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Smart ATM Pin Recovery System Using Fingerprint Identification

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***Abstract*— In ATM machines the user is identified by inserting an ATM card and authentication is provided by the customer entering a PIN. The PIN provided by the customer is compared with the recorded reference PIN within the bank Server. If the customer forgets the PIN after 3 trials ATM cards are blocked, to reactivate he needs to attend the bank and dothe formalities which could be a time consuming job. So fingerprint biometric is introduced to cut back this sort of error. This project aims at exploring the system to secure ATM pins and passwords with the fingerprint data specified only the legitimate user can access the pins and passwords by providing the valid fingerprint.**
***Keywords*— Fingerprint; ATM; PIN; BIOMETRIC; RFID Reader; GSM Module; NODEMCU ESP32; Buzzer.**

I. INTRODUCTION

The aim of our Project is to design a Smart ATM System with pin recovery and security using Fingerprint identification for users which mainly focuses on rural parts as well as all over the country. Our System has the capability to reduce the time consumption for new pin generation along with high security.It even reduces the burden for a user to go and visit the bank to unlock his/her ATM card.The ATM security system provides a mechanism for recovery of ATM PIN by using fingerprint identification. The system is able to send an alert message to the ATM card owner for entering the wrong PIN.The developed system is able to authenticate the user based on fingerprint identification. An OTP is also sent to the owner of the card for creation of a new PIN.

II. LITERATURE SURVEY

The proposed methodology is based on identification of fingerprints of the ATM user. The user inserts the ATM card and enters PIN to perform transactions. If the user enters the invalid PIN three times, an alert message will be displayed as a pop-up on the ATM machine. The pop-up window displays the message “You have entered the inavlid PIN; please try again”. After completion of three attempts it displays a pop-up message “Your card is blocked due to multiple attempts; please give your registered fingerprint to create a new PIN”. User provides the finger impression for authentication. If fingerprint matches then the bank server will provide flexibility for the user to create his/her new PIN on the ATM machine itself. The main reason for introducing the Biometric system is to increase the overall security. From the tests carried out we have been able to prove that the biometric identification for ATM transactions can be practically implemented in a real time environment. The developed system provides ATM users with the facility to change the PIN in the ATM machine itself.

III. PROPOSED SYSTEM

The proposed ATM security system provides a mechanism for recovery of ATM PIN byusing fingerprint identification. The developed system is able to authenticate the user based on fingerprint identification. The system is able to send an alert message to ATM card owner for entering the wrong PIN. The alert message is also sent to the owner of the card upon successful creation of new PIN. From the tests carried out we have been able to prove that, the biometric identification for ATM transactions can be practically implemented in a real time environment. The developed system provides ATM users with the facility to change the PIN without any formalities.

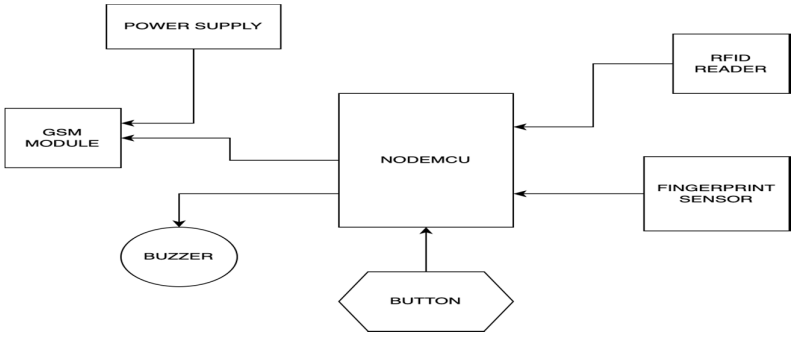


Figure 3.1: Architecture of the Model.

IV. RESULT

Here we take an RFID card as an alternative card to insert into the ATM System. After inserting the card it displays a window as"Enter Pin", where the user enters the pin. Then if the pin entry is correct it displays the transaction page, If the pin entry is wrong for three attempts then the fingerprint authentication is done.

