

# A Paper on Enhanced PIN Security for SBI ATM through Aadhaar Linked OTP or Biometric

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**Abstract** - In this 21st century there is a vast increase in the usage of the internet globally. With the advent of new technologies it has become very easy to cheat the secured information. Card skimming attacks, video recording with hidden and pre-setup cameras while users execute the PIN-based transaction at ATMs is one of the common problems for real and regular users. Many solutions came up to make it more secure, but every time that it becomes secure the hackers come up with new tricks again to reveal the PIN information. In this paper, we have to discuss newly implemented SBI OTP based cash withdrawal system. This technology is quite simple, easy and understandable by the user and can be secured from the threats or cheats happening in this world. The user who is using this technology needs a smartphone for entering the OTP obtain a secure PIN template for point-of-service confirmation. It is simple to understand and also provides secure connectivity. This PIN confirmation protocol serves to protect against varied attacks. When ATM owner mobile lost or damaged he does not able give OTP and does not take money while he is in need. At such time customers can use their Aadhaar, Biometric to access the account to make the transactions.

**Key Words:** Aadhaar, ATM, CIDR, fingerprint, OTP, SBI.

## 1. INTRODUCTION

The advancement of financial transactions in the modern world has gone passed from cash to cheques, and then to payment cards such as credit cards and debit cards. Barclays bank introduced the first ever ATM in 1967, in its Hendson branch in London, which could dispense fixed amount of cash when a user insert a special coded card. Since then, ATM has become smaller, faster and easier [1]. ATM is a computerized machine designed to dispense cash to bank customers without need of human interaction; it can transfer money between bank accounts and provide other basic financial services such as balance enquiries, mini statement, withdrawal and fast cash among others [2]. With the increase in number of banks, banking services and ATMs the number of fraudulent attacks has also increased. Many systems has been proposed to avoid such kind of attacks. The introduction of Biometrics authentication technique is safer and newer technologies for preventing ATM thefts and attacks. Biometric character of a person will be different from person to person. Therefore, biometrics can be incorporated into ATM machines. The main benefit of the ATM is it provides an 24hours service daily to customers and users in our everyday life [3]. In this paper we proposed an

ATM that includes fingerprint verification in which fingerprints of the users are incorporated into the CIDR database of the UIDAI authority which has given access to both public and private banks. This paper is arranged as follows, section II provided the background of ATM security, section III tells about the existing system, section IV tells about the newly proposed system, section V is about the algorithm used in this system, section VI is about the Experimental results, section VII gives the conclusion and section VIII deals with the references.

## 2. LITERATURE SURVEY

Crimes at ATM has become an national issue, with these crimes not only customers but also financial institutions has facing a lot of issues. Criminals are tampering the ATM terminal and steal customers' card details illegally. Once users' ATM card is lost and the password is stolen, the users' account is vulnerable to attack [4]. Despite warning, many people normally choose easily guessed PIN's and passwords like birthday date, phone numbers and 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 numeric string which randomly generated and sends to a registered number.

**State Bank Of India (SBI)** has introduced new OTP system since 01st Jan, 2020. In order 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 withdrawal 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].



**Fig -1:** figure represents the OTP-based authentication announced by the SBI [5]



**Fig -3:** Keyboard records the user entered PIN while making transaction [8]

A Literature survey based on the secure user PIN confirmation by the ATM has been implemented and in this section some of the attacks has been mentioned below:

1. This OTP authentication has been implemented only for SBI terminals, when we withdraw cash in other bank ATMs not needed to enter OTP.
2. When user mobile lost or damaged not able to withdraw cash.
3. There is also a rapid increase in the card cloning devices now a days. Whenever the authenticated user swipe his/her credit/ debit card, it is fed to such card cloning devices. This results in stolen of user credentials.

There are also card skimming devices which fit perfectly well in the ATM card slot. When the user enters his credit or debit card, he unintentionally enters them in the card skimming device and thus results in stolen credentials.[6]



**Fig -2:** Card skimmer steals the card details after inserting card.[7]

### 3. EXISTING SYSTEM

In our modern world, all the people used to do truncation in banking like deposit money and withdrawing money. For that, the customers will be standing in queue to withdraw money from bank. All the customers felt like waiting for withdraw cash. Therefore, that bank introduces ATM (Automated teller machine) to help the customer to withdraw money quick. In that ATM system, they introduce CARDS (Credit, Debit, master, Visa) to the customer to withdraw cash by using them. Main advantage is quick cash providing by the ATM system. The customer feels happy and they will not waste time to withdraw cash by standing. but it has the disadvantage like, smart cards and physical keys, can be stolen, lost, replicated, or left behind; passwords can be shared, forgotten, hacked or accidentally observed by a third party. The banks required a better system to maintain security for the customer to do the transaction in their banks. To overcome these problems, the developed this fingerprint-based ATM system [9].

