SECURING ATM TRANSACTIONS USING FACE RECOGNITION

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Abstract: In the technological advances in financial infrastructure, most bank customers prefer to use Automatic Teller Machines (ATM) for carrying out their banking transactions. in this project To improve the security of these transactions, we proposed a new generation ATM. This is working based on face recognition system. In this, high quality image has an important role in the recognition process. Face image is used for authentication purpose. Firstly, the face image of a particular person is compared with the database image. Then the compared. If an unauthorized person is identified, not login. . Thus, an ATM model which provides security by using Facial verification systems can reduce forced transactions to a great extent and provide hard secure authentication. In this project we are using Histogram algorithm and Machine learning techniques are used to identify the personals using the machine. This system uses openCV to process the image being obtained to detect the faces in the image. The face recognition is done using Local Binary Pattern.

I.INTRODUCTION

The main objectives of this research project are to add a new layer of security over the existing ATM system such that transactions will not only depend on the correct PIN of a card but also the person performing the transaction. An automated teller machine (ATM) 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 the bank staff. This ever-growing technology demands a lot of security to make sure that clients can perform their transaction with adequate safety. Covering the ATM booth with Closed-Circuit Television Camera (CCTV) and security guard (human) are physical security measures along with other technology-based securities like firewalls; data encryptions, network security etc. are already implemented to ensure safe ATM service for the clients. However, scams like stolen cards, fake cards, card cloning, skimming, etc. have become very common recently and

These could deceive existing security measures easily. With advances in Machine Learning and Computer Vision, distinguish a human face from a digital image or a video frame from a video source and characterize each human face with unique identification is possible. Therefore, this project aims to create a facial recognition-based ATM to make sure that every transaction is done with the consent of a related account holder. There has been no full proof method to "authenticate" a customer in an ATM card transaction. Authentication is the verification of an ATM card owner made during ATM transactions. In the physical world, authentication is achieved through a physical signature which is manually checked at the point of transactions. Without effective authentication, following problems may arise like fraudulent transaction, lengthy process of transaction including lack of confidence for customers,

higher cost of transactions etc. Existing System: A simple multi-factor authentication setup involves asking a user for their username and password (something they know) as well as verifying their identity through a second factor such as an SMS message to their phone (something they have). That covers two factors of authentication, but adding in image recognition as well adds an extra layer of security to the login process without making it frustrating or overly complicated for authorized users. Proposed System: In this project proposed a new layer of security over the existing ATM system such that transactions will not only depend on the correct PIN of a card but also the person performing the transaction. In this project, we use standard implementation techniques, face recognition using Local Binary Pattern Histogram algorithm, which has been implemented using OpenCV Python.

II. LITERATURE REVIEW

[1] ATM Security Using Fingerprint Biometric Identifier: An Investigative Study (Moses Okechukwu Onyesolu, Ignatius Majesty Ezeani) The growth in electronic transactions has resulted in a greater in demand for fast and accurate for user identification and authentication. Access codes for buildings, banks accounts and computer systems often use personal identification numbers (PIN's) for identification and security clearances. Conventional method of identification based on possession of ID cards or exclusive knowledge of like a social security number and a password are not all together reliable. [2] Face detection is based ATM security system using embedded Linux platform (Jignesh J. Patoliya, Miral M. Desai) In order to provide a authentic security solution to the people, the concept of smart ATM security system is based on Embedded Linux platform is suggested in this paper. The study is focused on Design and Implementation of the Face verification based on ATM Security System using Embedded Linux Platform. The system is implemented on the credit card size is Raspberry Pi board with an extended capability of open-source Computer Vision (OpenCV) software which is a used for Image processing operation. High level security is framework is provided by the consecutive actions such as initially system is capturing the user face and validate the user face is verified properly or not. [3]. Enhancing ATM security via face recognition (K John Peter; G. Gimini Sahaya Glory, S. Arguman, G. Nagarajan, V. V. Sanjana Devi) A facial recognition system is an application for automatically verifying a user from a digital image or a video frame from the video source. Proposed paper uses face for recognition technique for verification in ATM system. For face recognition, there are two types of a comparisons. The first is verification process, where the system is compares the given individual with who that individual says they are and gives a yes or no decision. The next one is identification this is the where the system compares the given individual to all the other individuals in the database and it gives a ranked list of matches. [4] IBIO-A new approach for ATM banking system (V. Rajesh, S. Vishnupriya) Security and Authentication is individuals is necessary for our daily lives especially in ATM. But the security is a provided with ATM systems has some back doors. It has been improved by using biometric verification of techniques like face recognition, fingerprints, voice and other traits, comparing these existing traits, there is still need for considerable computer vision. Iris recognition is a particular type of biometric system that is used to reliably identify a person uniquely by analyzing the patterns found in the iris. [5] Enhancing bank security system using Face Recognition, Iris Scanner and Palm Vein Technology. (Raj Gusain , Hemant Jain , Shivendra Pratap) The objective of this paper is to design a bank locker security system in which is using face recognition process, Iris Scanner and Palm Vein

