

BANKING AND ATM SECURITY

Miti Patel¹, Diya Desai², Gunja Nathvani³

^{1,2,3}B.tech students, Dept. of Computer Engineering, Indus University, Ahmedabad, India

Abstract- Security is a major issue in Automated Teller Machine (ATM). With the widespread utilization of electronic transactions, it is necessary to increase customers' recognition accuracy. Biometric systems can offer a secure mode of authentication to the customers. An Automatic Teller Machine (ATM) is an electronic machine which is used for accessing a bank account from anywhere without the help of bank staff. The user can perform several banking activities like cash withdrawal, money transfer, and print entry in a passbook with the help of an ATM. Since the number of crime related to ATMs has increased, the need to provide better security to ATMs has also increased. Some of the different technologies that are used to provide security to ATMs include – Biometric technology, RFID technology, etc. Biometric technology includes fingerprint and face recognition systems. In this paper, a survey of different technologies for ATM security is presented. There are some limitations to these technologies. By comparing various technologies, it is observed that fingerprint technology provides better security than other technologies. In this project, we used MatLab for face recognition. The 1st stage is face recognition. If face recognition is done successfully then RFID is activated. If they read the right string then they can get atm access otherwise the buzzer will go on.

Nowadays the banking sector is one of the most important parts of a human's day-to-day life. Banking facilities are widely used by people for their economic activities. Due to the intermediary role of banks in the economy, they hold a unique locus across all sectors with prudent lending policies, environmental impact analysis, and efficient credit approval systems. The banks play a vital role in the lending process which is dispatched along with the credit risk, that is, when the borrower fails to repay the money borrowed and fails to satisfy the obligations, then the asset is said to be bad or Non-performing. A poor financial performance in an economy creates distress in the economic stability leading to an economic crisis. With the global initiatives undertaken, the Reserve Bank of India (RBI) developed the Banking Stability Map and published the Financial Stability Report in 2010. It is measured using five dimensions of the Stability Map, which are, Soundness (S), Asset Quality (Q), Profitability (P), Liquidity (L), and Efficiency (E). With the deteriorating asset quality and the financial health of banking institutions, lack of adequate fund and pressure of capital

regulation makes the balance of stability in the Indian banking sector a challenge.

IndexTerm: ATM, Bank, Face recognition, Block Diagram of atm and banking, OTP, PIN, privacy and identity

I . INTRODUCTION

The full form of ATM is Automated Teller Machine. It is an electronic telecommunications device that enables the customers of a financial institution to perform financial transactions, particularly cash withdrawal, without the need for a human cashier, clerk or bank teller. ATMIA is the ATM Industry Association, which has a record that close to 3 million ATMs are currently installed worldwide. Along with the growing convenience and feasibility of the ATMs, there is also an increase in the amount of ATM thefts and frauds, which are developing at an alarming rate. In case of banking and money transactions, the security should hold highest priority. Increase in daily attacks on ATM and banking security the developers getting on right track and putting security their important aspect in developing projects. The multifactor authentication is an approach to authentication which requires the presentation of two or more authentication factors: a knowledge factor, a possession factor, and an inherence factor. After presentation, each factor must be validated by the other party for authentication to occur. In present days the ATM holds only one technique to secure the money saved in the bank and that is PIN. In our system we are going beyond this level of security to enhance security of the ATM. We introduce the concept of one time password (OTP) in ATM banking. Our system will provide the second level of security using different factors to generate OTP. This will send over customer's mobile number or email id stored in records. In secure ATM, user will have to register mobile and its IMEI number in bank system. In the proposed system, when user puts/swipes card into the machine, user will get OTP on mobile. When user enters OTP to the system, he/she will be having access to the machine else no transaction can be made.

Every country's main objective is to attain a stable economic growth which revolves around the financial stability of an economy. International organizations like World Bank, IMF, BIS and central banks of many countries took an active participation towards resolving the global crisis. Historical evidence clarifies that banking stability affects the financial stability, and has a strong influence on the real economy in terms of real output and labor market. So, in order to increase the monitoring and regulatory norms, banking stability map and indicators were presented as a yardstick to determine the capacity of an economy to fight the internal and external shocks. The stability of banks is depended on the positive and negative externalities from the financial market and real economy. The Banking stability is designed and predicted through Banking Stability Map and Banking stability Indicator.