### 4. PROPOSED SYSTEM

#### 4.1 GOAL

The key goal of the proposed system is a multi-password safe authentication scheme which combines the several Authentication techniques which results into a larger password integration which is more secure. The main intention is to give user the freedom to select whether the Biometric or Mobile + Aadhaar Generated OTP. [10]

#### 4.2 OBJECTIVE

- This new scheme needs Biometric or OTP generated by using mobile + Aadhaar of the user.
- The new authentication technique must be built in such a way that by providing the user freedom of choice to select the type of techniques to be involved in making transactions.

- This new scheme provide security that are easy to recall or memorize and at the same time the hackers cannot recover this passwords protection.

This new scheme offers more secure authentication technique when compared to existing authentication technique.

#### 4.3 BIOMETRIC ATM

**Biometric:** The term biometrics is derived from the Greek word bio means life and metric means to measure. Biometrics is the measurement and statistical analysis of people’s unique physical and behavioral characteristics. The technology is used for identification and access control or to identify individuals who are under surveillance [11].

#### WHAT IS BIOMETRIC ATM?

Security Experts says that Automatic Teller Machine (ATM) should have biometric authentication techniques to verify identities of customer during transaction. Banks should move a step forward to use biometric. Bank has been moved to use OTP and now is the time to implement biometric authentication technology in ATM systems. Nowadays, there are devices to perform biometric identification and data about an individual biometric has been stored in Central Identities Data Repository (CIDR) it’s a data server of Aadhaar. Aadhaar card an mandatory identity for Indian citizen and CIDR has been linked to both private and public sector banks, so we do not need to take biometric data from customer if we implement this technique.

The pros for using this technique no two individuals have same biometric. Thus, biometric is an ultimate to prove that who you are.

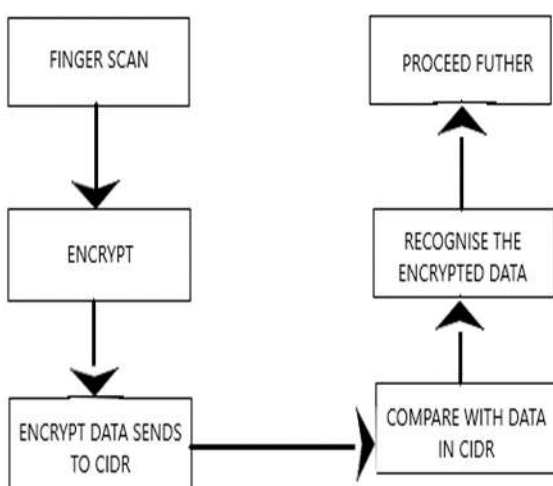


Fig -4: Flow chart of Finger Print Recognition

#### ADVANTAGES OF BIOMETRIC ATM

- ATM card access is more secure using biometric.
- Only authorized person can access the Account.
- Unauthorized person not able to access account.
- Biometric is unique for every individual.

#### DISADVANTAGES OF BIOMETRIC ATM

- user should present at time of accessing account
- If user is not able to present at ATM due to health or other issues other cannot access account.

#### 4.4 MAJOR ISSUES WITH BIOMETRIC ATM

In the present situation major issue of ATM is security. If any person use your ATM card if he know your password easily access Account. Now days a new issue came into existence i.e., duplicate ATM card with the help of duplicate ATM card people do the transaction an unauthorized user can also access the Account. If we enhanced the security technique then unauthorized person cannot access the ATM. To overcome this problem we can use biometric or Aadhar card. If biometric mandatory at the time of transaction of ATM then some fraud people cannot use the ATM card in the absence of user. But in some case user can not be present in front of ATM machine then the user family member cannot also access the ATM like.

1. If a person health not well or met with accident then biometric not Possible.

#### 4.5 TO OVERCOME THIS PROBLEM WITH THE HELP OF AADHAR CARD AND OTP PASSWORD

**Aadhaar:** Aadhaar number is a proof of identity which has 12-digit unique id issued by the UIDAI authority to the individual Indian citizen. As it is unique and robust enough to eliminate duplicate and fake identity [12].

