Face Recognition Open Cv Based ATM Security System

Saranya. S[1], Malliga.B[2], Pavithra. P[3],Shamili. B[4]
[1]Assistant Professor, Dept of CSE
[2, 3, 4]Dept of Computer Science and Engineering and Technology
[1, 2, 3, 4] RAAK college of Engineering and Technology, Puducherry, Pin-605010, India

Abstract- *The purpose of this paper is to improve security of the ATM model. We improve Features like face recognition and One-Time Password that used for the enhancement of security of accounts and privacy of users. Face recognition technology helps the machine to identify each and every user uniquely thus making face as a key. This completely eliminates the chances of fraud Due to theft and duplicity of the ATM cards. Moreover, the randomly generated OTP frees the user from remembering PIN as it Itself acts as a PIN . CNN algorithm and Deep learning techniques are used to identify the personals using the machine. This system uses open CV to process the image being obtained .This is making easy and protected transaction and also Maintaining user-friendly environment with the user.The growth in The field of electronic transactions has resulted in a greater demand for fast and accurate user Identification and authentication.*

Keywords- ATM ,Camera, OpenCV, CNN Algorithm, PIN.

I. INTRODUCTION

The ATM was invented in 20th century from then a lot of changes have been made in it. We tried to improve the security using face recognition into the system with the help of Deep Learning. There are many unauthorized access attempted in the ATM by knowing the password of card holder and Withdrawing money without the knowledge of the card holder, this leads to a serious crime in the society . To rectify this type of problem we introduce this project to provide a safety mechanism for ATM's . The unauthorized access found only after the transaction is done or when the amount gets debited from the account of the authorized user .The method to prevent the ATM security threat related to unauthorized users by allowing access to the user only after the confirmation of the user identity by using camera that is mounted on the ATM Machine . When the people try to take money in the ATM. ATM's will use face detection and face recognition to check it with the account holder image . If the image matches the user, the system will permit to continue the transaction else a system will send OTP to the account holder. If the account holder clicks ''ITS ME'', then holder will click the "DECLINE", means the transactions are declined. transactions will be allowed.

II. ATM SECURITY USING FACIAL RECOGNITION

The ATM using Face Recognition is indicate the way to a lot of forgery attempt and abuse through card theft and pin theft of customer account details.This process based on the face matched with the image of Account holder and the current image of the user. In this Process there are used many components like Face Detector, Face Recognizer,3 - D Technique and Neutral Networks.

A. WORKING

When a customer enters into the ATM they should insert card in the ATM card reader. After inserting a card in ATM the camera captured the image of the user using face detector and it identify the facial region of the user and using recognizer it will check with the database to find a match with the account holder . The 2D and 3D techniques for identify the image of the user ATM Security using Machine Learning techniques in IOT. User account through which the original information stored in the database is detected using this component.The face recognition is identified by converted the images into gray scale image for reducing the errors occur and image of the user is split up into many pieces and each pieces is assigned by a value and get stored .The information hold on within the card of the user the given values of the approaching user's image is compared with the revered values of the image of the user that was method and hold on whereas the cardboard process.

B.ATM SECURITY USING MACHINE LEARNING TECHNIQUE

Machine learning is a rapidly growing field and has been used for a variety of tasks, including facial recognition. The main idea of this system is to secure the ATM Transaction by using face recognition and prevent unauthorized access. After inserting a card the transaction will be permitted only

after the images captured by the Camera and it will matches with the original account holder. When both of the images is same means the transaction will be continue otherwise the One Time Password (OTP) send to the register mobile number of the accountholder .

III. PROBLEM DEFINITION

The above System describes that to ensure the security of ATM using facial recognition. In this image of the account holder is trained and save it in the database whenever the transactions happens the current user image match with the image of the account holder. If both of the images are same the transaction will be continues otherwise the transaction will be terminated.The main drawback of this system is the transaction will be done by account holder only. In this project have some limitations like the family member or other person doesn't use the ATM card at any emergency situation. Even if the account holder provides permission to someone to access his card for withdrawing money from the ATM, it is not possible as they have employed face detection strategies.

IV. PROPOSED SYSTEM

In this proposed system, the valid card holder is allowed and only by the knowledge of account holder others can enter into the ATM by using account holder's ATM card. Once the customer inserts the card inside the ATM machine the card reader collects the information stored in the magnetic strip of the card and then passes into the host for comparing the image of the person which is already updated in form of data. This can be performed with the help of pinhole camera. If everything is matched then ATM machine will allow for transaction. Incase if any unauthorized person inserts ATM card, image will be verified since it won't match OTP send to the register mobile number of the account holder . And it will also enable three options to the user to choose any one of the option.The three options are it's me, Accept and Decline.
If the user clicks that option its me it will automatically allow the user to perform any operations in the ATM machine.

