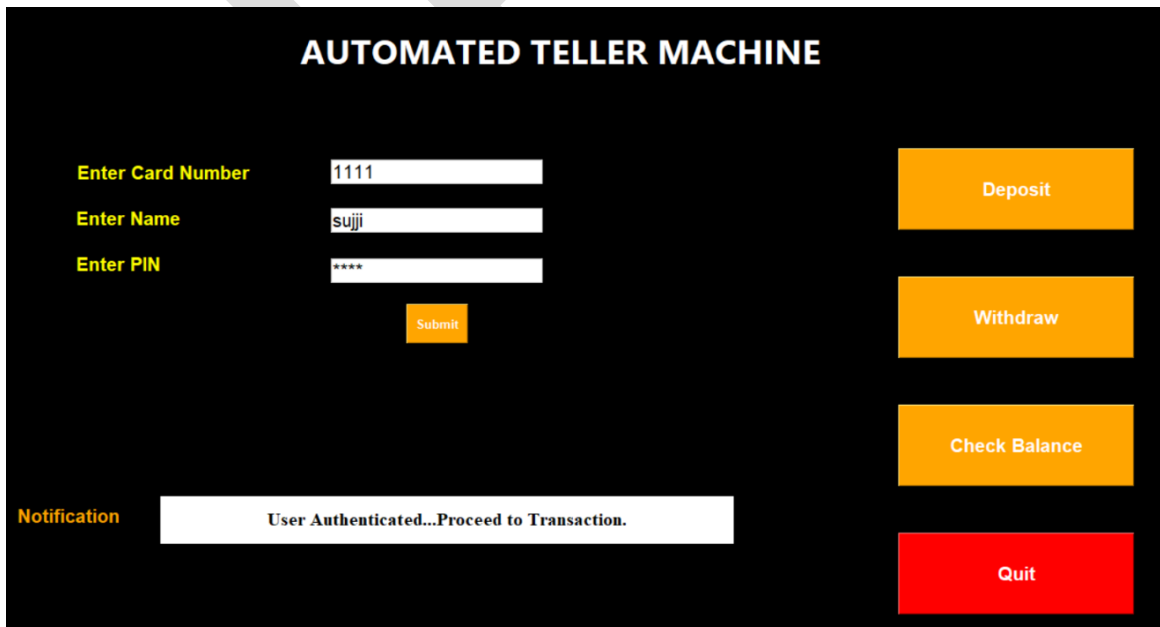

Fig No. 5.1 After Training Image

Fig No. 5.2 Transaction Page

*We can Deposit, Withdraw the money and also in a secure way.

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*We can also check balance after transactions

