CREDIT CARD AUTHENTICATION WITH FACE RECOGNITION USING WEBCAM

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***Abstract*—**People nowadays prefer online banking over traditional methods. Now the trend is changing to digitization and so does the population heading towards the same. People often go for the online methods like credit/debit card, Net Banking,etc. The credit card is one of the most commonly used payment method . During online transactions , confidentiality can be hacked. So, we proposed a new method to avoid frauds during online transactions so as to secure the information by a two step authentication process. In the first step of authentication, OTP is verified. Once the OTP is verified, face recognition will be done. The information is processed and the acknowledgement is sent to the bank for both the valid and invalid transactions. A new method of credit card scanning has beneficial attributes like high security, user-friendliness,etc. The significance of the application is the minimization of credit card fraud by Face recognition of user. It will be more beneficial as well as highly secure for customers.

Keywords— *Credit card scanning, face recognize, webcam, transaction, verification, authetication, RSA,OpenCV,Local Binary Patterns(LBP).*

I. INTRODUCTION

Credit cards are being widely used worldwide. People are switching over to online transaction like online shopping, online bill payment,etc as it reduces the problem of carrying cash. Credit cards can be used anywhere and big transactions can be easily done using credit cards. Credit card companies make sure that funds moves to the merchant's account accurately and on time. It makes sure that customers doesn't need to make any efforts and can go cashless. But the fundamental problem faced during online transactions is lack of security. Credit card fraud is a wide-ranging term for theft and fraud committed using or involving a payment card, such as a credit card or debit card, as a fraudulent source of funds in a transaction. With increased online transactions, the risk of frauds has been increased. Credit Cards and their pins can be stolen, OTP can be stolen. It becomes quite easy to make fraudulent transactions in such situations.
The motivation behind this project is the massive increase in frauds. The victims of credit card scam suffers too much and if the fraud is done due to customer's mistake then bank never takes up the responsibility of their loss. Today's fraud detection systems are designed to prevent one-twelfth of one percent of all transactions processed which still translates into billions of dollars in losses .
The proposed system with facial recognition can help to secure the overall credit card system. Among all the biometric techniques, face recognition is one of the most challenging as well as the reliable one, being more user-friendly and due to ease of use, it is more in use nowadays.

II. PROPOSED MODEL

The aim of the project is to develop a system which uses face recognition to authenticate a valid user. Firstly, the user has to enter the credit card details and then the details will be verified with the bank database. After the verification process, OTP will be generated and sent to the user. Once the OTP is verified user will be requested for face authentication. Using webcam face image will be captured and in encrypted form image will be sent for authentication to the bank database. At the database the image will be decrypted and further, it will be use for the authetication purpose. For encryption and decryption of image, RSA algorithm is used. Python language is used for programming and for processing the image OpenCV libraries are used that is integrated in Python. After that LBP algorithm is used for face authentication. If the face is matched with the image stored in the database then the user's credit card limit will be checked and if it fulfils the requirement , the user is allowed for transation or else the transaction will be aborted.

- *RSA*- RSA algorithm is used for encryption and decrryption purpose. It makes use of two keys Public key and Private key. The public key is used to encrypt messages. Messages encrypted using the public key can only be decrypted with the private key.
- *OpenCV*- OpenCV (Open Computer Vision) is a library mainly aimed at real-time computer vision. It provides great support for face detection and face-recognition techniques using Python.

- *LBP*- LBP is a type of algorithm used for classification in computer vision. It has been found to be a powerful feature extraction and classification purposes.

III. LITERATURE SURVEY

Nowadays Credit card frauds are increasing day by day and according to Global Consumer Fraud report India ranks among top 5 countries in the world[6].So there is a need to take severe action against it.Uptil now credit card online transactions are carried out through OTP, but such transactions are not safe. Many researchers are working on this problem. One of the solution provided by them is to use Face Recogniton at the time of online transaction .Face recognition has various advantages over Biometric Scan[1]. Various algorithms and techniques have been designed to implement facial recognition system. Such as PCA, Eigen faces, Linear binary pattern, etc[2]. The use of Face recognition in online Credit card transaction can reduce the chances of information getting stolen as well as the chances of unauthorised access[3].

Table.1:Literture Survey

Sr. no	Paper	Authors and Date of Publishing	Algorithm/ Technique used
1	Human Face Recognition Application Using PCA and Eigenface Approach	Anissa Lintang Ramadhani, Purnawarman Musa, Eri Prasetyo Wibowo, February 2018	Cascade Classifier method
2	Authentication of Credit Card Using Facial Recognition	Tison Varghese, Vidya Nambiar, Pushkar Dandekar, Gayatri Hegde, April 2018	Fisherfaces
3	Secured Credit Card Transactions Using Webcam	Janani.S.R, Sivaparthiban.C.B, Lekha T. R, April 2016	Key point Detector and SVM Classifier
4	Credit Card Transaction Using Face Recognition Authentication	Akshay Prakash, G Mahesh, Maram Gowri, Muzameel Ahmed,June 2016	Haar Cascade and GLCM algorithms

IV. SYSTEM ARCHITECTURE

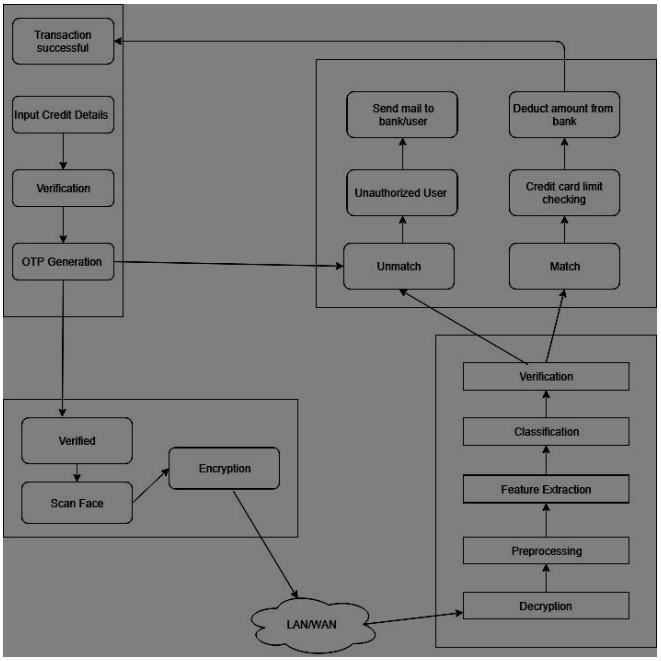

Fig.1:System Architecture

V. CONCLUSION

Our proposed project-Credit Card Authentication with Face Recognition will help in reducing the credit card frauds that may occur during an on line payment process. It will provide a two way authentication i.e OTP generation and face recognition of the user for securing the on line payment. Because of this any authorized customer can easily trust on it and fearlessly or confidently make payments over the Internet.

Although this system will provide more security and will help in reducing the on line credit frauds but still it needs a lot of improvement as the system will not be able to differentiate between similar faces. Also the rate of comparison of the real time clicked image with the image stored in database should be fast enough so that the user does not have to wait for a long period of time while doing transaction.

Having dealt with all the issues this system will provide a better security and will widen up the scope in on line credit card payment.

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