Accept option will be helpful for the account holder to allow anyone to withdraw the money from their account once if the account holder touches the accept option it will allow the user to any operations in the ATM with the knowledge of accountholder.

Declineoption helps the account holder to cancel the transaction being performed by someone. Once if the account holder clicks the decline option it will not allow the user to perform any operations in the ATM.

V. WORKING COMPONENTS AND METHODOLOGY

The algorithms used in these systems are Conventional Neutral Networks, RGB Method the components are Camera, ATM, ATM card

RGB METHOD

The most well-known colour model is RGB which stands for Red-Green-Blue. As the name suggests, this model represents colours using individual values for red, green, and blue. The RGB model is used in almost all digital screens throughout the world. Grayscale is the simplest model since it defines colours using only one component that is lightness. The amount of lightness is described using a value ranging from 0 (black) to 255 (white).On the one hand, grayscale images convey less information than RGB.

CNN ALGORITHM

Convolutional Neural Networks is all about using Deep Learning with Computer Vision. A good way to gain intuition about this is to think about a Neural Network Architecture and how it is applied to visual tasks i.e. Images and Video.Like a Neural Network, a typical Convolutional Neural Network consists of a multiple hidden layers called a Convolutional Layer, where the linear function computes the strided convolutions over an image to extract features. It also consists of a pooling layer that computes another function such as Max Pool or Average Pool to reduce the size of the image in the neuron to speed up the

CAMERA

In this task we are the use of pinhole camera to seize the Photo of the user. It is the easy digital camera without lens But with the tiny hole. It's correctly a light-evidence field With a tiny low hole in one aspect. The photograph of the Pinhole camera projected on a translucent display screen For a real–time viewing. But it's far more frequently used Without semi-transparent display for pin hollow pictures With photographic film located at the surface opposite to The pinhole aperture. The camera is fixed inside the ATM Machine itself . It captures the facial features of the User for the identification purpose.

ATM

ATM is the expansion of Automated Teller Machine. The ATM was invented in 20th century from then a lot of Changes have been made in it. We Are using ATM for basic transactions without the help of The branch representative or

teller. Who are having debit Card or open-end credit can access the ATM. ATM is one Of the easiest ways for customer for making transaction Every day and it is used to deposit and withdraw money. In ATM we are having many features like check balance Inquiry, mini statement, change pin, withdraw and Deposit.

ATM CARD

An ATM card is a payment card issued by the bank which Enables a customer to access automated teller machine. It allow customer to Withdraw cash as well as check their balanced. ATM cards essentially a hardcopy of the get right of Entry to facts on your account. The ATM then asks on Your PIN to confirm your authorization to access budget

OPEN CV

Open CV is the huge open-source library for the computer vision, machine learning, and image processing and now it plays a major role in real-time operation which is very important in today's systems. By using it, one can process images and videos to identify objects, faces, or even handwriting of a human. When it integrated with various libraries, such as NumPy, python is capable of processing the Open CV array structure for analysis. To Identify image pattern and its various features we use vector space and perform mathematical operations on these features. The first Open CV version was 1.0. Open CV is released under a BSD license and hence it's free for both academic and commercial use. It has C++, C, Python and Java interfaces and supports Windows, Linux.

PYTHON

Python is a translated, object-arranged, evident-level programming language with dynamic semantics. Its significant level implicit information structures, joined with dynamic pyWehng and dynamic restricting, make it extremely alluring for RaWebd Application Development, junt as for use as a preamunging or paste language to interface existing segments together. Python's basic, simple-to-learn language structure underlines comprehensibility and subsequently decreases the expense of program upkeep.

VI.CONCLUSION

This project can overcome the issue of impersonation of a cardholder. This is like a two factor authentication method which is used to confirm that the transaction is done by the card owner or the persons trusted by the owner using face recognition lists the card usage of the unauthorized users who hold the password of someone's card. Thus, this ATM model provides security against exploitation of identity, by using a verification system using face recognition to the identity and confirm the user and it will scale hack forced transactions to an excellent extent. Facial recognition has proven to be one of the most secure methods of all biometric systems to a point for high level security and to avoid ATM robberies and provide security for ATM .It replaces the traditional ATM system. It has advantages such as saves manufacturing cost of cards and overcomes drawbacks of the traditional system like carrying the ATM card, losing of card, fraud calls related to ATM card, etc. With new improved techniques in the field of artificial Intelligence that help eliminate more disturbances and distortions, the rate of effectiveness of the system can be improved

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