EFFECTIVE USE OF ATM WITH SECURITY

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ABSTRACT : *ATM (automated teller machine) is a new generation banking system. ATM is most usable friendly machine. The main objective of this paper is to enhance more Security to ATM users' as criminal offence occurs more due to miss use of ATM. Since ATM have lack of Security we have interoduced few obtion to reduce risk and miss use of ATM card by developing Thumb impression Security option without any need of hardware just only by upgrading software and second obtion is to changing the criteria of limits of cash withdrawal and the third proposal is to make ATM Eco-friendly i.e. cash deposit can be make by ATM only this will reduce the rush and save the Bankers' time and no need to fill form for cash deposition it will save paper.*

Keywords – ATM, Thumb impression, Security, Transaction, Eco-friendly

I. INTRODUCTION

Now a day's banking sector is developing day by day with fast changes in banking operation. In traditional banking system a manual teller had worked. But during this new time a bank provides many more services to the customer's at their doorsteps like phone banking, internet banking. One of this is automated teller machine (ATM) is commonly used by everyone across the world.

ATM provides many facility to their customer to identify by inserting a plastic card called ATM cum Debit/Credit card with a magnetic stripe or a chip which contains a unique card number and some security information such as an expiration date, CVV (Card Verification Value) etc. [1] The proposed system is brief of advanced and secure facility of ATM card with thumb impression matching to provide services.

II. WORKING OF AT M MACHINE

2.1 Hardware Design:

ATM=HARDWARE +SOFTWARE

ATM SYSTEM=HARDWARE+SOFTWARE+USER+ BANK EMPLOYEE

In several ATM machines have fingerprint detector available near keypad for bank employee for those who deposits cash in the ATM machines for withdrawal of customer so it is not necessary to install a new hardware. If this facility will be assigned for customer than there will be a new option of security other than personal pin number. This will reduce the costing of new implementation in hardware. Proposed model consists following parts: Finger print scanner, Computer (LCD), Keyboard. Finger print scanner will be used to input fingerprint of customers into the computer software as most of the ATM already have this fingerprint scanner so no need to get new one. LCD display will be displaying the facilities that the customer can avail and make the transactions. Computer software will be interfacing finger print scanner and LCD. It will input finger print, will process it and extract features for matching. After matching it will update database entries of the customers and keep a record of any transaction made by him/her. [2]

Effective use of atm with security

2.2.1 Hardware Components:

1. CPU (to control the user interface and transaction devices)
2. Magnetic and/or Chip card reader (to identify the customer)
3. PIN Pad (similar in layout to a Touch tone or Calculator keypad), often manufactured as part of a secure enclosure.
4. Secure crypto-processor, generally within a secure enclosure.
5. Display (used by the customer for performing the transaction)
6. Function key buttons (usually close to the display) or a Touch screen (used to select the various aspects of the transaction)
7. Record Printer (to provide the customer with a record of their transaction)
8. Vault (to store the parts of the machinery requiring restricted access)
9. Housing (for aesthetics and to attach signage to)

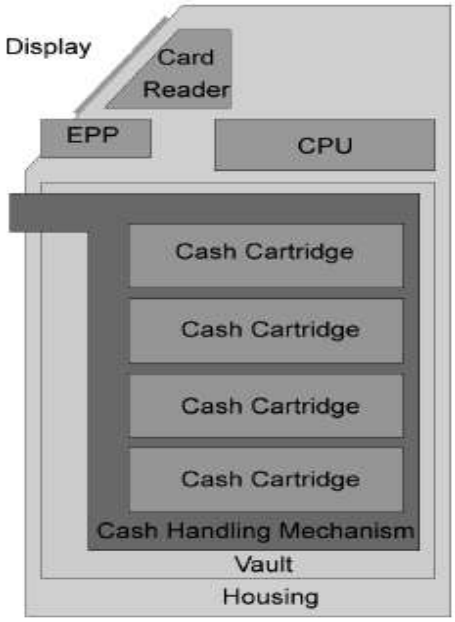

Figure 1:Block diagram of ATM machine

The vault of an ATM is within the footprint of the device itself and is where items of value are kept. [3]

