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A Survey on "Wireless Serial Data Synchronization for Secured Cardless Money Transaction Using Multi-account"

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Abstract: Automated Teller Machine (ATM) services are more popular because of their flexibility and easiness for banking systems. People are widely using their ATM cards for immediate money transfer, cash withdrawal, shopping etc. To provide high security we introduced fingerprint-based customer authentication and eye blinking technique. The main objective of this project is to develop cardless ATM (Automated Teller Machine) for multiple bank accounts. It reduces the cost of inter banking transactions as interfacing different bank databases is a resource consuming thing. In this security system the persons can enter and scan the finger after scanning a number should need to be entered and Message Module based intimation has been sent to the user if he doesn't visit the ATM and the numbers is entered by the keypads. User module is the interactive module through which the user can login to the system and perform the transactions of the user's choice. Though the proposed system provides the user a level higher convenience, efficient and user friendly. This model helps to enhance the security system of the present ATM machine which is not that secured in present computer security chain. We are also introducing the multibank account which helps the customer to choose their required account. In the general case, providing the advanced security than the present ATM machine using biometric and eye blinking. This model can be used not only in the ATM center but also in airports, shopping malls.

Keywords: ATM, Fingerprint validation, Eye Blinking Recognition, Mobile Number Valid; *Code#

I. INTRODUCTION

An Automated Teller Machine (ATM) allows customers to perform banking transactions anywhere and at any time without the need of human teller. By using a debit or ATM card at an ATM, individuals can withdraw cash from current or savings accounts make a deposit or transfer money from one account to another or perform other functions. You can also get cash advances using a credit card at an ATM. Individuals should be aware that many banks charge transaction fees – generally ranging from Rs.50- 150 per transaction for using another bank's ATM. The ATM is online with the bank, that is, each transaction will be authorized by the bank on- demand and directly debited from the account's owner. The ATM works as follows: First, the client will insert his/her client card in the ATM and then the ATM will ask for a Personal Identification Number (PIN), if the number is entered incorrectly several times in a row, most ATMs will retain the card as a security precaution to prevent an unauthorized user from working out the PIN by pure guesswork. Once the correct PIN is given, the ATM will ask for the amount of money to be withdrawn. If the amount is available and if the client has enough money on his credit, then they said amount of money will be paid. Whether the amount of money is payable or not, i.e., the ATM has enough cash but could be the case the ATM has no change for that amount, will be also checked. Once the money is offered to the client a countdown is started, i.e., the client has a determined amount of time to pick up the money. If this time-out is over, the money will be collected by the ATM and the transaction will be rolled back. The class Card input has the methods for reading the code of the client's card and for ejecting the card from the ATM. The class Card input will interact through the Controller with the class Terminal, where the methods Request PIN and Request amount are defined, in order to get the PIN of the user and to verify if the given PIN is correct or not.

The class Card will have the information of the cardholder, that is, the Card number, PIN, and Account number. The Controller will interact with Bank using the information of the cardholder in order to get the authorization to pay (or not) the requested amount. The bank interface will send the request to the accounting class, which belongs to the Bank package, in order to call the Debit method of the accounting class. The Accounting class has the methods Rollback, Authorization and Debit which directly interact with the Accounts class. Rollback is for roll back a transaction (for the case if anything is wrong) and should leave the account and the teller machine in the original state;

Authorization will authorize or not an operation and Debit will extract the requested amount of money from the account in the case the operation is authorized.

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ATMs are generally reliable, but if they do go wrong customers will be left without cash until the following morning or whenever they can get to the bank during opening hours. Of course, not all errors are to the determinant of customers; there have been cases of machines giving out money without debiting the account or giving out a higher denomination of note by mistake there are also many "phantom withdrawals" from ATMs, which banks often claim are the result of fraud by customers. Phantom withdrawals are considered to be a problem generated by dishonest insiders by most other observers.
But in this paper, we introduce the concept of not carrying any mobile phone or wallet or neither the ATM card. Using biometrics and eye blinking makes our things simple for our needs. There is lot of situations where we require money in need but we don't have our card and mobile, in that case this project is very useful. Even by providing lot of security for banking but then there is somehow breaking taking place. To overcome all of these problems we are introducing this project which provides high security system in advanced, which is highly secured, compared to the present ATM. flexibility in this project is that the user of any age can be used since it's a biometrics and eye blinking. Interbanking in India is provided by NFS. National Financial Switch (NFS) is the largest network of shared automated teller machines (ATMs) in India.NFS is responsible for routing the transactions. It was designed, developed and deployed with the aim of inter-connecting the ATMs in the country and facilitating convenience banking. It is run by the National Payments Corporation of India (NPCI).