Technology (PVR) for securing valuable belongings. A face recognition is a system which identifies and authenticates an image of an authorized user by using MATLAB software. The images of a person entering an unrestricted zone are taken by the camera and software that compares the image with an existing database of valid users. Iris Recognition system is uses generous characteristics present in user body. This technology is designed for biometric authentication in ATM's Immigration border control, public security, hospitality and tourism etc.

III.IMPLEMENTATION

System Architecture
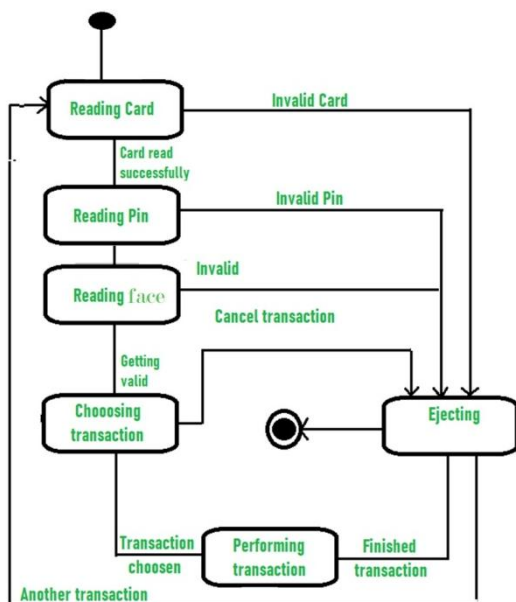
The goal of implementation is to make a code which is easy to read and understand. This is the most vital stage in acquiring fruitful programming or a framework and giving the client certainly that the new programming or the framework is functional and gives compelling outcomes. The source code must be clear such that the debugging, testing, modifications can easily done. As they consume a large portion of software budgets. In precise implementation deals with the quality of code, error removal and performance. This phase involves coding styles techniques, standards, and guidelines.

Module Description
To implement this project we have designed following modules.

1. Bank
Once the datasets are created, the datasets have to be trained using their respective IDs which has to correspond to the users card details. All this is stored in a separate file named **trainer.yml**

2. User
Testing is carried out with 20% of the images from the dataset. The accuracy of the bounding boxes in the results and the prediction percentage depends on the learning rate and number of iterations for training. The following cases describe the results on testing data for different weights obtained from different learning rates and iterations.

