

BANK TRANSACTION USING FACIAL IDENTIFICATION

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ABSTRACT

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. Haar Cascade based algorithm has been applied for fast and simple face detection from the input image. The face image is then being converted into grayscale image. After that, the iris candidates are extracted from the intensity valleys from the detected face. Costs of each iris candidates are calculated. Finally the iris candidates are paired up and the cost of each possible pairing is computed by a combination of mathematical models. Face recognition is considered as one of the most reliable solution. The result show that the proposed algorithm has able to train more amount of data and high accuracy.

Keyword : - Haar Cascade Algorithm, Face recognition, Face detection, Open CV.

1. INTRODUCTION:

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 to perform 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

1.1 OBJECTIVE:

Facial recognition software has a liveness detection which prevents hackers from using a picture of the customer for impersonation purposes. It also applies to other biometric modelities such as fingerprints where the liveness detection does exactly that it accesses the 'liveness' of the facial image as it is known.

1.2 SCOPE OF THE PROJET:

Facial recognition software has become increasingly popular in the past several years. It is used every where airports, venues, shopping centers and even by the law enforcement. While there are a few potential benefits to using the technology to prevent and solve crimes, there are many concerns about the privacy, safety and legislation regarding the use of the technology.

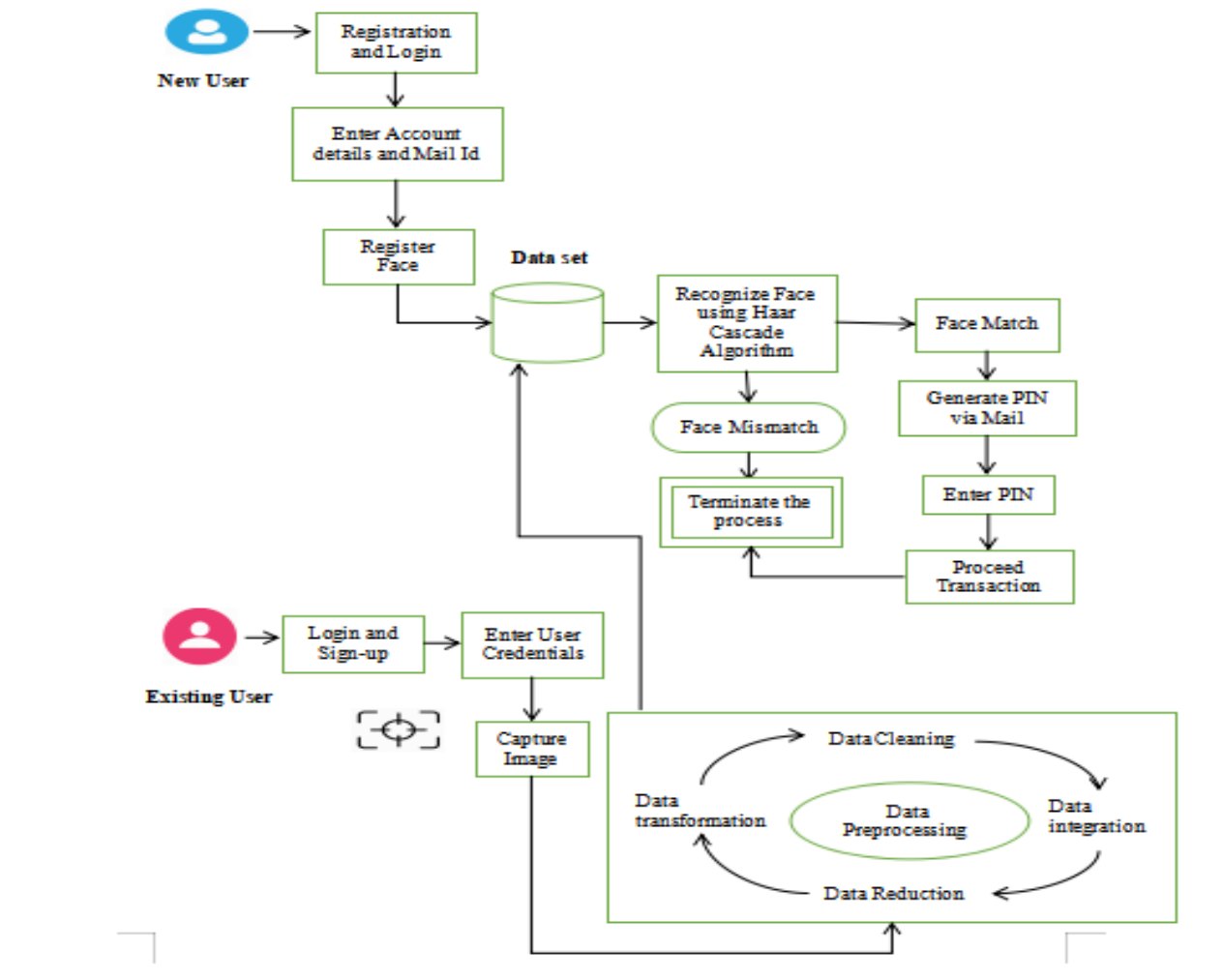
2. RELATED WORK:

- I. Paper [1] 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

- II. Paper [2] 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 of bank 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 NFC and multifactor authentication which can be used on any NFC enabled Smartphone. The multi factor authentication 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/her to make transactions from his/her multiple accounts.
- III. Paper [3] Use of payment cards in various places such as shopping, restaurants, lodges and online payment for booking hotels, movie tickets, flight and train tickets etc are increasing day by day. So the problem is that a person has to carry payment cards along with him and keep the cards secure to use it all the time. This also lacked security. In the present work the biometric face recognition payments is used in all kinds of payments. Thus it avoids the need to memorize different passwords. Face recognition payment system is safe, secure and even easy to use. It is reliable and more efficient compared to other payment technologies. A general design of online payment system using face recognition is proposed. The methods adopted for face recognition are by finding the Eigen faces and Euclidean distance.
- IV. Paper [4] Facial recognition software is making its way into the mainstream, with consumer applications such as the ability to unlock one's smart phone with their face. The banking sector has been at the forefront of enterprise adoption of AI since machine learning became the hot topic of the business world in the early years of the decade; as such, it makes sense that facial recognition technology would start to make its way into banking. There are a handful of companies offering facial recognition software to banks that at face value seem to have the requisite talent in their C-suite that we look for when vetting a company on their claims to leveraging AI. Facial recognition is one of numerous ways banks can decrease friction in their customers' experience and increase efficiency and accessibility. Some experts think that this is how banks can succeed in the future as AI and other technologies make more and more services accessible without any down time.
- V. Paper [5] There is a crucial need for improving security in banking region. With the birth of the Automatic Teller Machines, banking became a lot easier though with its own troubles of insecurity. Due to tremendous increase in the number of criminals and their activities, the ATM has become insecure. ATM systems today use no more than an access card and PIN for identity verification. An attempt is made for developing a system that integrates facial recognition technology into the identity verification process and use of RFID card for handling multiple accounts in same card with Raspberry pi controller. The development of such a system would serve to protect consumers and financial institutions alike from intruders and identity thieves. This paper proposes an automatic teller machine security model that would combine a RFID card, a PIN, and electronic facial recognition that will go as far as with holding the fraudsters' card.

3.ARCHITECTURE DIAGRAM:



4.. IMPLEMENTATION:

Data Preprocessing: It is a technique that is used to convert the raw data into a clean data set. In other words, whenever the data is gathered from different sources it is collected in raw format which is not feasible for the analysis .Data goes through a series of steps during preprocessing:

Data Cleaning: Data is cleansed through processes such as filling in missing values, smoothing the noisy data, or resolving the inconsistencies in the data.