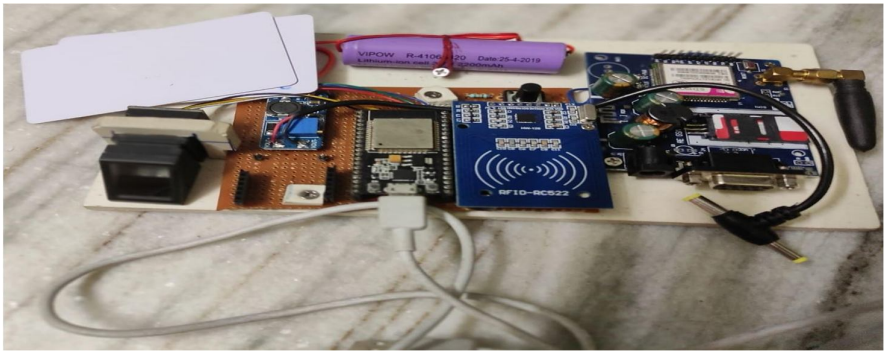


Fig 4.1: Circuit Board

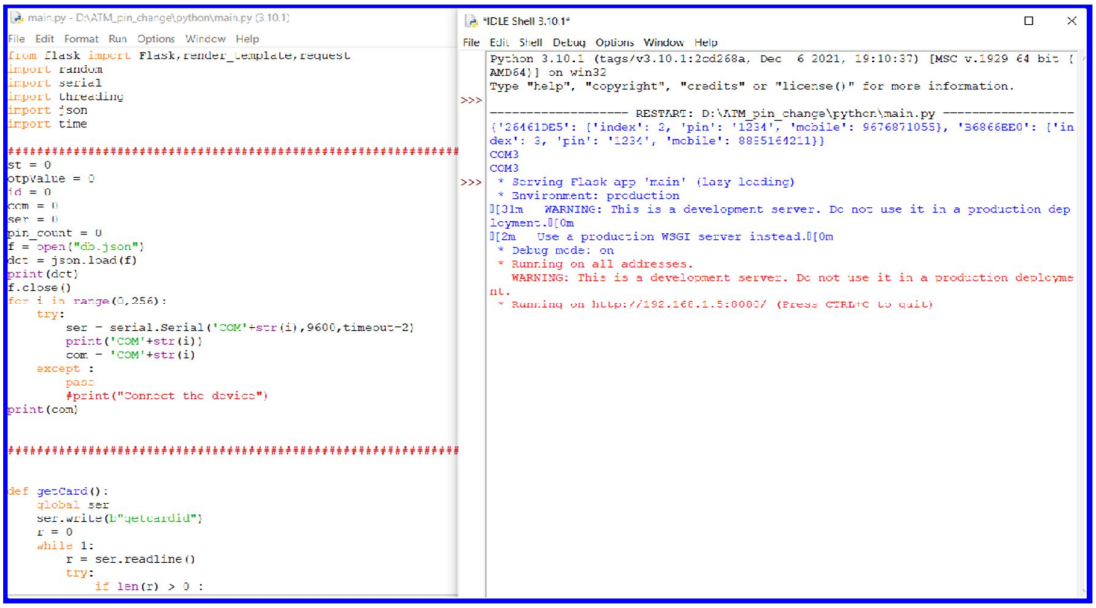


Fig 4.2: Code Execution

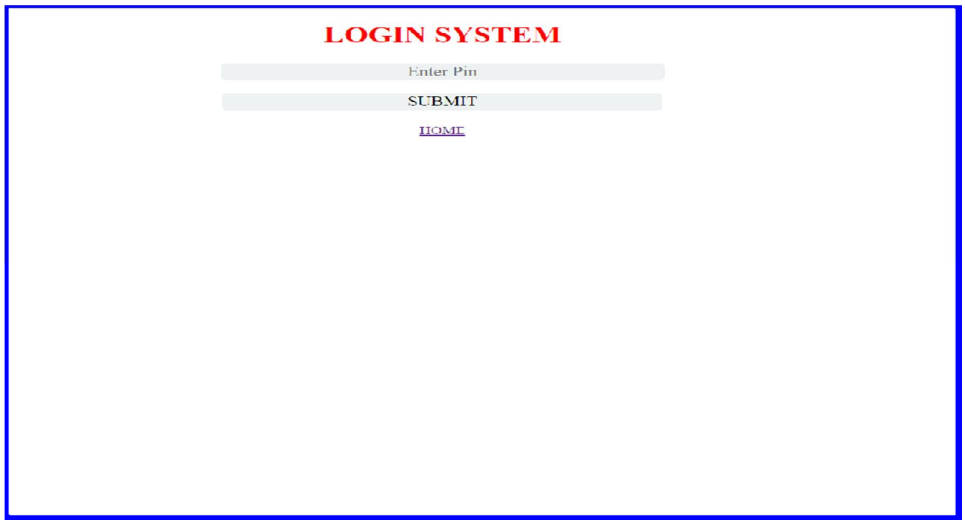


Fig 4.3: Result of Login Page

Once the fingerprint is matched with the data, then an OTP is sent to the user's mobile number to enhance security. After completion of OTP entry the user can generate a new pin using this PIN the user can perform his transactions.