2.2.2 Mechanisms found inside the vault may include:

1. Dispensing mechanism (to provide cash or other items of value)
2. Deposit mechanism, including a Cheque Processing Module and Batch Note Acceptor (to allow the customer to make deposits)
3. Security sensors (Magnetic, Thermal, Seismic)
4. Locks: (to ensure controlled access to the contents of the vault)
5. Journaling systems; some are electronic (a sealed flash memory device based on proprietary standards) or a solid state device (an actual printer) which accrues all records of activity, including access timestamps, number of bills dispensed, etc.

Effective use of atm with security

2.2 Software Design:

Software installed on ATM machines is required to be upgraded and a data-base for particular account holder is to be created so that that fingerprint (Thumb impression) can match that is it valid customer or not.

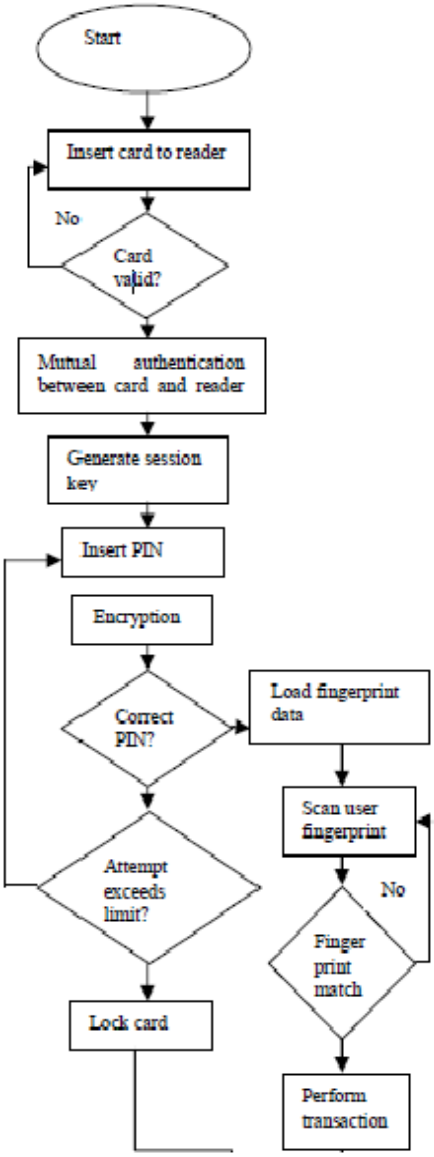

Figure 2: Identification and verification process

Our system integrate biometric identification into normal, traditional authentication technique use by electronic ATM machines nowadays to ensure a strong unbreakable security and non-repudiate transactions. In order to increase the security we are using the combination of two authentication methods of card, PIN and fingerprint.

III. SERVICES OF ATM

An automatic teller machine (ATM) allows a bank customer to access their bank services. Main services to gives a ATM card for direct access to the money in your transaction account, whether you are at any ATM (Bank branch of ATMs). ATM provides 24 hours services to customer not only for withdrawing money but also many services like:

Effective use of atm with security

3.1 Existing Services

A. Cash Withdrawal

B. Cash Depositing At ATM Machine

C. Account Related Information

D. Other Facilities offered

a) PIN change

b) VISA money transfer

c) Money transfer between linked accounts

d) Request for a new cheque book

e) Mutual Fund payment

f) Insurance Premium payments

g) Register for SMS Banking/NETSECURE

h) Mobile Recharge

i) Pay Utility bill- electricity, telephone.

