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Secure ATM Transaction Using Deep Learning

Arunesh S S[1], Eswaravaka Niranjan Reddy[2], Vasanth M[3], Mr. Sathya Jebasundar[4]

UG Student, Department of Computer Science and Engineering, Velammal Institute of Technology, Chennai, Tamilnadu, India [1,2,3]

Assistant Professor, Department of Computer Science and Engineering, Velammal Institute of Technology, Chennai, Tamilnadu, India [4]

ABSTRACT: Automated teller machines(ATMs) are well known devices typically used by individuals to carry out a variety of personal and business financial transactions and/or banking functions. ATMs have become very popular with the general public for their availability and general user friendliness. ATMs are now found in many locations having a regular or high volume of consumer traffic. For example, ATMs are typically found in restaurants, supermarkets, Convenience stores, malls, schools, gas stations, hotels, work locations, banking centers, airports, entertainment establishments, transportation facilities and a myriad of other locations. ATMs are typically available to consumers on a continuous basis such that consumers have the ability to carry out their ATM financial transactions and/or banking functions at any time of the day and on any day of the week. In this Project we are going to use a Deep Learning approach by using algorithms like Haar cascade and Principal Component Analysis to match the face of the Users which is given in the Bank Profile. This is going to be a cardless Transaction and to increase the Security Level for Transaction and Withdrawal of Money in ATMs.

KEYWORDS: Deep Learning,Haar Cascade Feature, Principal component Analysis(PCA),Machine Learning

I. INTRODUCTION

The main aim of this project is to make Multilevel and High level Security for finding the Authorized User in the ATM and make Secure Transaction and Withdrawal of Money.

The Major Problem occurring in the ATM is that the Third User will misuse the Authorized User Account of Transaction. Nowadays ATMs are used in many areas like Restaurants, Shopping Mall, Supermarkets, Airports, Transportation etc. In Rural Areas also they are increasing the ATM due to demand, For making the Users to easily access the ATM for Rural People this is also one of the advantages of the Project. This is going to be a Cardless Transaction. When User entering before the ATM, It will collect the Images of the User this is called Face Detection and then if the User went to ATM it will recognize the Face of the User it will match, If the Authorized User is Validated then further Process will be executed, If an Unauthorized User access the ATM then it will send the Image of the Person to the Corresponding Authorized User Mail then if known Persons they can access the ATM by using PIN Number. If an Unknown User accesses the account the Authorized Person can give a complaint by giving the image as proof, which is sented in Mail.

II. LITERATURE SURVEY

In 2016,Subhash Chandra Published a Paper about Applications of Puzzle methods for intrusion detection in ATMs.specific weaknesses inherent to contemporary ATM devices including the ones with biometric checks or with other advanced applications. Reasons are considered that lead to applications of intelligent, logic-based methods aiming at reduction of riskfactors to ATMs. Special attention is paid to applications of the Puzzle method in ATMs. To make a more independently functioning ATM, the proposed methods should be applied to data/knowledge/metaknowledge elicitation, knowledge refinement, analysis of different logical connections aiming at information checks.

In 2018, Anastasia Beresneva Published a Paper about This paper emphasizes on the hypothetical, yet very possible scenario of an individual's ATM card falling into the wrong hands, and the PIN number being cracked by a theft perpetrating entity. Our proposed model uses certain factors which would be monitored right from the initiation, to the end of the respective transaction. With the help of these factors, we would declare the status of the transaction before proceeding with cash withdrawal

III. EXISTING SYSTEM

In existing system RFID card is used as ATM card, IR sensor in order to sense the presence of the card holders and to turn on Fan and Light, if ATM is tampered then SMS is sent to two main stations via GSM.Based on WI fall detection get security, that network access is not that much secured.