II. BACKGROUND WORK

An extortion assaulting the Automated Teller Machine (ATM) has expanded throughout the last decade that has galvanized the use of life science with image for individual recognizable proof to get elevated level of security and precision. This project [1] portrays a framework that replaces the ATM cards and private number (PIN) by the distinctive physiological biometric validation and facial acknowledgment. Additionally, the part of One-Time word (OTP) offers security to the user and liberates him/her from reviewing PINs. The procedure of group action starts by capturing and coordinating the fingerprints and facial images. The framework can consequently acknowledge real attribute and phony examples. A 6-digit OTP is made by SMS entranceway to the noncommissioned mobile number. When the substantial OTP is entered the user will select among one among the multiple banks to perform bank transactions. In any style of phony access endeavors the user are going to be notified.

Automated Teller Machine (ATM) services are a lot of in style due to their flexibility and easiness for banking systems. Individuals are wide victimization their ATM cards for immediate cash transfer, money withdrawal, looking and so forth on latest ATMs, the ATM card employed by the client for every checking account that could be a plastic ATM card with a tape or a plastic charge account credit with a chip [2]. However, watchword PIN which is that the main authentication for ATM transactions create the link within the laptop security chain. Within the projected Multi Account Embedded ATM card, we insert quite one bank account into one ATM card so the client will perform the money transactions for multiple bank accounts. The user needn't carry multiple ATM cards and keep in mind multiple passwords. to supply high security we tend to introduced fingerprint primarily based customer authentication. It reduces the value of interbanking transactions as interfacing completely different bank databases could be a resource intense thing.

In the paper [3] a completely unique approach to the matter of reflex detection in video sequences is proposed. The introduced technique is utilizing the technique of native Binary Patterns (LBP) that permits to create a descriptor capturing the options of this eye state. Within the initial step, the bar graph of LBP describing the open eye is made and later it is a example, which is compared with the histogram of the LBP of succeeding frames. The attention blinks are detected as sharp peaks of the difference between the template and therefore the histogram of the current frame. The potency of the projected reflex detector has been compared with the progressive approaches mistreatment 2 video databases. The analysis of the results shows that the proposed technique effectiveness is superior to the prevailing ways of eye blink detection.

In this paper [4] we advocate an integrity safety idea primarily based totally on Trusted Computing. The Trusted Platform Module (TPM) is used to degree the integrity of the ATM. We display that the dimension effects may be stated authentically to the financial institution and the ATM manufacturer. We additionally speak how an integrity assessment primarily based totally at the document may be achieved permitting the financial institution to position an ATM out of operation as an integrity violation is detected. Our answer presents safety in opposition to offline assaults achieved via way of means of insiders.

This paper [5] gives a examine that employed human-pc interaction (HCI) in the development of an improved driver's drowsiness detection system (DDS) for monitoring the drowsiness of car drivers. The number one process used motion

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assessment method for eye detection, which includes the assessment of the involuntary blinks of someone of the tool. After the tool had been initialized, the eye modified into tracked the use of the square difference matching method. The most important parameter ultimately used to come upon drowsiness modified into the frequency of blinks, such that an alarm is induced at the same time as it gets to an important level. The consequences established that a low rate webcam, with a capture rate of 30 frames/s and resolution of 320 x 240, modified into used to gain a blink accuracy of 94.8%, unnoticed blink blunders of 2.4%, fake advantageous blunders of 3%. Also, an eye tracking accuracy of 72% at a distance of about 30cm modified into obtained. An improvement on the accuracy and reliability of this tool over modern-day ones modified into achieved.

When a user enters a private identification number (PIN) into an automatic teller machine or a degree of sale terminal, there's a risk of someone looking from behind, making an attempt to guess the PIN code [6]. Such shoulder-surfing could be a major security threat. So as to beat this drawback completely different PIN entry strategies are suggested. During this regard, gaze interaction methods are receiving attention in recent years, as a result of the lowering value of eye chase technology. During this paper, we tend to gift Safety PIN - an eye fixed tracking primarily based PIN entry system - that is geared toward creating the PIN entry more secure with the assistance of an eye fixed chase device. We tend to discuss the implementation and therefore the initial analysis of this system.