Algorithm
LBPH (Local Binary Pattern Histogram)
The Expectation-Maximization (EM) algorithm is a way to find maximum-likelihood estimates for model parameters when your data is incomplete, has missing data points, or has unobserved (hidden) latent variables. It is an iterative way to approximate the maximum likelihood function.
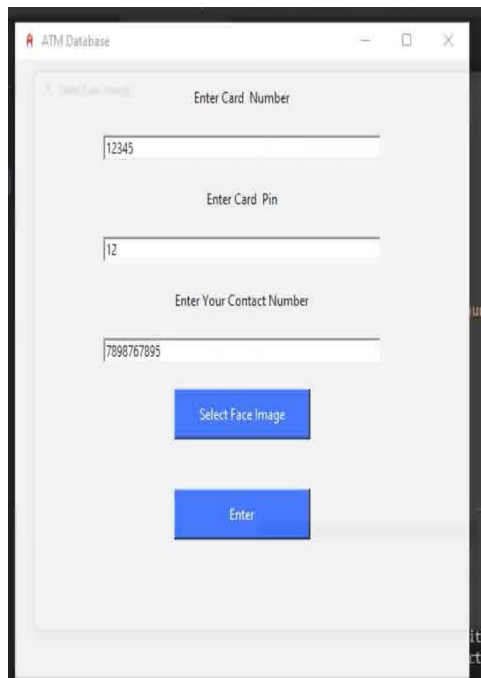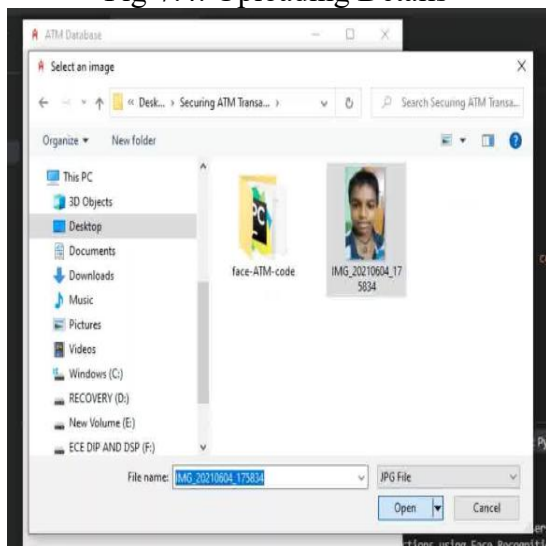
IV.RESULT

Fig-7.4: Uploading Details

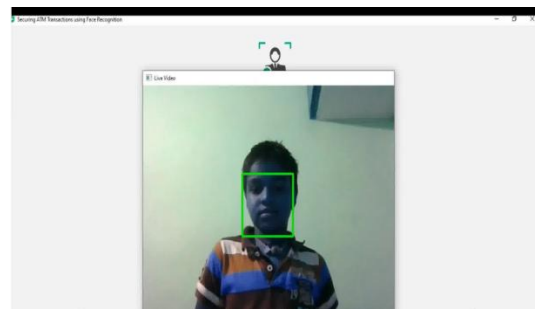Fig-7.5: Uploading a Picture

Fig: 7.8: Uploading Details in User Page
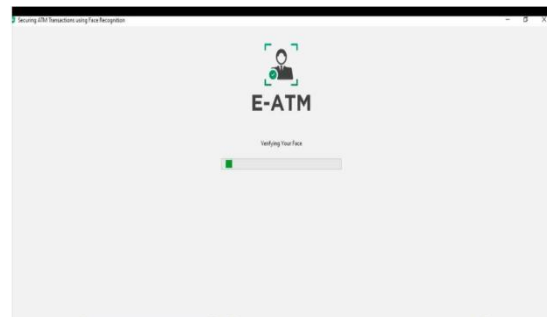

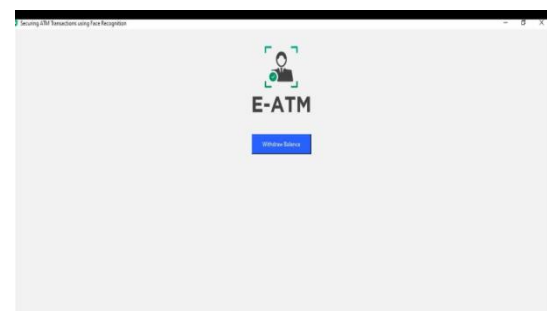Fig-7.9: Taking snapshot

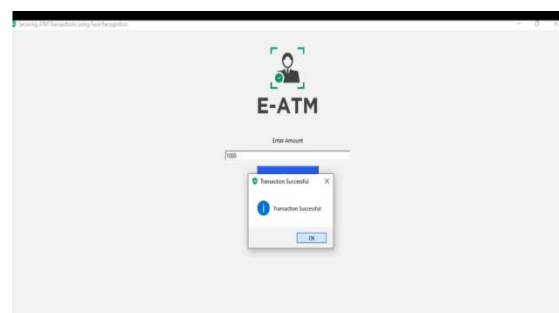Fig:-7.10: Verifying face

Fig: 7.11: Withdrawing Balance

Fig- 7.13: Transaction successful

V. 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'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 back forced transactions to an excellent extent.

