

Digital V-Card - The Future Security

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ABSTRACT-The paper focuses on designing and developing a user interface to help out the community in making a secure and also a better use of ATM cards using virtual ATM card application. ATM cards are essential in everyday life. Millions of ATM transactions take place in a day. ATM cards are security less when it is lost or stolen. In ATM cards, the PIN is essential and the user should systematically change the PIN. The PIN should not be shared with anyone. If a PIN is known to the hacker then it very easy to use the ATM card. To resolve this the Virtual ATM cards help more. The number of ATM card changes after every transaction. This helps the user to keep the ATM card number more securely for efficient cardless transactions. The virtual ATM card project is implemented using web technology and Android Studio software using java language. Implementation can be done in 3 phases. The first phase involving the design of the GUI for the end-user to scan the QR image in the ATM, the second phase deals with the implementation of a generation of 16-bit Random digit and third phase involves in connection to the server by entering the pin, the bank server checks the authentication and process the transaction. If the user using the online payment for the transaction, then the user requests the bank server for the ATM card number in the Application. After the authentication, the bank server provides the card number to the user. After the transaction, the card number automatically will be destroyed and creates a new card number for the user. The PIN can change, or it can be auto-generated PIN by bank server so that the security can be improved. Maintenance and further development of the application, as well as the feedback provided by the end-users, are encouraged.

KEYWORDS- Android App, Virtual ATM card, and QR code.

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I. INTRODUCTION

V-Card (Virtual Card) is an Electronic Card that play major key role in achieving the goals of a universal electronic payment, a less-cash society created for e-commerce transaction. It provides an easy and secure way of transacting online without providing the Primary Card/Account information to the people. The user has to scan the QR code in the ATM to perform the transaction. The bank server identifies a particular ATM and verifies the user authentication by Personal Identification Number (PIN). After verifying, the Bank server should acquaint ATM to allow access to the user. Then the user can perform the precise transaction. After each transaction, the card number will change. Thus the problem statement revolves around the idea of the ATM card is lost or gets stolen then the security cannot be guaranteed to the user. There are millions of users associated with each bank each one is to be provided with a separate ATM card. This increases the investment in ATM cards in the bank. The cost of the one ATM card for SBI bank costs around 23Rs. For a million user the cost of investing on the card is increased and the ATM card must be carried by the user everywhere to purchase even it is online or offline. The PIN must be remembered by the user, and if the user forgets the pin then it takes more time to reset the pin. The card number is not safe because for every transaction the card uses the same number for the transaction. In this system, the card number changes for every transaction [5].

II. RELATED WORK

Electronic payment refers to the mode of payment, which doesn't include physical cash or cheque. It includes debit cards, smart cards, credit cards, etc. It provides encryption, and requests for more identification in case of doubts [1], the idea is proposed in leveraging a new technology that connects directly to a productive software experience in the customer's hand to help enhance their experience and educate them. A customer can utilize all of their stored information only by opening an app on their phone. Entering a pin, password, or fingerprint and then selecting the information they need to access. The app will utilize information transfer technologies such as Near-field communication to interact with mobile wallet ready payment techniques. This results in reduced fraud since mobile wallets are harder to steal or duplicate than cards [3]. A disadvantage is that only mobile-service people can use such services. The mobile wallet techniques or OTP used can be adapted to our virtual ATM card project, where OTP or QR code can be required to withdraw the money.

Another workpiece [2] Unified Payments Interface (UPI) is a payment system launched by the National Payments Corporation of India and regulated by the Reserve Bank of India, which allows the user to transfer the money from one account holder to another instantly via app on smartphones. The money transfer service can be accomplished anytime. This system is said to be secure and reliable way of transferring cash between two users, and annihilate the need in transaction either physical or through the bank. It is a real-time payment system where the funds are credited instantly and at ease on a real-time basis. Excitement over the growth of mobile payments perpetuated the phenomenon of disconnected Islands and disjointed experiences. With UPI there is no need for any other payment app at all. It is also slowly becoming the most preferred form of digital payment [4].

III. SYSTEM IMPLEMENTATION

The system architecture of Virtual ATM card is designed such that the user can use the virtual ATM card for online transactions such as shopping, travel bookings, recharge, paying utility bills, fund transfers, and so on. However, it cannot be used at retail outlets where you swipe your physical debit card. The ATM card is physically no need to sustain for the transaction. The mobile application is used in a transaction and transferring the money. After every transaction, the card number changes so that security increases and skimming attacks can be prevented. The card number is used only one time after the transaction the number changes automatically.

