AI BASED CARD LESS ATM TRANSACTION USING FACE RECOGNITION

Mr.G.Siva Kumar[1],M.E(Assistant Professor)   **SURESHKUMAR.D[2](Student)**

CSE Department
PSN COLLEGE OF ENGINEERING AND TECHNOLOGY,TIRUNELVELI

ABSTRACT

The current Automated Teller Machine (ATM) system relies on the use of ATM cards and Pin Identification Numbers (PINs) for authentication. However, this method is prone to various security threats such as theft of ATM cards, skimming, and the Lebanese loop, which compromise the security of users' financial information and funds.To address these issues, we propose a new system that utilizes face recognition technology for authentication instead of traditional ATM cards. The system combines facial recognition with the use of a PIN, providing a more secure and reliable method of accessing one's bank account. The system leverages the use of Convolutional Neural Network (CNN) model, a deep learning technique, to accurately recognize and match a user's face with their account information.This innovative solution offers a higher level of security, ensuring that users' financial information is protected from potential threats, and offers a convenient and seamless banking experience

1.INTRODUCTION

1.1 ATM(Automatic Teller Machine)

An automated teller machine or cash machine is an electronic telecommunications device that enables customers of financial institutions to perform financial transactions such as cash withdrawals, deposits, funds transfers, or account information inquiries, at any time and without the need for direct interaction with bank staff.

ATMs are known by a variety of names, including automatic teller machine in the United State.

In Canada, the term automated banking machine is also used, although ATM is also very commonly used in Canada, with many Canadian organizations using ATM over ABM. In British English, the terms cash point, cash machine, cash line and hole in the wall are most widely used.Other terms include any time money, cashline, tyme machine, cashdispenser, cash corner, bankomat, or bancomat. Many ATMs have a sign above them indicating the name of the bank or organisation that owns the ATM, and possibly including the networks to which it can connect. ATMs that are not operated by a financial institution are known as "white-label" ATMs.Using an ATM, customers can access their bank deposit or credit accounts in order to make a variety of financial transactions, most notably cash withdrawals and balance checking, as well as transferring credit to and from mobile phones.

ATMs can also be used to withdraw cash in a foreign country.

1.2 FACE RECONGNITION

A facial recognition system is a technology capable of matching a human face from a digital image or a video frame against a database of faces, typically employed to authenticate users through ID verification services, works by pinpointing and measuring facial features from a given image.

While initially a form of computer application, facial recognition systems have seen wider uses in recent times on smart phones and in other forms of technology, such as robotics. Because computerized facial recognition involves the measurement of a human's physiological characteristics facial recognition systems are categorised as biometrics.

Although the accuracy of facial recognition systems as a biometric technology is lower than iris recognition and fingerprint recognition, it is widely adopted due to its contactless process. Facial recognition systems have been deployed in advanced human-compute interaction, video surveillance and automatic indexing of images..

Techniques for face recognition

While humans can recognize faces without much effort, facial recognition is a challenging pattern recognition problem in computing.

Facial recognition systems attempt to identify a human face, which is three-dimensional and changes in appearance with lighting and facial expression, based on its two-dimensional image.

To accomplish this computational task, facial recognition systems perform four steps.

First face detection is used to segment the face from the image background. In the second step the segmented face image is aligned to account for face pose, image size and photographic properties, such as illumination and grayscale.

2.EXISTING METHODOLOGY

The ATM using Face Recognition System is indicate the way to a lot of forgery attempt and abuse through card theft and pin theft of customer account details. In this system they are used many components like Face Detector, Face Recognizer, 2-D, 3-D Technique and Surface Texture Analysis.

In the existing System they use some of the machine learning techniques to predict the facial expression but the output accuracy is very low it may be $< 70\%$.
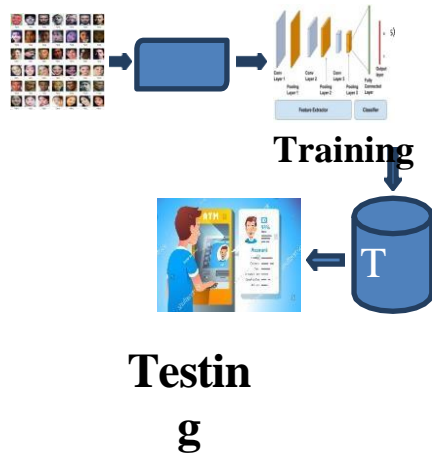
3.PROPOSED METHODOLOGY

The proposed system we use Convolutional Neural Network to predict the face recognition.

Its consists of the following steps:

The face in image is detected and cropped, The cropped image is pre-processed in order to provide further illumination invariant.

3.1 PROPOSED SYSTEM ARCHITECTURE

Training

Testing

Fig 3.1

3.2 PREPROCESSING

A pre-processing or filtering step is applied to minimize the degradation related to the noise.

There has been a lot of work in structuring the efficient noise suppression filters.

The noise such as the shadow in the input images are removed using the pre-processing filters such as average filter.

This stage is necessary to enhance the lungs image quality and made the feature extraction component more reliable for the improvement of broad and narrow input image.

4. WORKING DESCRIPTION

Python language had a humble beginning in the late 1980s when a Dutchman Guido Von Rossum started working on a fun project, which would be a successor to ABC language with better exception handling and capability to interface with OS Amoebaat Centrum Wiskunde and Informatica.

Python 2.0 was released in the year 2000 and Python 3.0 was released in the year 2008. The language was named Python after the famous British television comedy show Monty Python's Flying Circus, which was one of Guido's favorite television programmes. Here we will see why Python has suddenly influenced our lives and the various applications that use Python and its implementations.

In this chapter, you will be learning the basic installation steps that are required to perform on different platforms (that is Windows, Linux, and Mac), about environment variables, setting up of environment variables, file formats, Python interactive shell, basic syntaxes and finally printing out formatted output.

5.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. It limits the card usage of the unauthorized users who hold the password of someone'scard..

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 back forced transactions to an excellent extent.

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