II. ATM ISSUES, ADVANTAGES AND DISADVANTAGES

Issues:

Faculty Dispenser
Worn Out Card Reader
Broken Keypad
Receipt Malfunctions
Software Glitches

Advantages:

1. Quick and prompt service is possible with less human errors.
2. It is beneficial for travelers.
3. It provides 24 hrs services without any staff and reduces the workload on bank staff.
4. Withdraw cash at any time or in urgent circumstances without the help of the bank.
5. It ensures privacy to the customers.
6. The withdrawal of rupees is faster than at the bank, no need for standing in long lines.
7. Maintenance cost is less as no bank staff is involved in the transaction.

It also provides receipt for details of withdrawal of money and balance in account

Disadvantages:

1. It cannot provide services in rural regions in our country whereas banks are available in the villages.
2. Customers do not have proper knowledge of its operation so feel hesitant to use it.
3. If an ATM card is lost, there is no withdrawal of rupees. There is a possibility of misusing and hacking the ATM card.
4. If there is an error in the ATM machine, not received rupees but the account will be debited.
5. Personal touch of customers-employee relation is missing.
6. Due to leakage of PIN, fraud can take place easily.
7. Initial cost of hardware, software, and installation site is very high.
8. Limitation of withdrawal of money.

①. BANK ISSUES, ADVANTAGES AND DISADVANTAGES

Issues:

Regulatory Compliance
Rising Expectations
Customer Retention
Security Breaches
Asset quality
Capital adequacy
Balance Sheet management

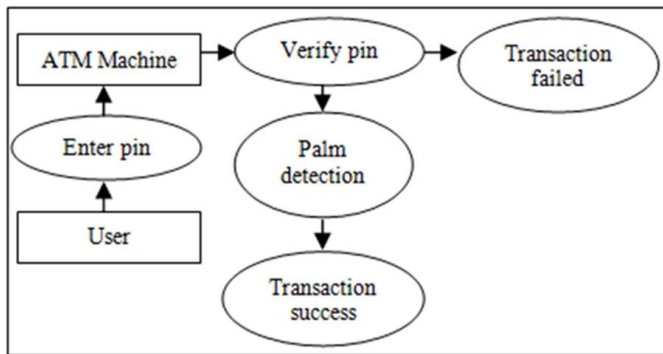
Advantages:

Safely storing the public's wealth.
The widespread availability of affordable loans.
Propelling the economy forward.

Disadvantages:

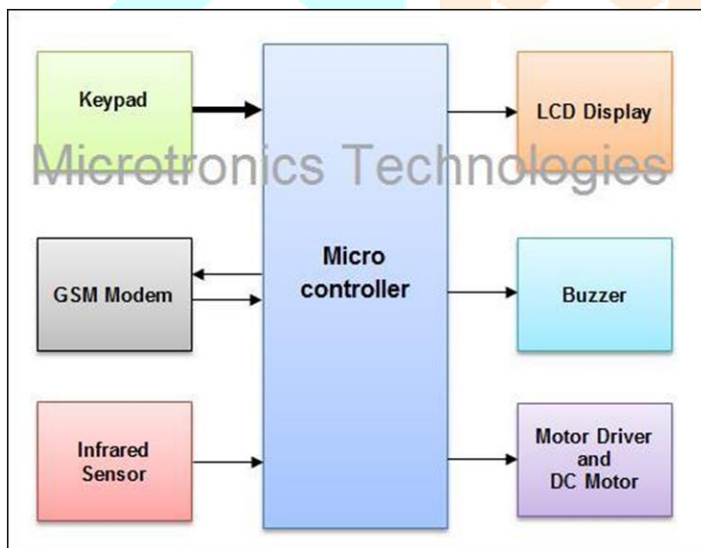
The chances of going bankrupt.
The risk of fraud and robberies.

IV. ATM BLOCK DIAGRAM



A user who wishes to withdraw money from an ATM or Automated Teller Machine, swipes or taps the card in the ATM (as per the instructions on the machine). Then, enters the amount to be withdrawn and after that, gives the PIN of his/her account. The pin is then sent for verification and if it is not verified, the transaction is failed, however, if it is verified, it asks for palm detection as another security method and finally, the money can be withdrawn.