IV. PROPOSED SYSTEM

The study is focused on Design and Implementation of Face Detection based ATM Security System. The system is focused on detection of authorized users using Deep Learning Techniques and algorithms such as Haar cascade and Principal Component Analysis to improvise security loopholes . High level security mechanism is provided by the consecutive actions such as , Initially the system captures the human face and checks whether the human face is detected properly or not. If the face is not detected properly, it warns the user to adjust his/her face for proper detection of the face and also It will send the Mail to the Authorized User.
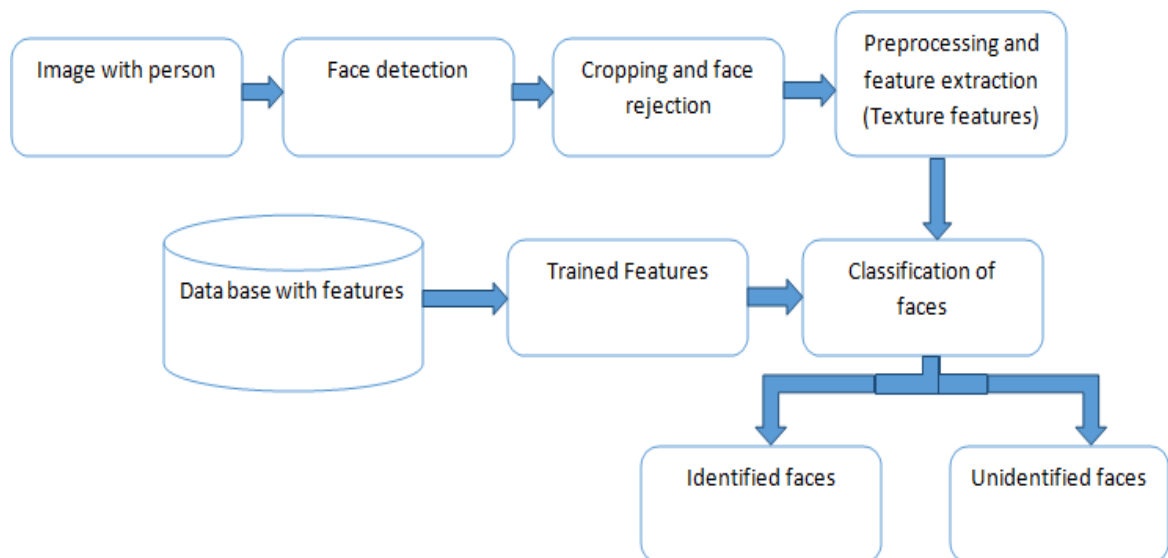

Fig 1:BLOCK DIAGRAM

MODULES

USER REGISTRATION (HAAR-CASCADE ALGORITHM)

Haar Cascade is a machine learning object detection algorithm used to identify objects in an image or video and based on the concept of features.The typical cascade classifier is the very successful method for face detection. Generally, many object detection tasks with rigid structure can be addressed by means of this method, not limited to face detection. The cascade classifier is a tree-based technology, in which Haar-like features for human face detection. The Haar-like features can be used with all scales in the boosted classifier and can be rapidly computed from an integral version of the image to be detected in. All human faces share some similar properties. These regularities may be matched using Haar Features. By means of Haar-like features and taking the advantage of conception of cascade classifiers, one can design and implement eyes and mouth detections. Similarly to the rejection cascade for the human face, the classifiers for eyes and mouth detections are used as weak classifiers.

USER VERIFICATION (PRINCIPAL COMPONENT ANALYSIS)

PCA is used in exploratory analysis and for making predictive models. It is commonly used for dimensionality reduction by projecting each data point onto only the first few principal components to obtain lower-dimensional data while preserving as much of the data's variation as possible. The first principal component can equivalently be defined as a direction that maximizes the variance of the projected data.

USER VALIDATION:

After Identification of the Authorized User through Principal Component Analysis(PCA).If Authorized User is Correct with the Database then it will go for next level process.If Unauthorized User Access the different Account, it will take Image of the Unauthorized User and that Image will send to the Authorized User Mail. If Known Person they can access the next level process.

