

Transaction Using Facial Authentication and Random PIN Generation

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Abstract: *In this paper we are going to develop a robust automated web application for transacting money in higher level security purpose with high facial recognition. First we have to register our personal details with our face and pass the liveness detection test. 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, eyebrows, nose, mouth of candidates are extracted from the intensity valleys from the detected face it will consider as datasets now our system can understand who are all authorized and unauthorized. While login our face will be recognized if we authorized will can move to authorized page else our system won't allow to login. For higher security purpose we have used face recognition module. During the transaction our face will be recognized it will allow only the authorized account holder to transact a money, it doesn't allow others to transact a money.*

Keywords: Facial Authentication, Liveness Detection, Haar cascade, Bank Transaction.

I. INTRODUCTION

Over the last decade, we have seen an increase in the use of technology in many business sectors to simplify and better engage customers. This is especially true in the banking and finance sector. Since the start of the digital revolution facial recognition has been gaining prominence over touch and type based interactions due to the convenience it offers without compromising on the security of transactions. Despite an increase in the use of EMV cards (Europay, MasterCard, Visa) coupled with password creation policies, there has been a surge in banking fraud cases. As a result of the billions that are lost by major banking institutions, there has been a call to switch to biometric facial recognition to curb this issue. It means that banking software will rely on face scans which it then compares with similar ones that were uploaded by the bank's personnel into their system to verify the customer's identity. The aim is to authenticate the identity and only allow a transaction to go through if the account owner's identity is positively identified. This customer ID authentication process is known as KYC (Know Your Customer).

II. PAPER DESCRIPTION

Facial recognition is one of numerous ways banks can decrease friction in their customers' experience and increase efficiency and accessibility. This paper make Identity Verification and Account Withdrawals Allowing customers to make withdrawals from their bank accounts. The biometric facial software helps minimize fraud where online hackers unlawfully use passwords and other data to steal from banking institutions. The software verifies a person's identity before processing any transaction. Our goal is to provide an extremely frictionless, personalized experience with a focus on security

III. SYSTEM ANALYSIS

3.1 Existing System

In previous days they used only single level authentication like OTP generation. It was not more secured. Secure electronic transaction (SET) It involves many levels of encryption, using many combinations of symmetric, cryptography, asymmetric cryptography and hashing. It does not assume that each agent has his own private key so that the only problem which is remained is the distribution of the public keys but allows cardholders to decide their asymmetric key.

3.2 Disadvantages

1. User must have credit card
2. It is not cost-effective when the payment is small
3. None of anonymity and it is traceable
4. Network effect - need to install client software (an e-wallet).
5. Cost and complexity for merchants to offer support, contrasted with the comparatively low cost and simplicity of the existing SSL based alternative.
6. Client-side certificate distribution logistics.

3.3 Proposed System

This uses machine learning techniques to get a high degree of accuracy from what is called “training data”. HaarCascades use the Adaboost learning algorithm which selects a small number of important features from a large set to give an efficient result of classifiers. Initially, first the user go through the liveness detection test which will ask to perform some task and then the algorithm needs a lot of positive images (images of faces) and negative images (images without faces) to train the classifier. Then we need to extract features from it. For this, haar features shown in below image are used. They are just like our convolutional kernel. Each feature is a single value obtained by subtracting sum of pixels under white rectangle from sum of pixels under black rectangle.

3.4 CNN

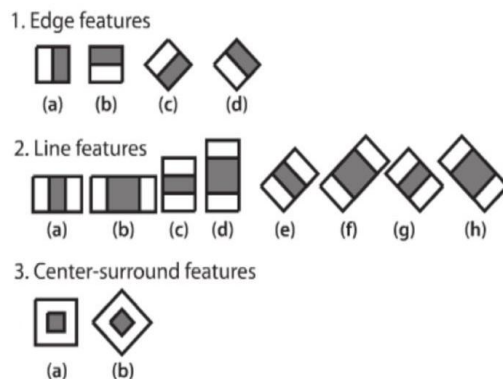
Convolutional neural network (ConvNets or CNNs) is one of the main categories to do images recognition, images classifications. Objects detections, recognition faces etc., are some of the areas where CNNs are widely used. In work paper we are going to detect and classify drone in video using CNN algorithm.

3.5 Steps

- Provide input image into convolution layer
- Choose parameters, apply filters with strides, padding if requires. Perform convolution on the image and apply ReLU activation to the matrix.
- Perform pooling to reduce dimensionality size
- Add as many convolutional layers until satisfied
- Flatten the output and feed into a fully connected layer (FC Layer)
- Output the class using an activation function and classifies images.

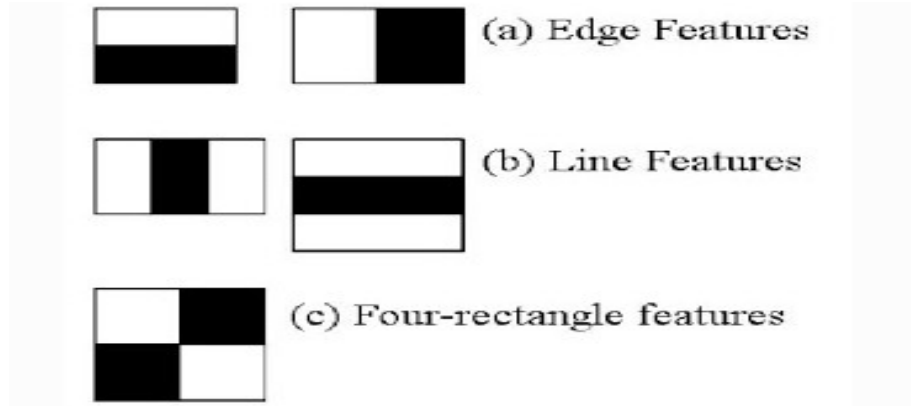
3.6 Advantages

- The key advantage of a Haar-like feature over most other features is its calculation speed.
- Haar Cascade is a machine learning object detection algorithm used to identify objects in an image or video
- Haar Cascades use the Adaboost learning algorithm which selects a small number of important features from a large set to give an efficient result of classifiers.