REFERENCES

1. E.Derman, Y.K.Gecici and A.A.Salah, Short Term Face Recognition for Automatic Teller Machine (ATM) Users, in ICECCO 2013, Istanbul, Turkey, pp.111-114.https://dx.doi.org/10.21172/1.841.20

2. JinfangXu, Khan, Rasib and RasibHasan, SEPIA: Secure-PIN-authentication-as-a-service for ATM using Mobile and wearable devices, 3 rdIEEE International Conference on Mobile Cloud Computing, Services, and Engineering IEEE, June 2015,pp. 41-50.

3. Marilou O. Espina1, Arnel C. Fajardo, Bobby D. Gerardo, RujiP. Medina, Multiple Level Information Security Using Image Steganography and Authentication, International Journal of Advanced Trends in Computer Science and Engineering, Volume 8, No.6, November – December 2019, pp.3297-3303. https://doi.org/10.30534/ijatcse/2019/10 0862019

4. M.Murugesan, R.Elankeerthana, Support vector machine the most fruitful algorithm for prognosticating heart disorder , International, Journal of Engineering and Technology, Volume 7, pp.48 – 52, 2018. https://doi.org/10.14419/ijet.v7i2.26.125 33

5. M.Murugesan,S.Thilagamani, Overview Of Techniques For Face Recognition, International Journal Of Life Science and Pharma Reviews , pp.66 - 71 , 2019 ,

6. M.Murugesan, R.Elankeerthana, Pedestrian ReIdentification Using Deep Learning, International Journal Of Life Science and Pharma Reviews, pp.71 - 78 , 2019 , ISSN 2250 – 0480.

7. P.Pandiaraja, N. Deepa, A Novel Data PrivacyPreserving Protocol for Multi-data Users by using genetic algorithm, Journal Soft Computing Volume 23 Issue 18, pp8539-8553, 2019.

8. S.Karthikeyan, S.Sainath, K.P.TharunAswin, K.Abimanyu, An Automated Anti-Theft and Misusealerting System for ATM, IOSR Journal of Electronics and Communication Engineering (IOSRJECE), Volume 10, Issue 2, Ver. II (Mar - Apr.2015), PP 97-102.

9. Sri Vasu, Subash, Sharmila Rani, Udhayakumar,ATM Security using Machine Learning techniques in IOT, International Journal of Advance Research, Ideas.

10. P.RajeshKanna, P.Pandiaraja, An Efficient Sentiment Analysis Approach for Product Review using Turney Algorithm, Journal of Procedia, Computer Science ,Volume 165, Issue 2019, PP 356-362. https://doi.org/10.1016/j.procs.2020.01.0 38.

11. Innovations in Technology, Volume 5, Issue 2, pp. 150- 153, 2019.

12. S.Thilagamani , N. Shanthi, Object Recognition Based on Image Segmentation and Clustering, Journal of Computer Science, Vol.7, No.11, pp. 1741-1748, 2011. https://doi.org/10.3844/jcssp.2011.1741. 174.

13. N. Spirin and J. Han. Survey on web spam detection: principles and algorithms. SIGKDD Explor.Newsl., 13(2):50–64, May 2012.

14. B. Yan and G. Chen.Appjoy: personalized mobile application discovery. In Proceedings of the 9th international conference on Mobile systems, applications, and services, MobiSys '11, pages 113– 126, 2011.

15. K. Shi and K. Ali.Getjar mobile application recommendations with very sparse datasets. In Proceedings of the 18th ACM SIGKDD international

conference on Knowledge discovery and data mining, KDD '12, pages 204–212, 2012.

16. R. Agrawal and R. Srikant, "Fast algorithms for mining association rules," in VLDB, 1994.

17. H. Zhu, E. Chen, K. Yu, H. Cao, H. Xiong, and J. Tian.Mining personal context-aware preferences for mobile users.In Data Mining (ICDM), 2012 IEEE 12th International Conference on, pages 1212–1217, 2012.

18. Hengshu Zhu, HuiXiongDiscovery of Ranking Fraud for Mobile Apps. IEEE transactions on knowledge and data engineering, 2013.