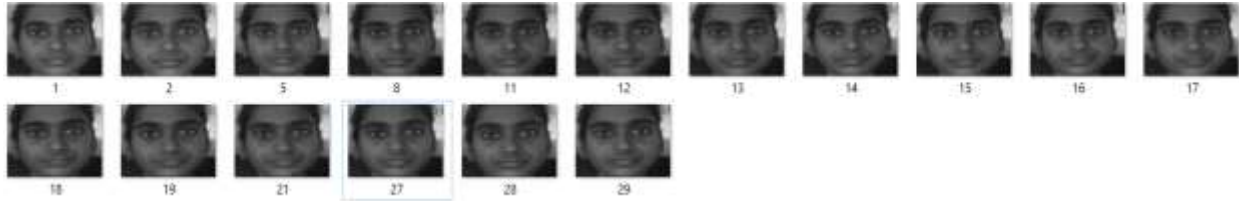
Data Integration: Data with different representations are put together and conflicts within the data are resolved.

Data Transformation: Data is normalized, aggregated and generalized.

Data Reduction: This step aims to present a reduced representation of the data in a data warehouse

4.1 FACE DETECTION:

Haar Cascade based algorithm has been applied for fast and simple face detection from the input images. The face images is then being converted into grayscale image .After that , the iris candidates are extracted from the intensity valleys from the detected face. Face detection modules analyses each captured frame and extracts valid faces from each frame. This is very easy humans , but computers need precise instruction. It is distinct from other computer vision technologies that involve human faces , like facial recognition ,analysis ,and tracking.



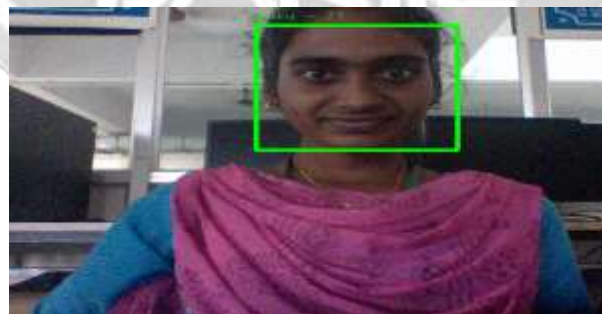
4.2 HAAR FEATURE SELECTION:

Haar -Like is a rectangular simple feature that is used as an input feature for cascaded classifier In there are some filters based on Haar -Like feature. By applying every one of these filters into one special area of the image, the pixel sums under white areas are subtracted from the pixel sums under the black areas. That is the weight of white and black area can be considered as "1" and "-1", respectively.

4.3 FACE RECOGNITION:

Face recognition technology: Ideal for access control, financial transactions and ATM machines. The face key recognition technology performs the following tasks:

- a. Locates a moving object within the camera view
- b. Determines if the moving object is face
- c. Compares live faces with samples from database