➢ If user details are already existing then the face database is already trained then the faceof another person cannot be identified while transacting the money
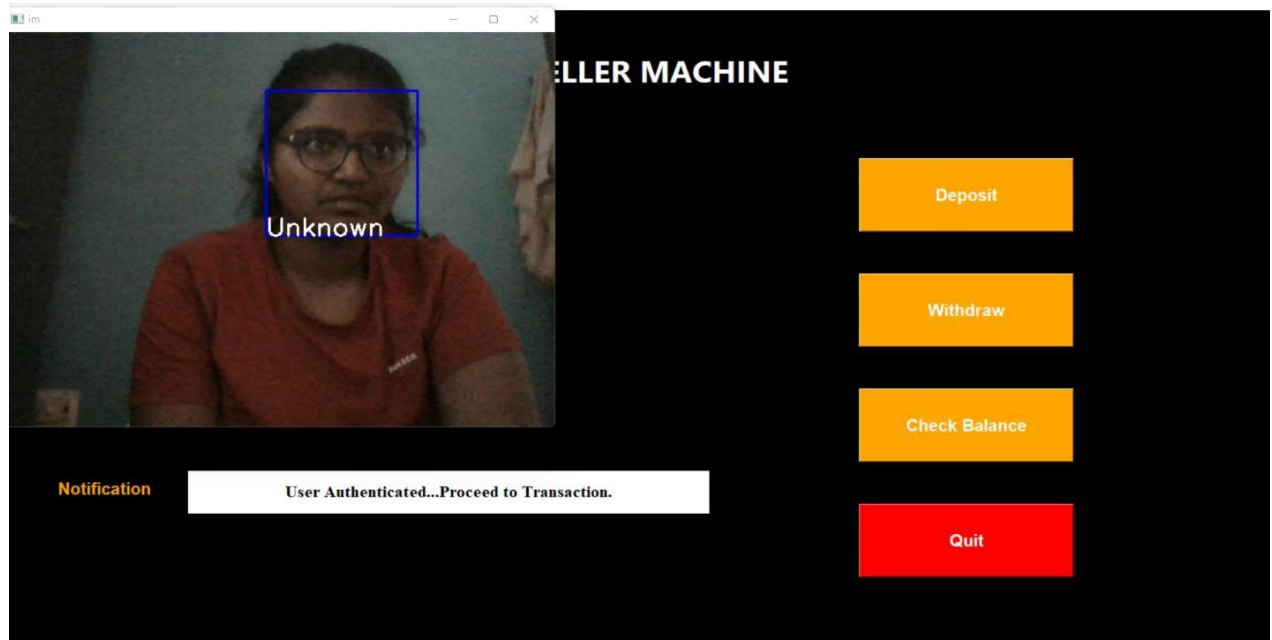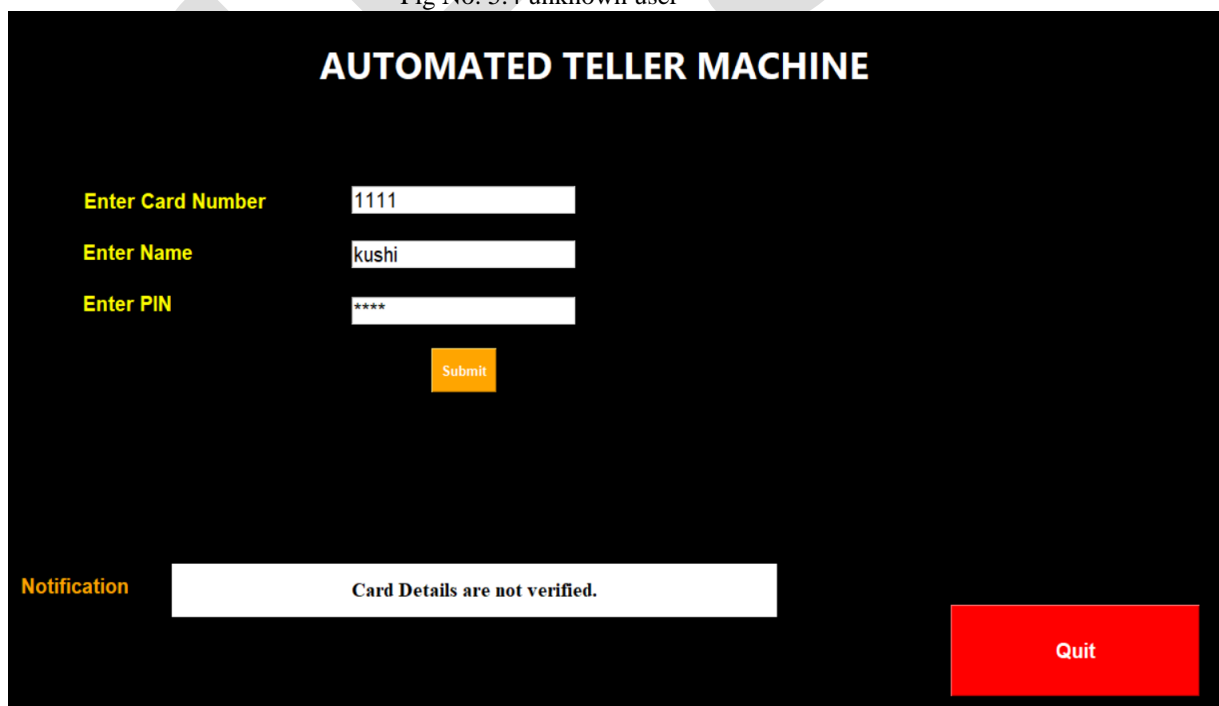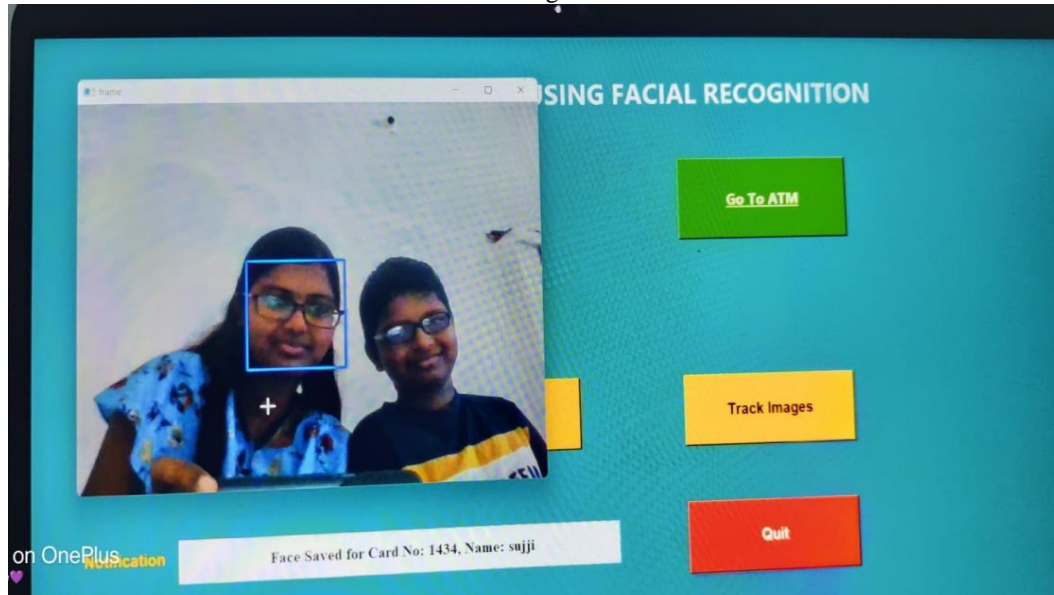

Fig No. 5.4 unknown user

➤ It detects only one face even there are 2 or more in front of Camera

Fig No. 5.5

6. CONCLUSION

This project developed banking transactions using facial identification namely, transfer amounts, card details, names of participants, etc. once facial identity is matched then transaction will finish otherwise it will display "person not recognized". existing system was over come. If previous no one can implement this system in Indian bank sector .in this project main focus is safety our money and our transaction. We are using Haar Cascade algorithm for face recognition. Capture module deals with the configuration of video interface and performs the real-time video capture. Face Detection module analyses each captured frame and extracts valid faces from each frame. Face Identification deals with face recognition and verification of the detected face.

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