In several image process and pattern recognition based mostly applications it often becomes necessary to separate the foreground and background regions within the input image. This becomes vital notably once the input image should bear variety of processing steps. It's fascinating that this separation is completed at the earliest stage possible, so all the following processing may be targeting solely the foreground, the realm of actual interest. This protects interval and consequently reduces the system value. In fingerprint pictures a transparent fingerprint ridge area constitutes the foreground, and the other area constitutes the background. It's fascinating that the smirched regions (resulting from over-inking etc.) Associate in Nursing different such screeching regions empty of clear fingerprint ridges even be enclosed within the background. This paper [7] considerations separation of foreground and background which helps in correct sectionation. The best thanks to segment a picture is to perform thresholding operation victimization an applicable threshold .Thresholding techniques work well for those cases within which distinct modes exist in the bar graph of the image. Boukharouba et al have instructed the utilization of histogram and curvature of the distributive operate of image to section multimodal pictures. Love et al," l have mentioned the utilization of texture based mostly segmentation of seismal data. Haralick et al have listed spatial clustering, region growing and split and merge techniques for various applications.

The use of one's fingerprints as a method of identification has existed long before its common usage nowadays within the field of criminal investigation. Before the nineteenth century, fingerprints were primarily used solely as a signature for indicating authorship or ownership. alternative applications weren't acknowledged till concerning 1860 once William Hershel was often learning the handprints of these engaged in his contracts. it had been not until 1881 when Henry Faulds recognized that fingerprints found at crime scenes could also be accustomed establish the perpetrator. More exploration into fingerprints followed when Sir Galton began his analysis in the field and authored the primary textbook on procedure in 1892. As a results [8] of the work of those individuals, fingerprinting was before long accepted by police and at last by the US in 19101. Today, fingerprints are maybe the first suggests that of private identification though there are several alternative distinctive characteristics of a personal that may be used. They embody voiceprints, dental impressions, DNA, retinal patterns, and even the form of the ear lobes. Though these other characteristics are the maximum amount unique to the individual as are fingerprints, they lack many benefits that fingerprints have particularly for the criminal investigator and rhetorical scientist. Common to the opposite distinctive attributes, fingerprints are universal and unique. In other words, everybody has them and no 2 have ever been found to be identical. Fingerprints are unchangeable. They shaped before birth and stay till decomposition of the skin happens a while when death.

Access control has been an excellent concern during this info and Communication Technology (ICT) era. The requirement to manage access to sure information and resources has been taken seriously by the ICT community. This paper [9] believes that no single security method, algorithm, key or procedure is entirely secure. Hence, a mix of multiple security compliments is obligatory to supply a high level of protection against fraud and alternative threats. This paper combines 2 security elements that are the magnetic tape card and fingerprint recognition. it's into the vulnerabilities of magnetic-stripe cards authentication combined with Personal Identification Numbers (PIN) or passwords wide used on cash machine Machines (ATMs) today. As a result, the paper proposes a framework for user identification and authentication in cash machine Machines (ATMs) exploitation Personal Identification Numbers (PIN), fingerprints and magnetic tape cards as critical the PIN and magnetic stripe cards authentication method.

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In this paper [10] we've got survey on biometric payment system. Biometric payment system is employed for numerous varieties of payment system rather than the stress of cards to place with them and to hit the books theirs tough secrets and pin numbers. Biometric payment system is way safe and secure and really simple to use and even while not victimization any password or secret codes to keep in mind as compare with previous system like credit card payment system, wireless system and mobile system and so forth Biometric payment system is reliable, economical and it's a lot of blessings as compare with others. In everyday life the usage of credit cards, check card for shopping, bus card, subway card for traveling, student card for library and department, and several varieties of cards for unlimited functions then on. Therefore downside is that an individual should take many cards and has to keep in mind their passwords or secret codes and to stay secure to require with him all time. Therefore the biometric payment system can solve this problem. Bigger adoption of biometric payment system will drive down the value of biometric readers and so creating it more cost-effective to little business owners. we actually want alternate payment systems. This "perpetual toll" to mastercard firms should stop.

