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Online Transaction Using Face Recognition and Fingerprint Sensor

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ABSTRACT: Online transaction generally refer to payment services operated under financial regulation and performed from or via a mobile device. Instead of paying with cash, cheque, or credit cards, a consumer can use a mobile to pay for a wide range of services and digital or hard goods. Biometrics uses biological traits to identify an individual. A Biometrics system is effective pattern recognition system that utilizes different patterns such as face and fingerprint. Biometric payment system is protected and sheltered and incredibly trouble-free to use and even without using password or top secret codes to keep in mind. In daily life the usage of credit cards and debit card for shopping, bill payment, travelling and so on. So problem is that a person has to remember their passwords or secret code and to keep secured. So biometric system will solve this problem. Implementation of biometric payment system is more realistically priced to small business owners. The current system of online transaction has a two way authentication through one time password. This paper proposes a secured authentication for online transaction using facial recognition to the effect of improving the existing system. The limitations of current system are identified and those limitations have been overcome in the proposed system. In case of any issues, face recognition along with fingerprints are used for high level authentication.

KEYWORDS: Online transaction, Fingerprint sensor, Face recognition, way authentication

I. INTRODUCTION

Biometrics is automated methods of recognizing a person based on a face and fingerprint. Biometric technologies are fetching the enterprise of an extensive array of extremely safe recognition and personal authentication solutions. As the level of security breach and transaction fraud increases, the need for highly secure identification and personal verification technologies is becoming obvious. Biometric-based solutions offer for confidential financial transactions and personal data privacy. The need for biometrics can be found in federal, state and local government. Enterprise-wide network security infrastructures, government IDs, secure electronic banking, investing and health and social services are already benefiting from these technologies. Biometric-based authentication applications include workstation, network, and domain access, sign-on, data security, remote access to resources, transaction security and Web security. Faith in these electronic transactions is essential to the healthy growth of the global economy. Utilized alone or integrated with other technologies such as smart cards, encryption keys and biometrics are set to pervade nearly all aspects.

II. LITERATURE REVIEW

The analysis of the current system will help determine the feasibility of the system. The major goal of software designers has been to make mobile banking more secure for end users. Achieving this objective however, has been met with many challenges. For instance, Indian bank, one of the leading banks in the country, uses only the popular username and password levity of secured (2-way authentication) which poses a level of security that cannot stand the test of time. The features provided by the display place allow for account operations like fund transfer, checking

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balance, bill payments. Also, it provides functionality for account administration. With such features, a security level higher than the 2-way authentication is needed to provide optimum security to curb scam/theft on users' account. In some cases the banks will provide a payment gateway with OTP which will be generated to our registered phone number which is used as authentication feature. The OTP is the one time password that will be in the form of digits.

III. PROPOSEDSYSTEM

The proposed system is expected to provide higher level of authentication (multifactor authentication) which will bring unauthorized access to the barest minimum. Before access will be granted, the user will have to take a facial photograph to have access to user account, the geometry of the face, distance of the eyes and the nose is compared. This photograph will be compared with the photograph in the bank server and the NCC server for verification, if it passes the verification, access will be granted, otherwise it will denied.

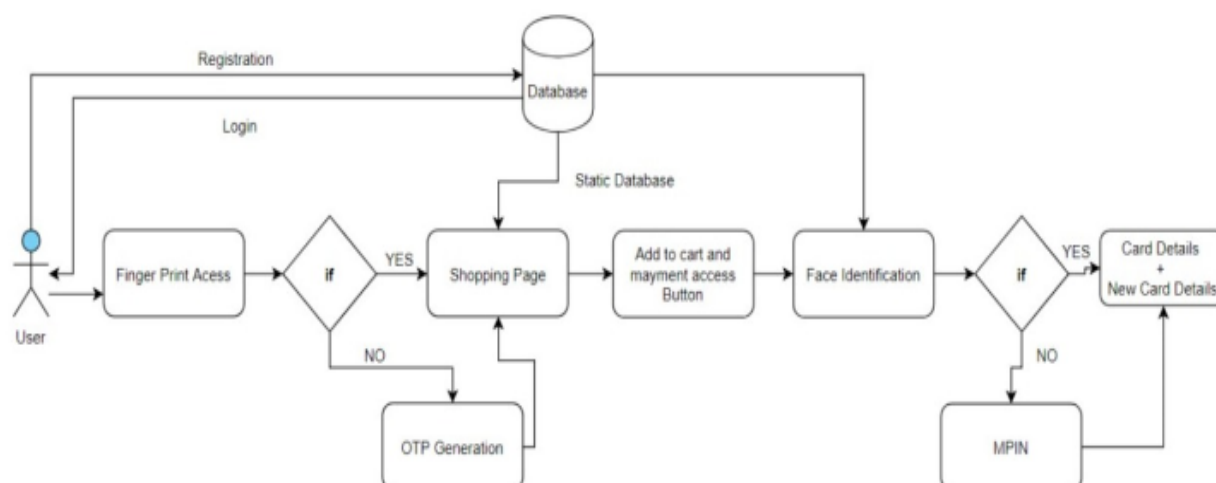


FIGURE 1: ARCHITECTURE DIAGRAM

In the event of unofficial access, a security alert message will be sent to the bank. Before entering into the payment gateway it has a additional authentication using finger print sensor which will provide a more authenticated environment. In case if any problem occurs with this authentication, both the face and fingerprint recovery is provided using OTP and MPIN.If there is any problems with the finger print sensor OTP will be provided to the registered phone number. If any issues occur with face recognition MPIN is used to rectify it.