V. RESULT

In this we can see go for cardless transactions, by detecting our Face we can withdraw money and Secure Transactions. In this we won't wear Masks and Helmet. It will detect the Face if User is correct and the next Process will be done. If Unauthorized User accesses the ATM, it will send the image of the Unauthorized User to the Authorized User Mail.
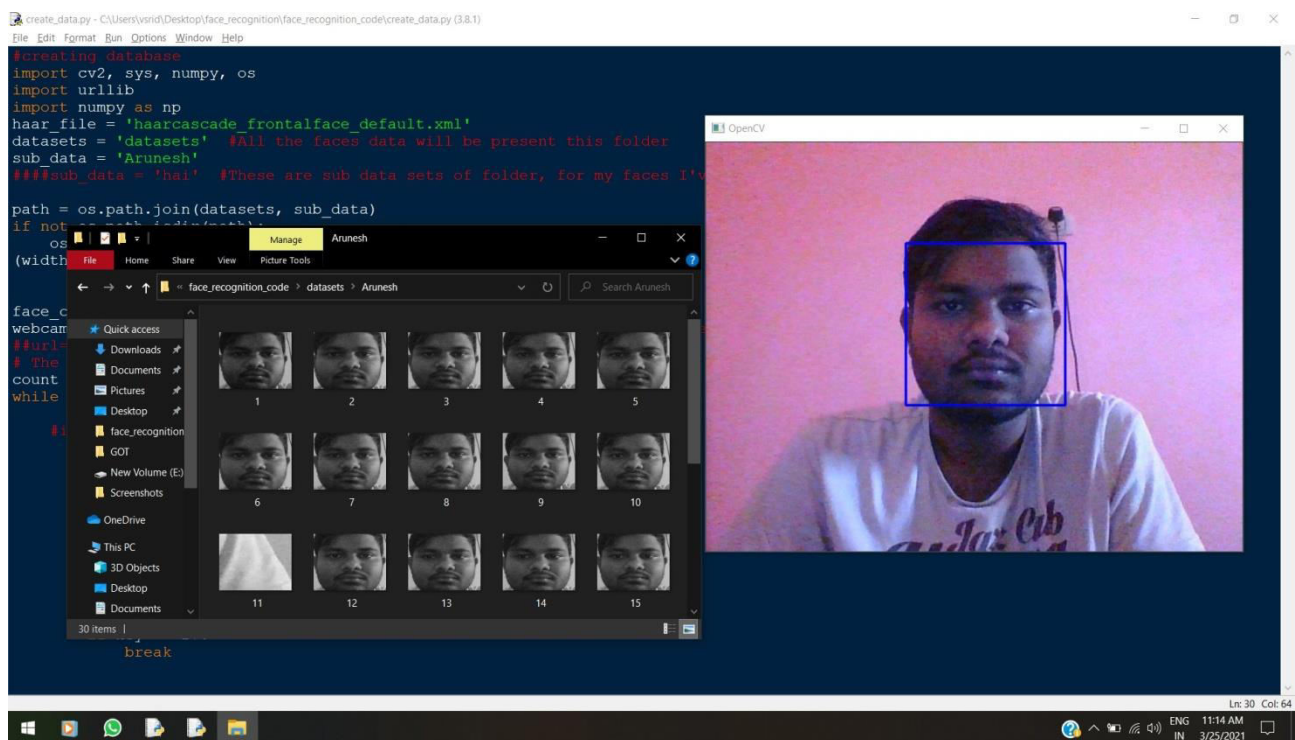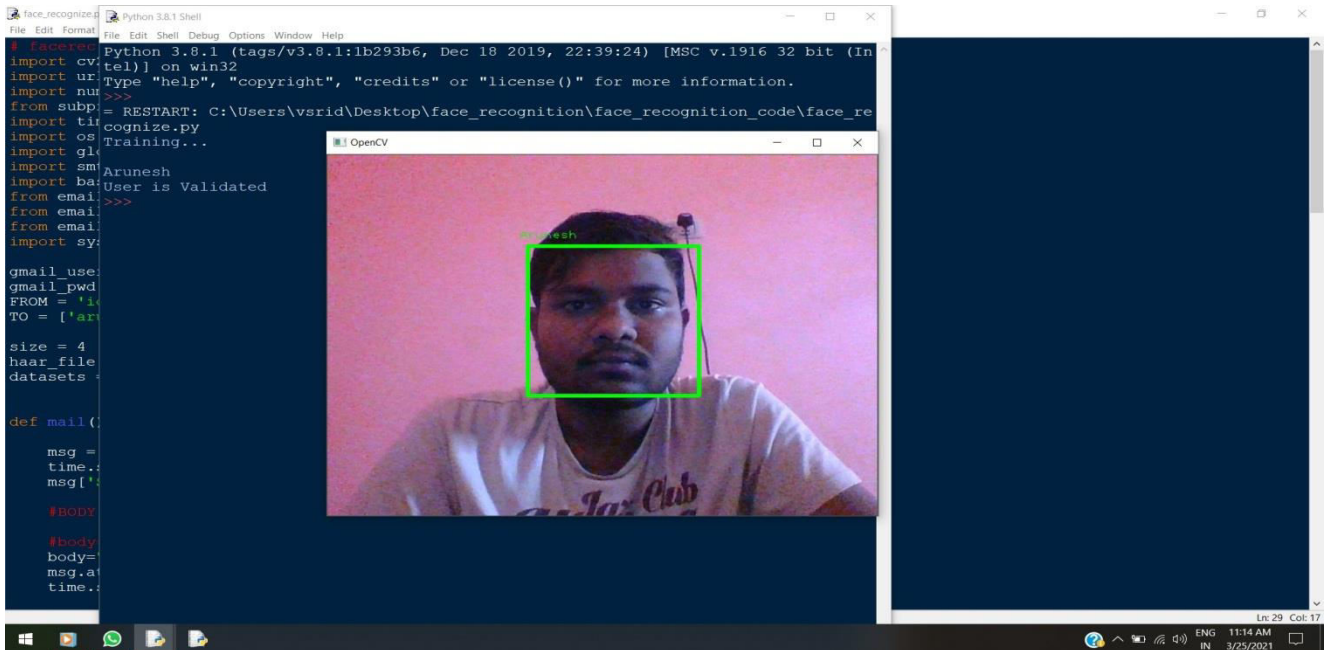