Cardless money [11]Biometric ATM System allows cash withdrawal at associate degree ATM while not victimization the present magnetic swipe cards that makes it potential to quickly authorize an individual to withdraw money. Biometric automated teller Machine (BioATMs) appears to be an efficient means of preventing card usage and is additionally a channel to expand our reach to rural and illiterate masses. These BioATMs will check with the folks in their native languages and provides high security in authentication which prevents service users from unauthorized access. During this model, the user is needed to evidence himself with a 2 part security answer by first providing associate degree individual' identification (Thumb/Fingerprint/Iris etc.), followed by Personal positive identification (PIN), and choose the bank branch from the displayed list if applicable.

The main purpose [12] of our system to create on-line group action safer and user-friendly. Currently days Biometric technology is increasing rapidly. Biometric is employed for private identification. Here we tend to are victimization Fingerprint scanning biometric to produce access to ATM machine. Information of a fingerprint is hold on in info using the enrollment method through the Bank. Bank provide authentication to the client which will be access whereas acting transaction process. If fingerprint match is found in data base then transaction take place. When verification if fingerprint doesn't match transaction are cancelled. victimization fingerprint based mostly ATM system user can make secure transaction.

Biometrics and Fingerprint Payment Technology during this paper [13] I even have survey on biometric payment system. Biometric payment system is employed for many kinds of payment system rather than the strain of cards to place with them and to attempt to memory theirs troublesome PINs. this method is far safe and guarded and really casual to use and even while not victimisation any PIN or secret codes to recollect as compare with earlier system like mastercard payment system, wireless system and mobile system and so forth it's reliable, economical and it's a lot of advantages as compare with others. In lifestyle the usage of credit cards, check card for shopping, bus card, subway card for traveling, student card for library and department, and lots of types of cards for unlimited functions then on. Therefore drawback is that someone should take many cards and has to keep in mind their passwords and to preserve secure to require with him all time. That the biometric payment system can resolve this problem. Larger adoption of biometric payment system will drive down the price of biometric readers and thus creating it a lot of cheap to little business owners. Biometric payment system is greatly safe and guarded and very tranquil to use.

III. PROPOSED WORK

The proposed system is an enhancement of the existing system. It will improve the security of the ATM by applying four levels of security for authentication. The proposed system replaces the traditional card with biometric, Eye blinking, mobile number linked to bank for identification purpose, and the secured code(*…. #) for security purpose. Since fingerprint and morse-code (eye-blinking) characters are unique to each individual, it can be used efficiently to replace the current ATM system. Both the fingerprint and the image of the customer will be captured and stored in the database. After successful authentication it gives all the distinct account list of the customer. After successful authentication of four levels of security the Multi-Factor Application (MFA) provides access to the prototype application (ATM) to perform transactions on the accounts. This overcomes the drawbacks of the existing traditional systems with enhanced security.

1. **Fingerprint recognition:** The masters' fingerprint information was used as the standards of Identification. It must certify the feature of the human fingerprint before using ATM system. Which was stored in data base.
2. **Eye blinking:** Eye blinking is used to track the eye movement and to detect the eye blinking for updating the password. The co-ordinates of the eye will be used to find the midpoint of the eye and through the midpoint the horizontal and vertical line will be drawn based on this line the tracking of the eye movement will takes place to update the password.