Face Detection determines the locations and sizes of human faces in arbitrary (digital) images.

In **Face Recognition**, the use of Face Detection comes first to determine and isolate a face before it can be recognized.



IV. FEASIBILITY STUDY

The feasibility of the paper is analyzed in this phase and business proposal is put forth with a very general plan for the paper and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are

1. Economic feasibility
2. Technical feasibility
3. Social feasibility

4.1 Economical Feasibility

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

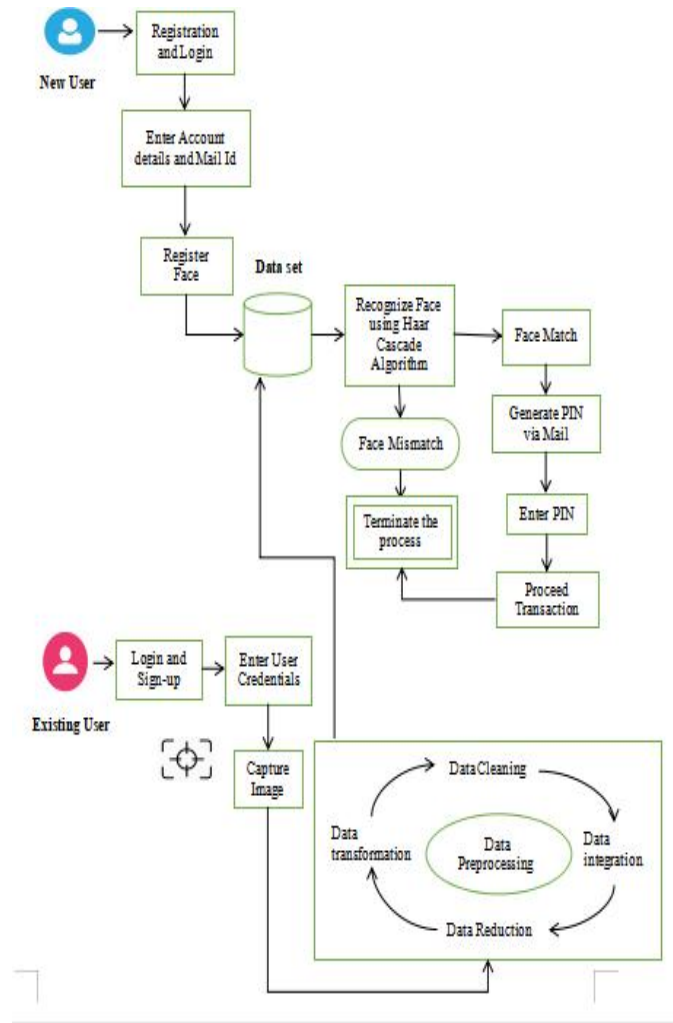
4.2 Technical Feasibility

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands being placed on the client. A feasibility study evaluates the paper's potential for success.

4.3 Social Feasibility

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

V. SYSTEM ARCHITECTURE



VI. SYSTEM REQUIREMENTS

6.1 Hardware Specification

- PROCESSOR: PENTIUM IV
- RAM: 8 GB
- PROCESSOR: 2.4 GHZ
- MAIN MEMORY: 8GB RAM
- PROCESSING SPEED: 600 MHZ
- HARD DISK DRIVE: 1TB
- KEYBOARD :104 KEYS

6.2 Software Specification

- FRONT END: PYTHON
- IDE: ANACONDA
- OPERATING SYSTEM: WINDOWS 10

VII. MODULES

1. Data Preprocessing
2. Feature Extraction
3. Face Recognition

7.1 Data Preprocessing

1. It is a technique that is used to convert the raw data into a clean data set.
2. In other words, whenever the data is gathered from different sources it is collected in raw format which is not feasible for the analysis.

7.2 Feature Extraction

1. 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.

7.3 Face Recognition

1. 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.

Register

In this module user have to enter their personal details along with their face. Dataset will be created based on the username.

LOGIN

Users have to enter credentials during that period face will be recognized it will allow only authorized user.

Data Pre-processing

In this module the collected dataset from user in the time of registration will be stored in folder and all image are resized to standard and unique size and the image are converted to Gray scale image and noise are removed .

Feature Extraction

In this feature extraction module, we extract the feature from registered user datasets folder

TRANSACTION

In this modules user have to enter transaction details like user A/C number, username, amount, Recipient name and Recipient A/C number after this process our system will recognize current transaction user if the user is not authorized our system will not allow to transact.

CHECK BALANCE and VIEW TRANSACTION DETAILS

It will display user A/C balance. View transaction module will display user transaction details.

VIII. CONCLUSION

Real-time face reputation device on system learning. According to technical era, a few developments has taken location and a few strategies of facial reputation have been executed. We are the use of Haar cascade set of rules for face reputation an pin generation in email. Face Detection module analyses every captured body and extracts legitimate faces from everybody. Face Identification comes with face reputation and verification with detected face and send pin in the user's email. In Future any fraudulent get right of entry to through the faux consumer is removed with the assist of radio frequency identity card.

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