Fig 2: User Registration

Fig 3 : User Validation

VI. CONCLUSION

To avoid atm robberies and provide security for atm, To secure such a complex system will be even more difficult than designing it. And now people just begin to discuss some issues of ATM security. It will provide some experience for us to implement security services in ATM network

REFERENCES

[1]   Aru, O. Eze and I. Gozie, Facial Verification Technology for Use in ATM Transactions, in American Journal of Engineering Research (AJER), [Online] 2013, pp. 188-193, Available:http://www.ajer.org/papers/v2 (5)/Y02501880193.pdf¬ K.

[2]   A. Ross and A. Jain, Information Fusion in Biometrics,in Pattern Recognition Letters, vol.24, pp.2115-2125,2003.

[3]   B.Sivakumar, P.Gunasekaran, T.Selva Prabhu, P.Kumaran, D.Anandan, "The Application of Wireless Sensor Network in the Irrigation Area Automatic System", Ijca Jan-Feb2012.

[4]   E. Derman, Y. K. Gec¸ici and A. A. Salah, Short Term Face Recognition for Automatic Teller Machine (ATM) Users, in ICECCO 2013, Istanbul, Turkey, pp.111-114

[5]   Eun Som Jeon, Jong-suk Choi, Ji Hoon Lee, Kwang Yong Shin, Yeong Gon Kim, Toan Thanh Le And Kang Ryoung Park," Human Detection Based on the Generation of a Background Image by Using a Far-Infrared Light Camera", Division Of Electronics And Electrical Engineering, Dongguk University

[6]   Ing. Ibrahim Nahhas, Ing. Filip Orsag, Ph.D "Real Time Human Detection And Tracking", Bruno University of Technology.

[7]   H. R. Babaei, O. Molalapata and A. A. Pandor, Face Recognition Application for Automatic Teller Machines (ATM),in ICIKM, 3rd ed. vol.45, pp.211-216, 2012.

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