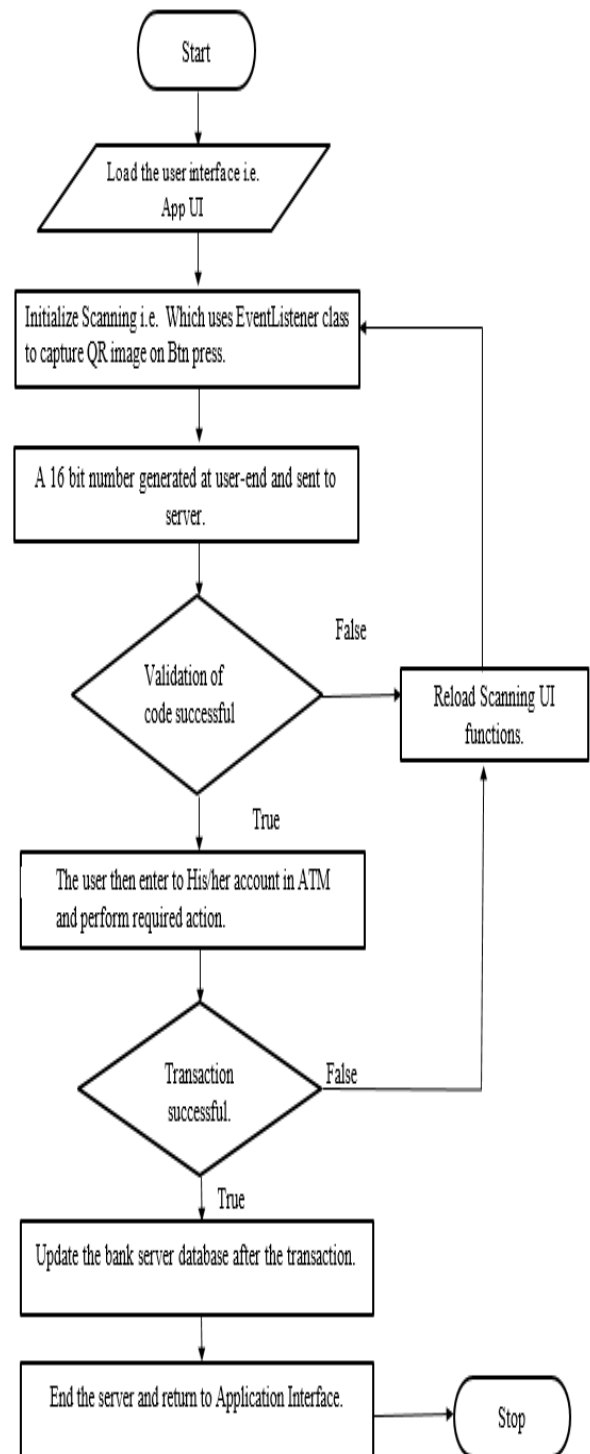


Fig 1: Flowchart for Virtual ATM card

The customer scans the QR code that is to be validated. After reading the QR code, the system will load and validate the QR code. Then the bank system authenticates the customer. Then the customer can perform the necessary transaction that he wishes to perform. After the transaction Bank system updates the customer's account details. The acknowledgment regarding the transaction is sent to the customer so that the customer gets to know whether it's a successful or failed transaction. On a successful transaction, the customer's account details get renewed in the bank system. Lastly, the virtual ATM card will make a reliable system for the user while in an ATM process.

IV. EXPERIMENTAL RESULTS

The system is being designed and the following outputs have been obtained as results.

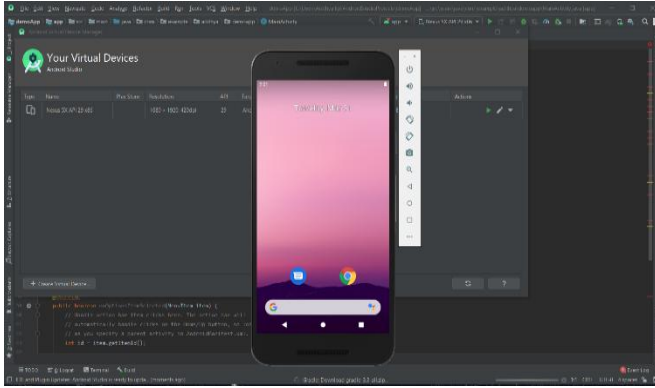


Fig 2: QR code Scanner App.

Figure 2 shows the App interface developed using android studio tool that is used scanning the QR code present in an ATM screen for carrying out transaction by the customer.



Fig 3: System Home Page.

Figure 3 shows the system home page for visiting the customer account in a web interface.