3.2 PROPOSED SERVICES

In bank there are lots of rushes are gather only to deposit cash because maximum withdrawal are being access by ATM,

- To reduce this rush and save time of bank and customer instead of standing in queue, Cash can be deposit at ATM machine only. But cash can only be deposited at non pick time.
- Joint Account holder (Secondary Account holder) can access all services but thumb impression is mandatory. Limit of the transaction to be increased such that customer those who are having transaction limit of 25,000 should be increased to 40,000 and 40,000 permitted customer should be merged to 60,000.Facility of R.D (Recurring deposit) And F.D (Fixed Deposit) can be chosen by customer according to their requirement.
- To make this more secure if a customer withdrawal more than 15000 he/she will have to present thumb impression, to make it secure if transaction occurs immediately than customer will have to wait for 10 min, and this is not applicable for same branch ATM.

IV. IMPLEMENTATION PROCESS OF PROPOSED SERVICES WITH SECURITY

4.1 Implementation of Cash Deposit Services

Cash Deposit Machine (CDM) is self-service terminal that enables you to deposit cash without any manual intervention of the branch officer. [6]

Effective use of atm with security

Now no need to fill deposit slips and stand in long queues at the cash counter. Deposit your cash through the simple and fast CDM installed in the ATM machines and get instant credit in your account. To use the CDM, you need to have Bank Debit Card who provides the facility of cash deposit at CDM, only you need to remember account number in which you wish to deposit the money. Steps for depositing at ATM machine:

- Insert debit card and enter PIN for validation.
- Select account type (Saving or Current).
- Place the money in the cash deposit slot and click “Continue”.
- Machine will sort the cash and will show denomination-wise amount to be deposited.
- If correct, click “Deposit”.
- Amount will be deposited.
- Receipt will be generated.

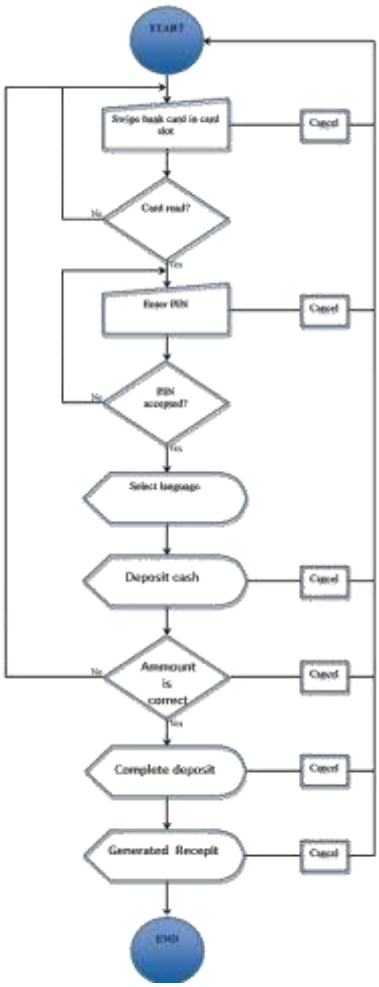

Figure 3: Flow chart of cash deposit in ATM

4.2 Implementation of Thumb Impression Services

System consists of 2 validation functions. First it validates the pin number second fingerprint. The functionality of the system will explain by the below steps.

Effective use of atm with security

Step 1: insert the card
Step 2: Enter your ATM pin. Correct password means step-4 follows false means step-3 follows
Step 3: The card comes out from the machine and Authentication of transaction will fail.
Step 4: choose user type. If Main user step-5 follows. Second person means Step-10 follows.
Step 5: Enroll the finger print. The user finger print already saved in the database. If authentication failure means next step follows. Or step 7
Step 6: The card comes out from the machine and Access fail.
Step 7: After thumb impression matches, user need to type the 4 digit password on ATM machine
Step 8: Then the transaction begins after completion of transaction the card will come out.
Step 9: If second type user means the nominee must enroll the finger print then step-7, step-8 follows.