In above we have discuss a major point of biometric. To overcome from the above problem at the time of using ATM user can use Aadhaar and mobile for OTP send on customer mobile. If user not enter OTP transaction was cancelled. First user should enter last 4-digit of register mobile number and last 4-digit of Aadhaar number. Both are matches then OTP sends to mobile. If all information provided by user matches with the existing database then transaction can be possible, otherwise not.

### 5. ALGORITHM

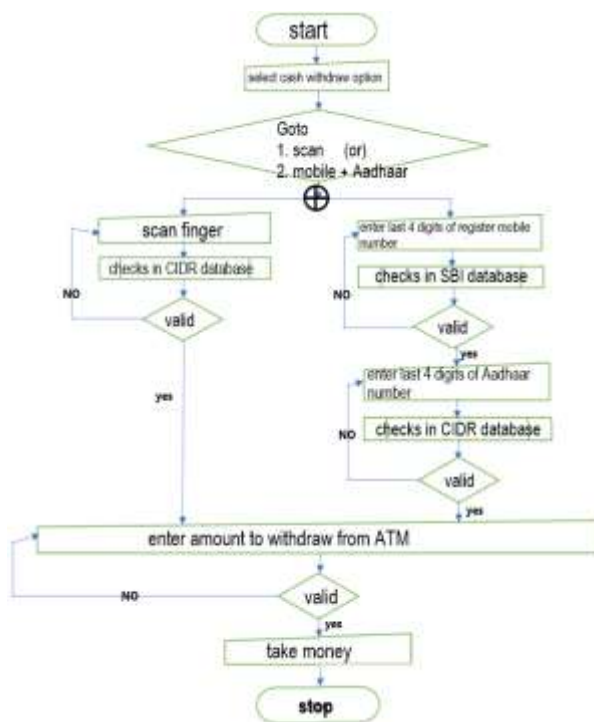


Fig -5: flow chart of ATM cash withdrawal.

#### START

**STEP 1 :** Insert The Card Into Machine

**STEP 2 :** Select The Cash Withdrawal Option.

**STEP 3 :** Select Option Put The Finger To Scan(i.e., Biometric) Or Enter Last 4 Digit Of Registered Mobile Number And Aadhaar Number

**STEP 4 :** If Match The Scan Go to Step 9, Else Go to Step 5

**STEP 5 :** If Biometric Does Not Match Reject Transaction

**STEP 6 :** If Registered Mobile Number = Enter Last 4 Digit Registered Mobile Number Go to Step 7

**STEP 7 :** OTP Sent To Registered Mobile

**STEP 8 :** OTP Matches Go to STEP 9

**STEP 9 :** Enter The Amount To Dispense Cash

**STEP 10 :** If Amount Entered > Maximum Limit

**STEP 11 :** Please Enter The Cash Below Limit

**STEP 12 :** checks for amount balance in user account

If amount >= STEP 9 go to Step 13 else Reject Transaction

**STEP 13 :** Withdrawn Cash

**STEP 14 :** Take The Inserted Card From Atm

**STOP**

### 6. EXPERIMENTAL RESULTS

**Results for Finger Print or biometric:** When a fingerprint was placed on the fingerprint module, it captured the image and compared with the templates in the database. The existed data matched with the scanned fingerprint, the further process would be continued.

**Results of OTP using Aadhaar:** After mobile and Aadhaar based authentication was successful. The account holder receives a message numeric string "OTP" on the user's registered mobile number. Now user has to enter the OTP, After the valid code was entered the transaction process starts (i.e., withdraw money, checking balance, etc..). But the transaction has been cancelled when the wrong code was entered.

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### 7. CONCLUSION

The growth in electronic transactions has greater demand for fast, secure and accurate user identification and authentication. Method of identification based on PIN

number or a password are not all reliable. Passwords can be forgotten, but ones' biometric is undeniably connected to its owner. It cannot be borrowed, stolen or easily forgotten. ATM With Biometric or Aadhaar Card with OTP Code is more secure in comparison with simple OTP send to register mobile after 8PM to 8Amby SBI ATM. Here the above proposed conceptual model, is highly secure as it provides authentication with the information of body part i.e., biometric recognition [6] and Aadhar cards With OTP Password is a stronger method of authentication and verification as it is unique to individuals. This approach is easy to maintain and operate with low cost.

In this paper, a technique is introduced for secure ATM transaction using Aadhar card With OTP or biometric to do the transaction. These Technique are more secure at the time of transaction if OTP password not match then customer not access the account. In this case biometric done by the user provided to adhaar card. Now days adhaar card is must for the human being.

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