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A SURVEY ON CARDLESS AUTOMATED TELLER MACHINE (ATM)

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Abstract: Automated Teller Machine (ATM) transactions are found safe, reliable and these days for fulfilling our financial commitments. Typical approach for using ATM mandates involvement of Debit card. But still, people do experience times when their account lacks balance amount or they forget to carry card and struggle to complete transaction. We know that, parallel to ATM usage, mobile phones' usage has also been an inevitable trend. Establishing a connection between these e-gadgets has ignited a simple and effective approach to withdraw cash without the involvement of debit card which can be referred to as card less cash withdrawal. Fingerprint module is used for authentication of user. An OTP is send to user, which along with fingerprint provide two levels of security. When fingerprint and OTP are matched then customer's account will open in ATM machine. LCD display will display user name, debited money, authentication status etc.

Keywords: Fingerprint Module, OTP, Global System of Mobile Communication (GSM), PIC Microcontroller.

I. INTRODUCTION

The Automated Teller Machine (ATM) is a self-service machine that performs some human teller functions like balance enquiry, bills payments, mini statements, Fund Transfer, Cash Deposit and so on. ATM

mechanism are carried out through the use of a debit/credit card which enables the card holder(s) to access and carry out banking transactions without a teller. Many studies have focused on using biometric techniques in enhancing the security of the ATM. However, a few studies have also use of GSM Technology, while some have use a combination of both techniques.

The present-day ATMs are using pin based security. The pin number is fed as the input which is encrypted at the client side and the data is decrypted at the server side. As the technology is getting improved, the crackers are easily retrieving the data and hence the frauds are going on increasing. Hence the only way to secure the transaction is to replace the computer-generated numbers with the biometric security.In traditional ATM system authenticate by using credit card and the password, method has some defect. Using credit card and password cannot verify the client identify exactly in recently year, the algorithm that the finger print recognized continually update and sending the four digit code by controller which has gives new verification ideas for us, the typical password authentication method combine with biometric identification technology verify the clients identity better and achieve the purpose that use of ATM machines improve the safety effectively. To implement a Card less ATM using finger print in such way that all the parameter inside it is controller and send OTP. Biometric is the physical characteristics of the human body. Some of these characteristics are used for authentication hence known as Biometric authentication.

II. LITERATURE SURVEY

Wei Wang, Jianwei Li, Feiffer Huang, Hailing Fang. Design and implementation of Log-Gabor filter in fingerprint image enhancement. Pattern Recognition Letters 29 (2008)301-308. Which results in the proposed Log-Gabor filtering method that can effectively improve the fingerprint image quality and promote the reliability of fingerprint identification.

Ahmed Bait Garko (2011) Enhancing the Current Automated Teller Machine (ATM) In Nigerian Banking Sector JORIND 9(2) December, 2011. ISSN 1596–8308.www. Tran's campus. org. In this paper, a new framework is designed to enhance the current ATM operations in Nigerian banking sector to allow customers deposit money and transfer it to another customer in either the same bank or different bank over the network instantly using an ATM.

Oko .S and Oruh.J (2012), Fingerprint biometric token. Developed an ATM based finger print verification and simulated it for ATM operations by incorporating the fingerprint users into the bank database.The system developed was

inefficient because there was no finger print matching alogrithm.The system develop was not built as an enhancement of the exisiting system.

Ravi Kumar (2014) Fingerprint recognition in digital image processing using both primary and referance finger to authenticate users instedof the traditional pin number.A new business model which would enhance ATM security was developed.Another refereance fingerprint belonging to anominee or a close family member was adopated which also lead to a security could breech, thus compromissing the security of account owner.The proposed system was not built the exisiting system. Jimoh R.G . 2(2016) short message service(SMS) verification. Developed an alogrithm For enhancing ATM authentication system using short message service verification. Conducted a usability testing of the proposed system. The developed algorithm only considered a minimum withdrawal amount