V. BANK BLOCK DIAGRAM



Bank security is important for everyone who uses it. Many times we lose or forget to carry the key to our bank locker. In these cases, it gets really difficult to open the bank locker. The main concept behind this project is a bank locker latch opening using two passwords that are entered through SMS and a keypad. Each bank locker will have a GSM modem connected to it. When the owner of the bank locker wants to open the locker then he/she has to send a password through SMS. Then the microcontroller connected to the GSM modem reads the contents of the password. If the contents are correct then it will enable the keypad to enter the second password. Now the user has to enter a second password using Keypad. If the second password is correct then the system allows the user to access the locker. We have provided a DC motor that will operate when both passwords are

correct. The buzzer will be turned on if any one of two passwords is wrong. The microcontroller sends SMS to the user for the wrong password as well as for the correct password. We have also provided an Infrared sensor for this project. The infrared sensor will be triggered when some person is standing in front of the Locker. Then the system will send an SMS to the owner. This is a low warning message as, "Some person is standing in front of your bank locker". The IR sensor will be turned off when the user sends the first password through SMS.

VI. LITERATURE SURVEY

Crimes at ATMs have become a national issue, with these crimes not only customers but also financial institutions are facing a lot of issues. Criminals are tampering with the ATM terminal and stealing customers' card details. Once a users' ATM card is lost and the password is stolen, the users' account is vulnerable to attack [4]. Despite warnings, many people normally choose easily guessed PINs and passwords like birth date, phone numbers, social security numbers, etc. Biometric authentication and OTP techniques can solve the issue of password-stealing since a person's biometric is nontransferable and unique for every individual. The system can compare the scanned biometric to records stored in a central or local database, OTP is a numeric string that is randomly generated and sent to a registered number. State Bank Of India (SBI) introduced a new OTP system on 01st Jan 2020. To protect from unauthorized transactions at ATMs, we are introducing an OTP-based cash withdrawal system. OTP-based authentication has been carried out for cash withdrawals above Rs.10000. This new safeguard system will be applicable from 1st Jan 2020 across all SBI ATMs from 8 PM to 8 AM [5].