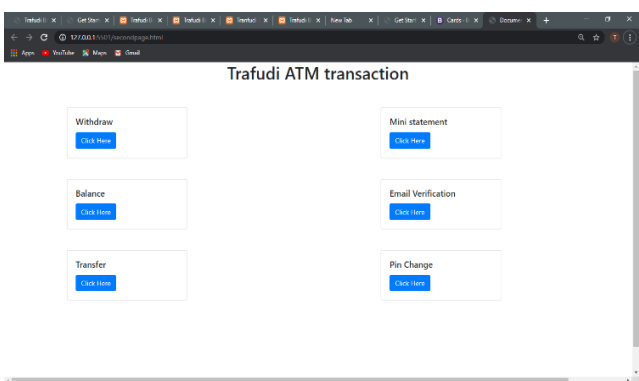


Fig 4: Customer account option.

Figure 4 shows the system providing an option for a customer to take action concerning His/her account such as cash to withdraw, mini statement, etc.

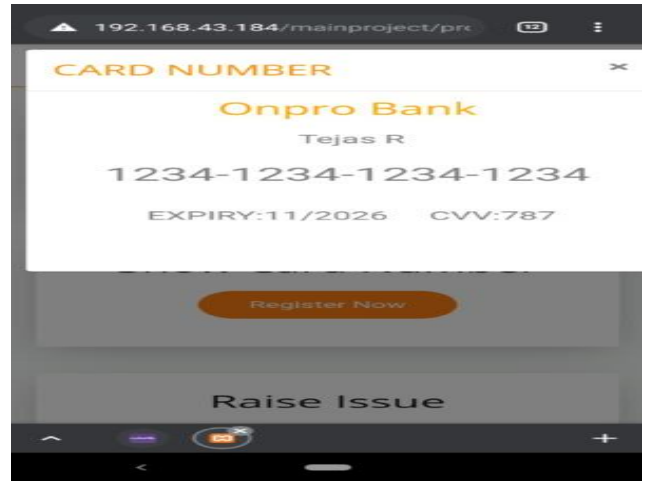


Fig 5: Customer V-Card details.

Figure 5 shows the virtual card details of the account holder, card holder name, CVV, card expiry, and 16-bit random number generated by the system that will be used for authentication during transactions.

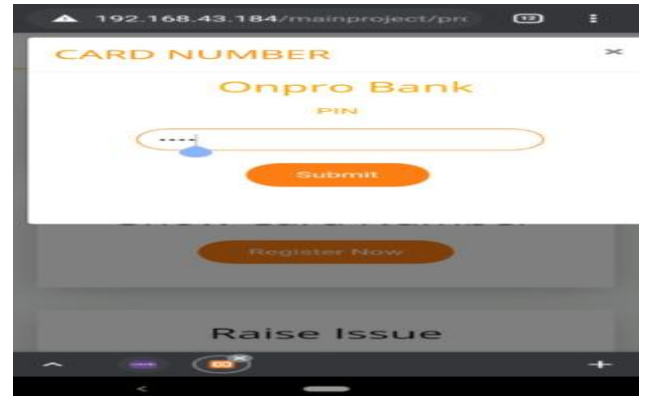


Fig 6: Customer V-Card details.

Figure 6 depicts the UI for customer to enter the PIN to access His/her account for transaction.

V. CONCLUSION

The problem of bank fraud is addressed with the proposed system. Hence by doing so, we notice that there is a significant advantage over the transaction process, and reduced banking fraud, along with enhanced security processes for the customers. This system can be achieved in all the banking sectors, which reduce the fear of customers and also diminish the number of cases reporting bank fraud, account being hacked wherein the bank employees will not grieve about the fraud anymore. The current cost of an ATM card costs around Rs.22/-, using the system which we implemented, there will not be a use for the ATM cards. The system helps to improve performance. Maintaining the

project is easy and manageable. It is easily understandable by the user.

REFERENCES

- [1] Dr. Saleh Al-Furiah, Lamia AL-Braheem “Comprehensive study on methods of fraud. prevention in credit card e-payment system”, ACM 978-1-60558-660-1/09/0012, December 2009
- [2] Gabriel Preti Santiago, Adriano C.M. Pereira, Roberto Hirata "A modelling approach for credit card fraud detection in electronic payment services", ACM 978-1-4503-3196-8/15/04, April 2015.
- [3] Aman Srivastava, Mugdha Yadav, Sandipani Basu, Shubham Salunkhe, Muzaffar Shabad “Credit Card Fraud Detection at Merchant Side using Neural Networks”, 978-9-3805-4421-2, IEEE 2016
- [4] Ekrem Duman, M.Hamdi Ozcelik “Detecting credit card fraud detection by Genetic Algorithm and scatter search”, Elsevier, pp- 13057-13063, June 2011.
- [5] Ms.Pratiksha L.Meshram, Prof. Tarun Yenganti “Credit and ATM Card Fraud Prevention Using Multiple Cryptographic Algorithms”, ISSN: 2277 128X, IJARCSSE, pp.1306-1313, Volume 3, August 2013.

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