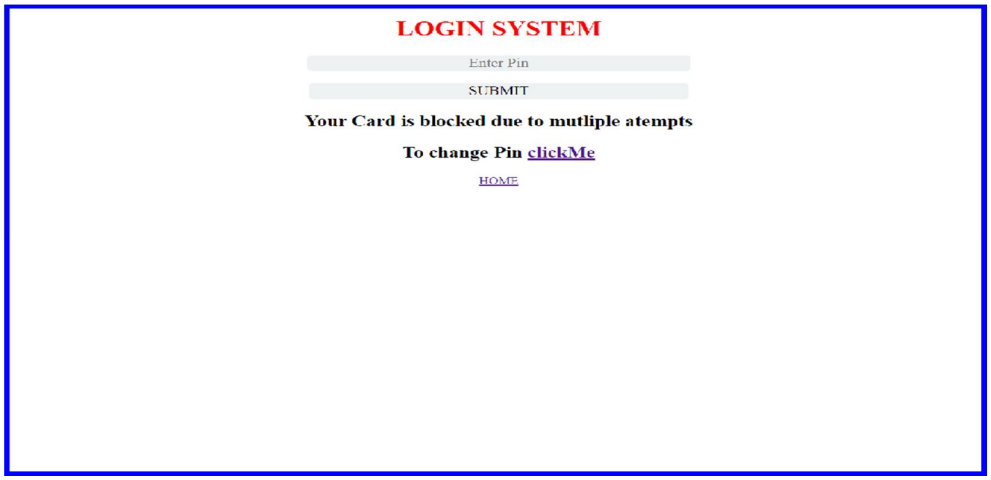


Figure 4.4-Result of card block



Figure 4.5-Result of Fingerprint Authentication

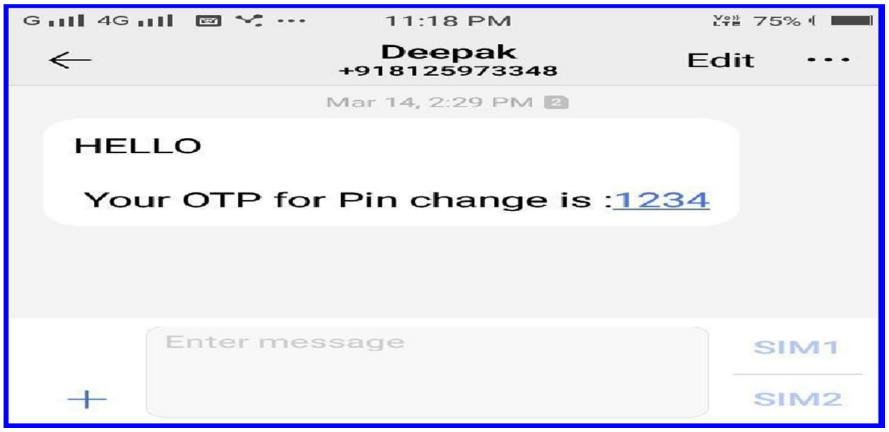


Figure 4.6-Result of OTP Message



Figure 4.7-Result of OTP Verification



Figure 4.8-Result of New PIN Generation

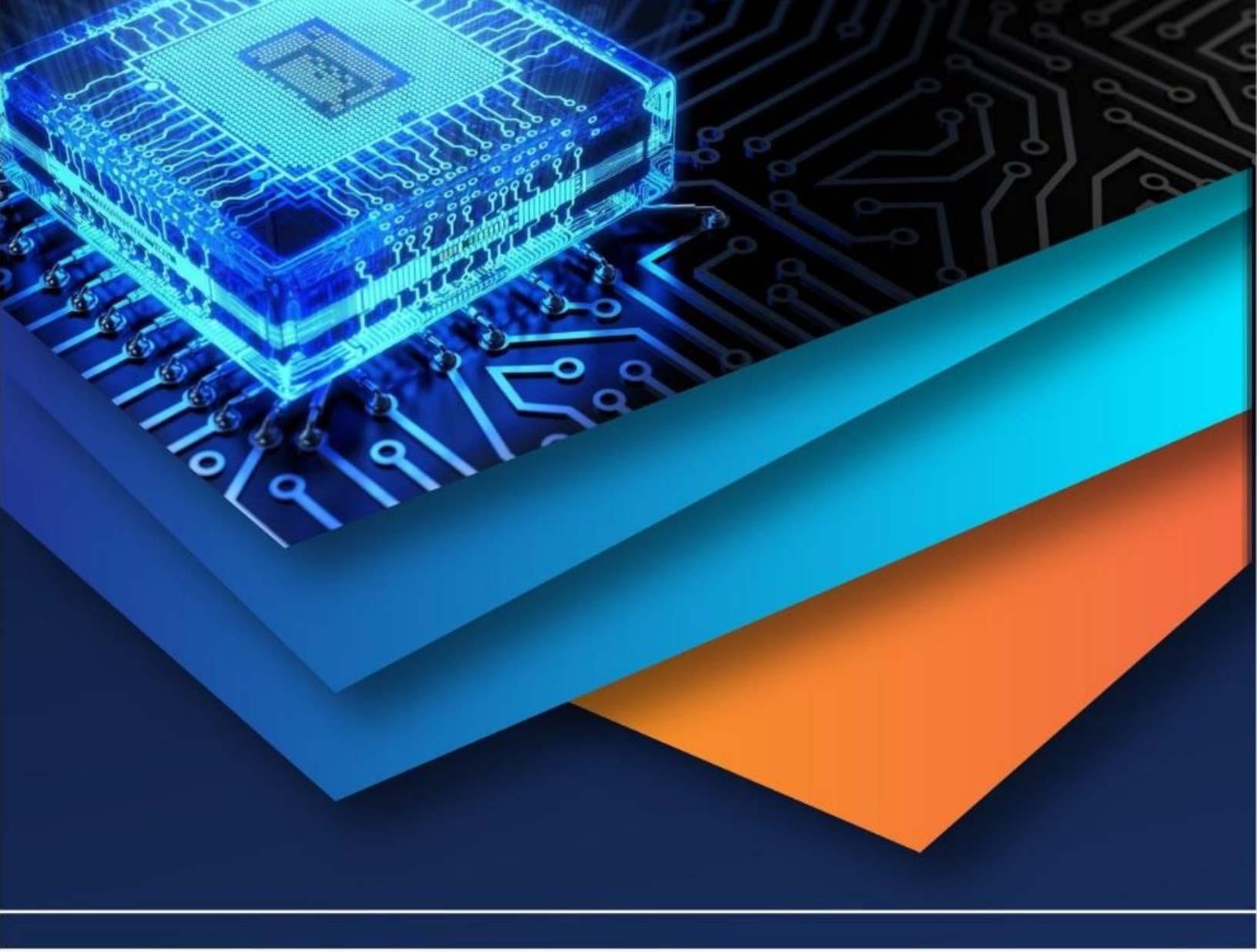
V. CONCLUSION

The proposed ATM security system provides a mechanism for recovery of ATM PIN by using fingerprint identification. The developed system is able to authenticate the user based on fingerprint identification. The system is able to send an alert message to the ATM card owner for entering the wrong PIN. The alert message is also sent to the owner of the card upon successful creation of a new PIN. From the tests carried out we have been able to prove that the biometric identification for

ATM transactions can be practically implemented in a real time environment. The developed system provides ATM users with the facility to change the PIN in the ATM machine itself.

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