III. BLOCK DIAGRAM

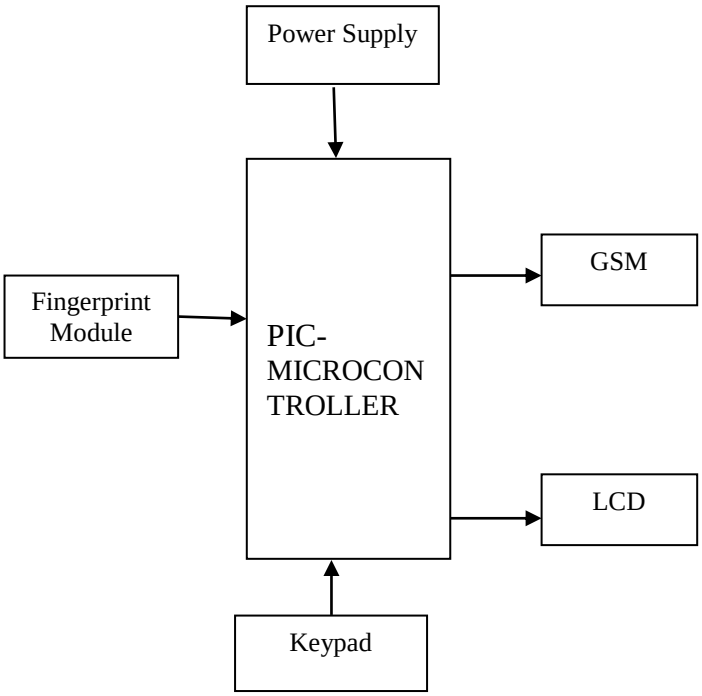

Fig.1 block diagram of proposed system

a) Pic microcontroller-

This is the CPU of our project. We are going to use a microcontroller of Pic 18f4520 family. Pic microcontroller chip are design with Harvard architecture, and are offered in various device 8families. It can be used to program microcontroller circuits. It permits the programmer to simulate the program, before downloading it to a PIC microcontroller IC (Integrated Circuit). They are reliable and malfunctioning of PIC

percentage is very less and response time of PIC increases by using RISC architecture. Power consumption is also very less as compared to other micro controllers.PIC microcontrollers are electronic circuits that

can be programmed to carry out a vast range of tasks. They can be programmed as timers or to control a production line and much more. In this microcontroller more memory as compare to ardino so in our project we mostly preferred pic microcontroller.PIC microcontroller is the main part in our project. It plays the main role in this project.

b)GSM Device:

Stands for global system for mobile communication (GSM) The idea of GSM was developed at Bell Laboratories in 1970.It is widely used mobile communication System in the world.GSM system was developed as a digital system using time division multiple access (TDMA) technique for communication purpose.GSM is used for creating password and send to mobile through wirelessly. Various type of GSM are available in market but in our project we used SIM900A GSM.GSM is used to identify the subscriber to the system. A secret key for authentication and other information

GSM is a digital mobile network that is used by mobile phone users in Europe and other part of the world. GSM is an open and

c) OTP

One-time password (OTP), also known as one-time pin, is a password that is valid for only on log in session or transaction, on a computer system or other digital device.OTP provides more security in ATM transaction. There is limit of wrong OTP attempts as well. If wrong attempts exceed the limit, ATM If any misbehavior take place it will block the enter transaction.

d) LCD

A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These preferred over seven Segments and other multi segment LEDs. A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. LCD modules are very commonly used in most embedded projects, the reason being its cheap price, availability and programmer friendly. Most of us would have come across these displays in our day to day life, either at PCO's or calculators. 16×2 LCD is named so because; it has 16 Columns and 2 Rows. There are a lot of combinations available like, 8×1, 8×2, 10×2, 16×1, etc. but the most used one is the 16×2 LCD. So, it will have (16×2=32) 32 characters in total and each character will be made of 5×8 Pixel Dot

GSM system was developed as a digital system using time division multiple access (TDMA) technique for communication purpose. GSM was developed using digital technology. The GSM is that multiple users share the same bandwidth. With enough users, the transmission can encounter interference. Therefore, faster technologies, such as 3G, have been developed on different types of networks than in order to avoid such bandwidth limitations.

e) Keypad

Keypad is use to enter the OTP number. Keypad is used as a input. Most of the applications of require keypads to take the user inputs, especially in case where an application requires more number of keys. With simple architecture and easy interfacing procedure, matrix keypads are replacing normal keypads and these are available in configurations like 3×4 and 4×4 based on the application these are selected. The push button or switches which are arranged in a matrix format of rows and columns. A matrix keypad consists of a set Push-buttons by offering more inputs to the user with less I/O pins. As a Human Machine Interface (HMI) keypad plays an important role in virtual microprocessor. This matrix keypad is the most commonly used as input device in many of the application such as digital circuits, telephone communications, calculators, ATMs, and so on.

f) Fingerprint module

A finger print is feature pattern of finger. it is a believe with a strong evidence that each finger print is unique. Each person has his own finger print with the permanent uniqueness .so finger print has been used for identification and forensic investigation for long time. A fingerprint scanner is a type of electronic security system that uses finger prints for biometric authentication to grant a user access to information or to approve transactions. Push-buttons by offering more inputs to the user with the lesser I/O pins. As a Human Machine Interface (HMI) keypad plays a major role in vital microprocessor.