IV.IMPLEMENTATION

Simulation of the proposed process was developed by Visual Basic (VB.NET). The biometric templates in this case are face images that were required from 35 participants to keep in the database. These 35 participants were chosen from the 220-people sample group that answered the system requirement questionnaire. Face images of size 180x180 pixels with 72 dpi were captured by web-camera in which the resolution was 0.3 mega pixels. To minimize the use of database capacity, face images were low resolution images.

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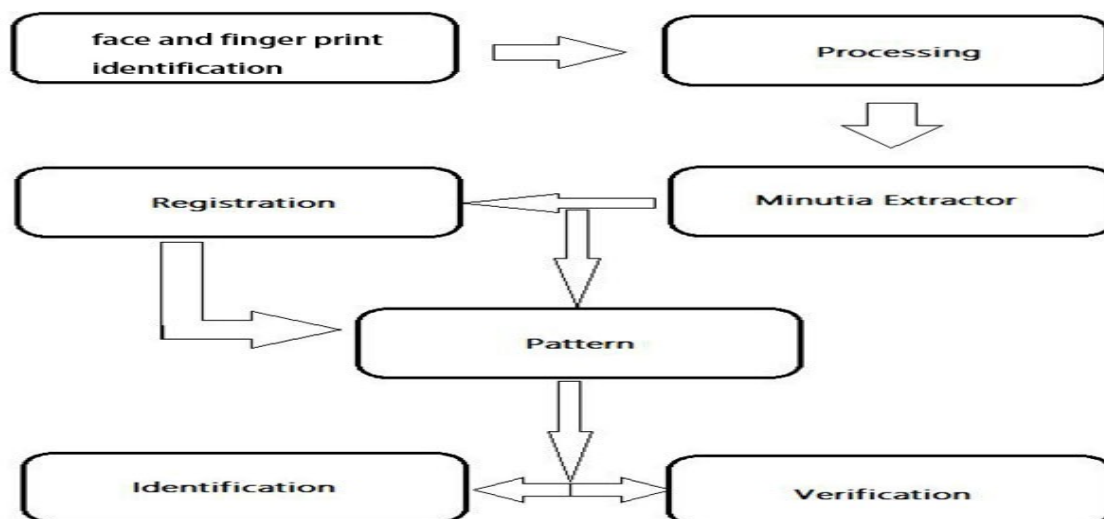


FIGURE 2: BLOCK DIAGRAM

From model of biometric system, matching algorithm needed desire threshold for measuring accuracy of our proposed process. In this research, 5-fold cross-validation [12] was used to measure accuracy. 100 people were set as a dataset. Two images captured from each person, that is, lowresolution face image of 0.3 megapixels and face image of 3.0 megapixels, were compared and calculated for similarity using MPEG7-EHD descriptor. Then these 100 similarity numbers were applied to compute accuracy

FIGURE 5: REGISTRATION PAGE

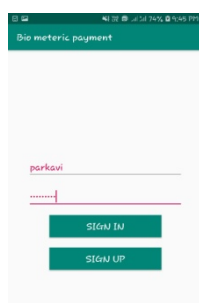
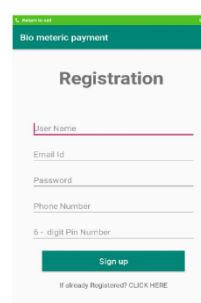


FIGURE 6: USER DASHBOARD PAGE



When the user first visits the portal, the farmer has to either login if they already have an account, or else register first. If the farmer has already signed up then the system will redirect to the page .

V. CONCLUSION

Biometrics is a means of verifying personal identity by measuring and analyzing unique physical or behavioral characteristics like fingerprints or face detection. The conclusion of this whole paper is that the card-less payment system should be replaced and there must be more easier, reliable, secure, cash free and tension free payment system, i- e biometric payment system in which no body have to take with dozens of cards for shopping, travelling, pass in office, university or bank as door lock. And the International Journal of Advanced Science and Technology Vol. 4, March,



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2009 36 must have some secure codes to access as authorization and there is also one another disadvantage is that there may be stolen of cards or it can be lossed at any time without any care. So to consider all these kinds of problems and disadvantages of card payment system, the fingerprints payment system is suggested to be implemented because it is easier, feasible, secure and easily authorized to everyone. And there is no any worry that anyone can stolen my finger are can be loosed anywhere so other body can use it because it is imposible. Face recognition tasks has been proposed. This approach unifies the capability of fuzzy set theory to obtain the degree of belonging of different pixels of face image to different classes. Common vector method is obtained to reduce the number of samples used in training then traditional PCA has been used for recognition task. This shows the significant improvement in classification accuracy and recognition time. Future work will enhance this approach by detecting outlier's pixels to exclude distorted images from learning process to get better recognition accuracy and performance. This application is provided with both fingerprint and face recognition which makes the system highly secured. The recovery options are also provided in order to overcome any issues that occur with the system.

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