Figure 4 shown below is the functional module of proposed system

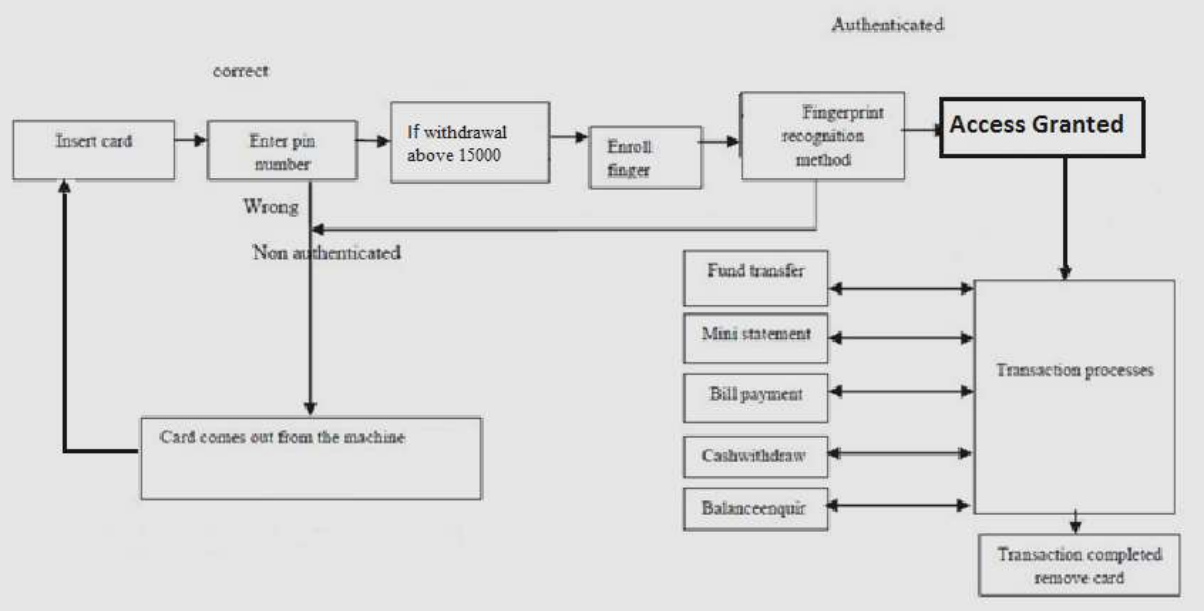

Figure 4: Proposed ATM system architecture

V. BENEFITS OF PROPOSED SYSTEM:

Cash Deposit

- Instant credit in your account.
- Immediate receipt.
- No need to fill deposit slips.
- No need to stand in long queues.
- No need to sort and arrange your cash denomination wise.

Currently, these machines are available 24X7, 365 days which means you can deposit cash any time of the day, even on Sundays and holidays and get instant credit in your account.

* As per RBI guidelines, you may deposit only up to Rs. 49,950 per account per day if your PAN number is not recorded with the Bank. To deposit more than Rs. 49,950 per account per day, please update your PAN detail by contacting Bank Branch.

Effective use of atm with security

Thumb Impression for security View

The implementation of ATM security system by using thumb impression method it is very important method. But for security purpose or control the criminal records it is very important to that produce this method. I think for future work it will implement also various technologies such that unique cards or any other method.

VI. CONCLUSIONS

The main aim of this paper is to reduce fraud cases and make ATM more helpfully to the customer as all work will be made by this machine as same time, such as transaction e.g. (cash withdrawal and cash deposit) proposed security system will allow no crime cases like leak of ATM pin .

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Shiv Kumar received the M. Tech. degree in Computer Science and Engineering from Mewar University Chittorgargh in 2012. During 2007-2013, he stayed in Canon India Private limited Center of Excellence center and India Software Center Noida and Gurgaon of India. He knows with Mewar University, Chittorgargh, India.

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