The biometric section of the new proposed system is as described below, the banks already have the biometric finger print of all their customer, this biometric will be enroll in the ATM.In this project finger print module is connected to the ardino controller. In ardino controller all finger print library are available which used for finger print enrol.

IV.FLOWCHART

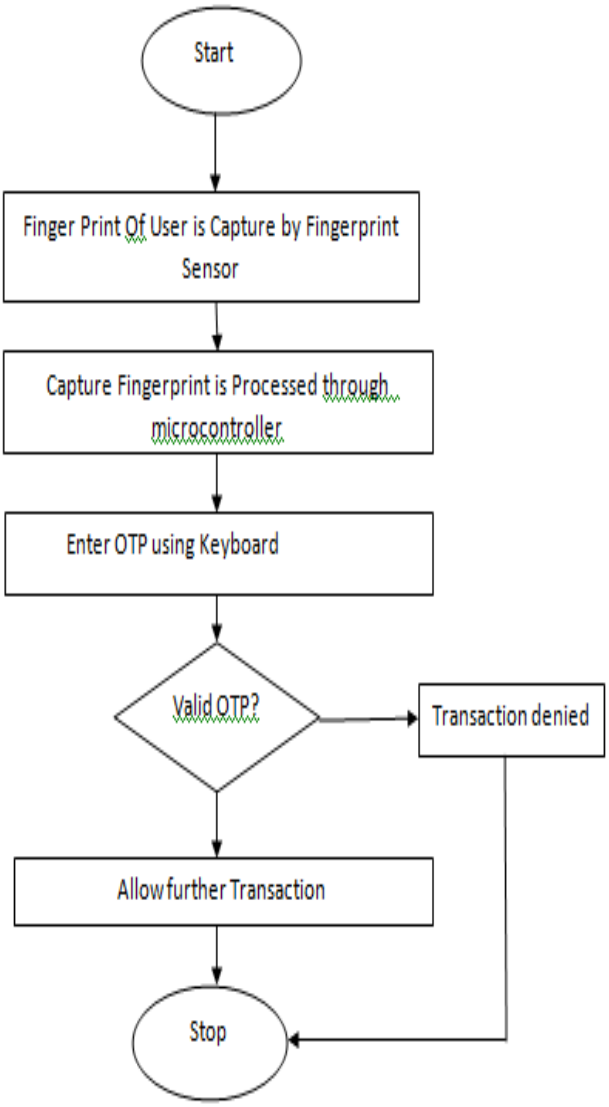

Fig.2 Flowchart of proposed system

V. COMPARISION WITH EXISTING TECHINIQUES

Sr no	Authors	Paper	Advantages	Disadvantage
1.	Oko S. and Oruh, J. (2012)	Finger print biometric token.	Developed ATM based fingerprint verification and simulated it for ATM operations by incorporating the fingerprints of users into the bank's database.	The system developed was inefficient because there was no finger print matching algorithm.
2.	Ravikumar et al. (2013)	Finger print recognition in digital image processing using both primary and reference fingerprint to authenticate users instead of the traditional pin number.	Finger print algorithm are developed which improves the existing system.	Lack of security.
3	Padmapriya V. and Prakasam S. (2013) [	A combination of fingerprint biometric token and GSM technology.	Proposed a system architecture that incorporates both the finger print and GSM technology into the existing PIN-based authentication process. Activates send a pre-stored SMS to a predefined phone number.	Another reference fingerprint belon0ging to a nominee or a close family member was adopted which also lead to a security could breech, thus compromising the security of the account owner. 2. The proposed system was not built on the existing system
4.	Jimoh R.G. and Babatunde A. N. (2014).	Short Message Service (SMS) verification.	Designed algorithm for enhancing ATM authentication system using Short Message Service (SMS) verification.	It considered a minimum withdrawal amount.

VI .CONCLUSION

In this way, the implementation of ATM security by using fingerprint recognition and GSM model took advantage of the stability and reliability of finger print characteristics. Additional, the system also contains the original verifying method which was inputting owner's password which is send by the controller. The security features enhanced largely for the stability and reliability of owner recognition. the whole system was built on the finger print technology which make the system more safe, reliable and easy to use.

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