VII. CONCEPTUAL DESIGN OF PROPOSED ATM SECURITY STRUCTURE.

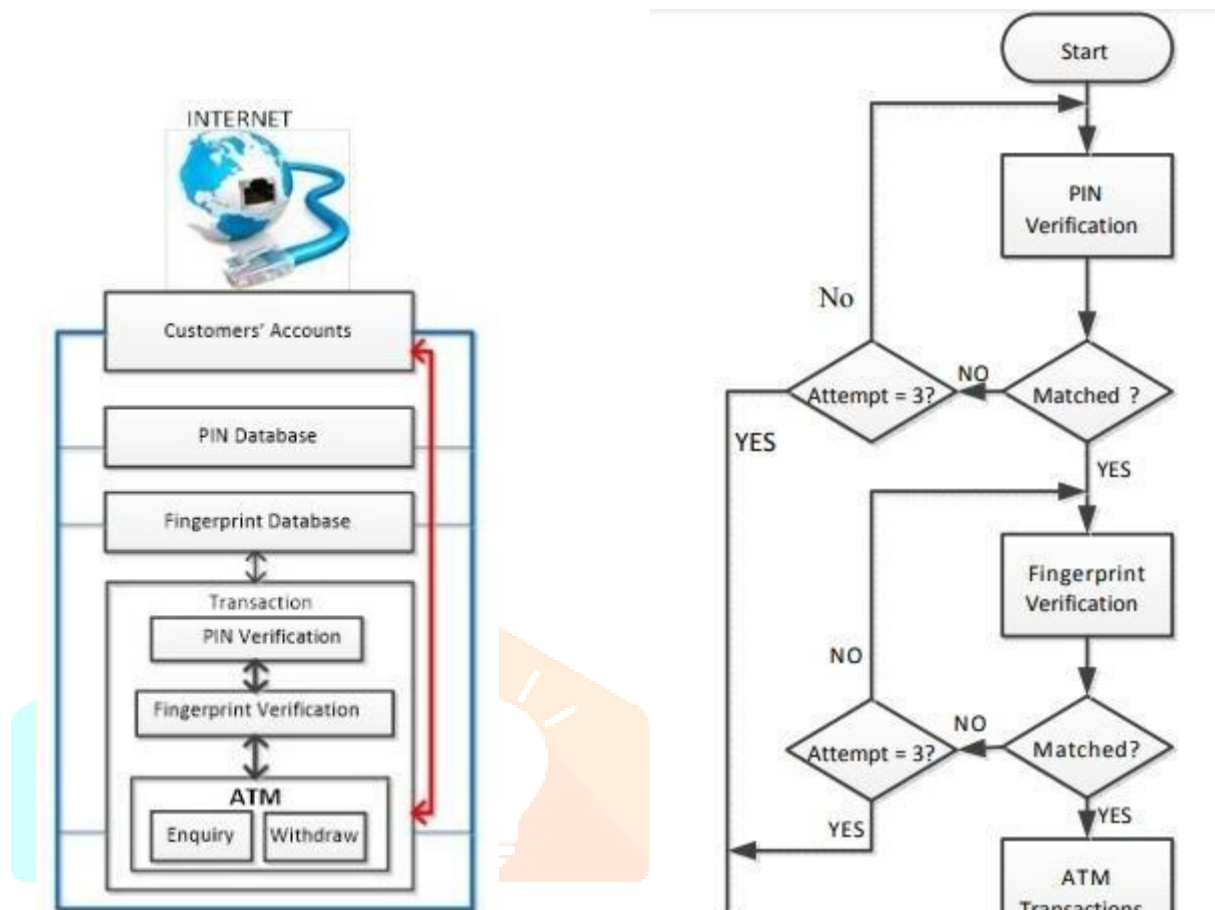
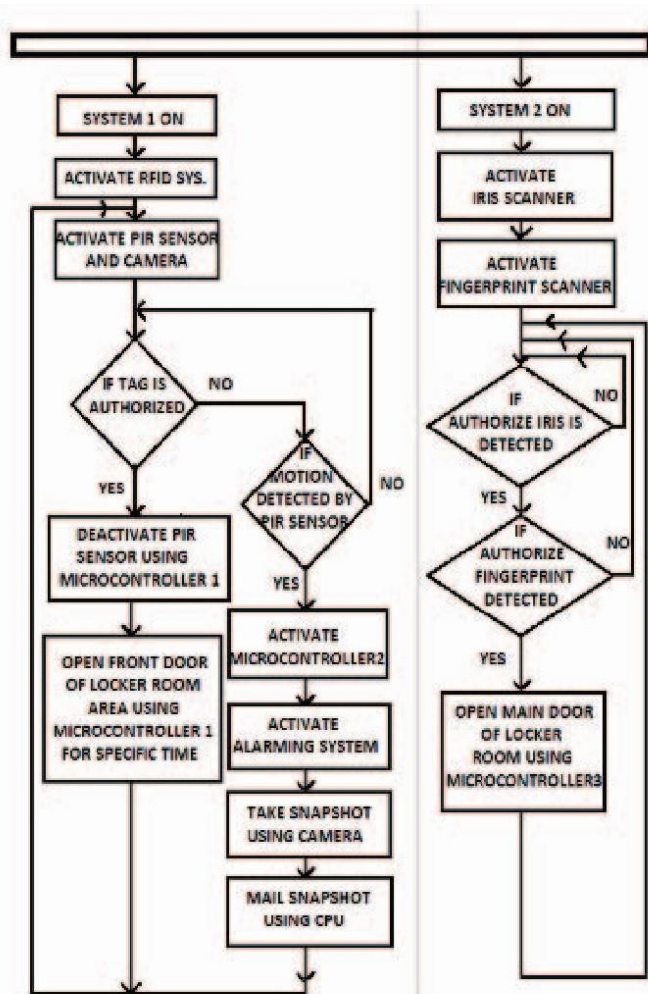


Figure 1 shows the flowchart for the PIN and fingerprint verification components proposed for verifying the authenticity of a user. A user who is already enrolled onto the proposed system will have to go through the verification process presented below:

User Fingerprint enrolment involves enhancement, feature extraction and matching and storage as shown in Figure