4.4 FACE AUTHENTICATION AND TRANSACTION:

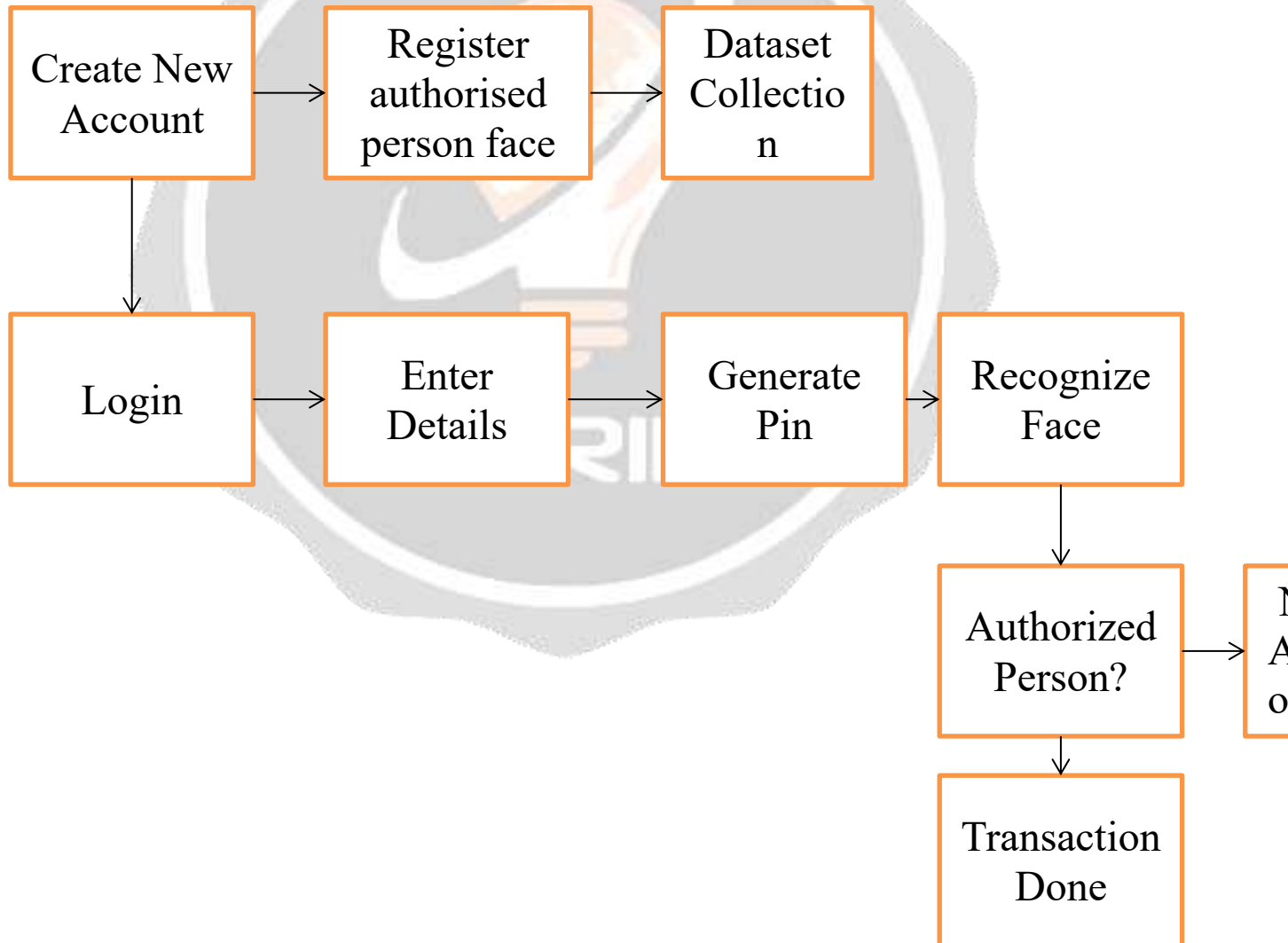
This phase is a biometric software application capable of uniquely identifying or verifying a person by comparing and analyzing patterns based on the person's facial contours. Facial recognition is mostly used for security purposes In this phase the transaction is proceed when the face is matched with the registered user otherwise the transaction is terminated .

4.5 ADABOOST TRAINING :

Ada boost algorithm (a machine learning meta-algorithm) in choosing features and improving the performance is repeatedly used. Ada boost in order to construct a strong classifier combined many weak classifiers .This is done by building a model from the training data, then creating a second model that attempts to correct the errors from the first model. Models are added until the training set is predicted perfectly .

4.6 FEATURE EXTRACTION:

It is the process of transforming the raw pixel values from an image, to a more meaningful and useful information that can be used in other techniques, such as point matching or machine learning .Feature extraction a type of dimensionality reduction that efficiently represents interesting parts of an image as a compact feature vector. This approach is useful when image sizes are large and a reduced feature representation is required to quickly complete tasks such as image matching and retrieval.



5.CONCLUSION AND FUTURE ENHANCEMENT:

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 finished otherwise it will display “person not recognized” .existing system was over comed . 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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