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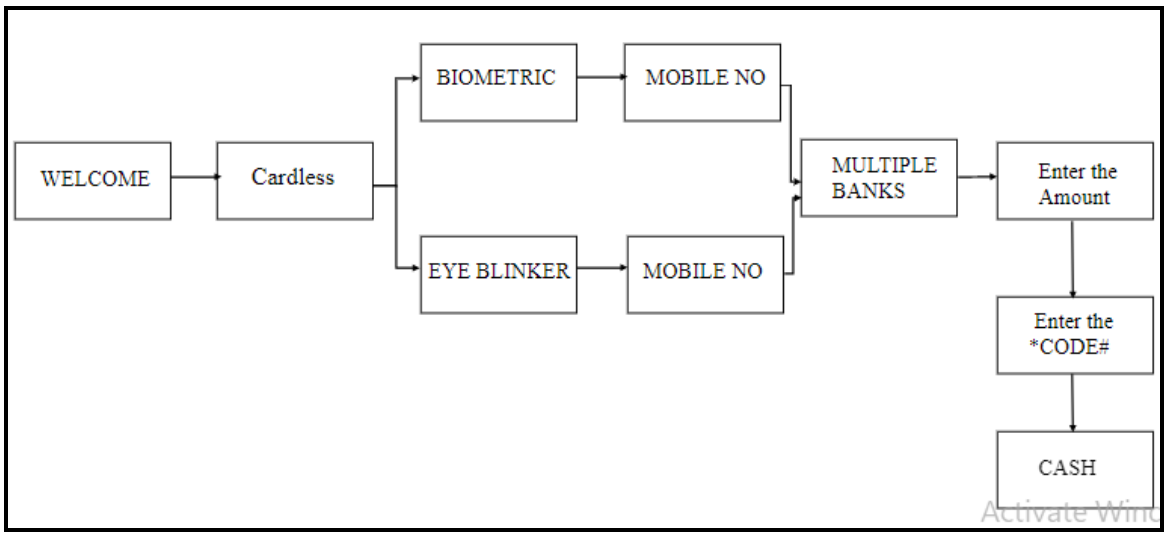
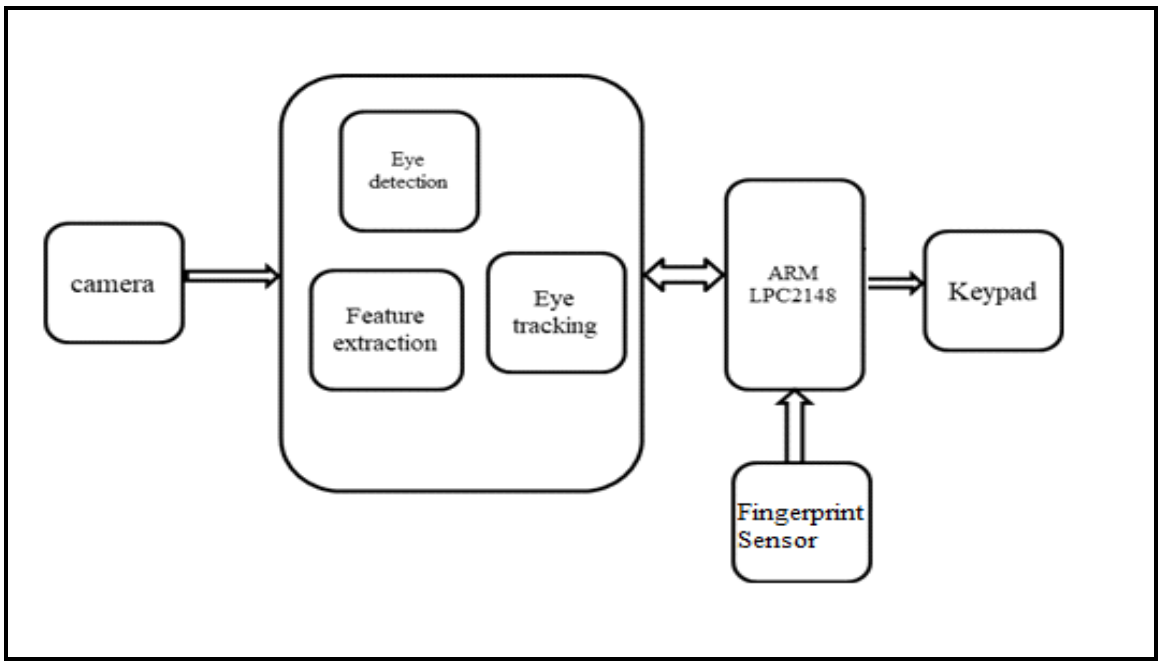
3. **Remote authentication:** System can compare current client's fingerprint information with remote fingerprint data server and human eye matching.
4. **Mobile Number:** Mobile number is used for identification purpose.
5. **Two discriminate analysis methods:** Besides the face and morse-code recognition, the mode of password recognition can be also used for the system.

BLOCK DIAGRAM:





IV. CONCLUSION

The system we are using for handling multiple accounts here is more efficient than existing system. This Reduces transaction cost of handling multiple accounts of a single user. This makes banking system more efficient than the existing system. Using this, the users can perform transactions for all his bank Accounts using single smart ATM card with Enhanced security system such as finger print and Eye blinking. Thus, the user can manage his multiple accounts in

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various banks which provide access and reduces the complex of managing more than one ATM card and passwords. This also leads to reduce cost of transaction charges that were on the customers for making transaction and decrease in their production of smart cards for every account the user has. By implementing this ATM fraud i.e., skimming, which is an illegal practice used by identity thieve store capture credit card information from a cardholder surreptitiously. etc., it can be avoided.

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