VII. FLOW CHART OF BANK SECURITY SYSTEM OPERATION



Since the last few years, security systems are getting more awareness and importance. A Multi Layer Bank Security System is a system for validating, monitoring, and controlling the security at bank locker rooms. Today, many banks are using authorized access control approaches to prevent the locker room from unauthorized access. In this paper, a highly reliable, multi-level and most efficient locker room security system has been designed. The system includes a biometric system, i.e. a fingerprint scanner and an iris scanner, which are responsible for the security of the main door of the locker room and the system also includes an RFID system to provide access to the locker room area to only authorized people. To monitor the unauthorized people in the locker room area a passive infrared sensor is fixed. In case of any unauthorized motion, the picture from the camera will be mailed to security officials and the alarms will be on to inform the local security. The system proposed in this paper is a better security system in terms of the number of levels of security.

VIII. FUTURE SCOPE OF ATM AND BANK

As per RBI, for the ATM industry, India is a huge market. It is a place with 1.2 billion people, where 40% of them were unbanked. ICICI Bank general manager OP Srivastava once commented: "When we saw a man in a dhoti in a remote town in South India withdraw money from an ATM, tuck it in the folds and ride away on his cycle, we were truly inspired by the ATM growth in the country." There is a huge opportunity for growth of the ATM market in India. The future will see multi vendor ATM popularity, which will provide personalized features and a user-friendly interface. ATMs will be a popular "Public Technology". Original equipment manufacturers and vendors will get ample scope for handling ATM machines. Modern ATMs are now capable of personalized branding, CRM applications, integrated fraud alert, customer notifications, and flexible services. ATM technology has developed to such an extent that some ATMs can memorize consumer preferences as per their past transactions, behavior, and tailor services accordingly. In many cases, ATMs have internet scope which facilitates two way communications with live agents, provide biometric options, and have the ability to demonstrate personalized advertisements. Maintenance of web enabled ATMs is easy. These ATMs can be quickly connected to the central monitoring system of vendors. Though the ATM industry is growing rapidly, there are many challenges related to security issues of the software, increase of rental costs by the day in major cities, housekeeping, and replenishment of cash. Few banks have introduced biometric ATMs in rural India, which are quite secure and easy to use by a common man. Banks are trying to shift slowly from multi vendor to multichannel integration, so as to get a complete picture of the activities of customers.

IX. CONCLUSION

Face recognition is a very useful and versatile technique. This technique has successful applications. This technique increases both **privacy and identity**. The growth in electronic transactions has resulted in a greater demand for fast and accurate user identification and authentication. Conventional methods of identification based on possession of ID cards or exclusive knowledge like a social security number or a password are not all together reliable.

When credit and ATM cards are lost or stolen, an **unauthorized user** can often come up with the correct personal codes. Despite warnings, many people continue to choose easily guessed PIN's and passwords, birthdays, phone numbers and social security numbers. This paper may solve this problem and be useful for detecting fraud. **It is used in the banking sector and any ATM**

related security. It is also called a thief tracking system.

As there is a scope for improvement and as a future implementation, we can add a tracking chip on ATM cards for tracing the location of cards which will help in providing users assistance. Many projects related to security and control can be implemented by this face recognition technique.

The **financial Stability** of the banking sector plays a significant role in policy making and identifying the key factors to resolve in case of any discrepancy. Financial stability is a phase or situation, where the banking system attains maximum efficiency and develops the capacity to absorb any economic shocks. There is a drastic decline in the profitability of scheduled commercial banks in the later stage of study period because of increase in NPAs and fall in return on assets. The last pillar of checking stability is efficiency which is measured by various means like staff expenses, business per employee and cost to income. Overall efficiency is satisfactory but needs improvement to perform better.

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AUTHORS

First Author –Miti Patel, B.tech student, Dept. of computer Engineering, Indus University, Ahmedabad, India

Email: mitipatel.19.ce@iite.indusuni.ac.in

Second Author –Diya Desai, B.tech student, Dept. of computer Engineering, Indus University, Ahmedabad, India

Email: divadesai.19.ce@iite.indusuni.ac.in

Third Author – Gunja Nathvani, B.tech student, Dept. of computer Engineering, Indus University, Ahmedabad, India

Email: gunjanathvani.19.ce@iite.indusuni.ac.in

