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MOBILE ATM USING ANDROID APPLICATION

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Abstract— Nowadays, dependency on banking in the virtual world has been increased to the peak position. To make it consistent advanced technologies should be used. As OTP is currently used worldwide for security purposes, it can be overruled by QR code. Main advantage of QR code over OTP data storage. OTP can only confirm that the user is authorized user and not some third party is involved in this transaction while QR code not only confirms the authorized user but QR code itself can store information such as transaction id, transaction date, time and also amount of transaction. So, there is no need of explicitly keeping track of transaction every transaction. Aim of this paper to enhance the functionality of ATM machine using android application. Proposed system is combining the ATM and mobile banking and minimizes the time of withdrawing cash from ATM. This will increase the speed of transaction almost three times fast; could have excellent impact on customer's satisfaction. With the help of QR code information get encrypted so it also increases security. As the population increasing ATM queues will be longer day by day. By implementing proposed system current system will not hampered, by doing some minor changes in existing system it will be possible to get cash within seconds. According to analyst report, cost of transaction using mobile application is almost ten times less than ATM and about fifty times less, if physical bank branch used.

Keywords— Blockchain, Hashing Function, AES, Mobile Computing, Cloud Com-puting, Withdrawal, ATM, QR Code

I. INTRODUCTION

In previous decades, to withdraw the money, we have to visit nearest banks, standing for our turn in long queue, fill form with our credentials to give particulars/bank worker; only then we get the money. it was like a big task to withdrawal cash

from our banking account and also we have to wait for a lot of time. also customer needs to be present physically. there were many security issues. after some period, technology gear up and some great developers invented cash vending machine called atm machine, which gives cash from specific banking account using a debit card. then banks started to install atm machines, which gives you money from your banking account within few minutes without filling any form like previous bank era. you can find atm machine everywhere. but still sometimes, you have to wait in the long queue in front of atm machine. customers are mostly using their smart cards while shopping or other transaction. but still there is need of physical cash at some places, for those consumers have to visit nearest atm to get cash from his banking account. nowadays, large numbers of atm machines are available worldwide. in 2016, about 34000 atm machines are available only in india. but because of increasing population which leads to increased users, still sometimes, we have to wait in a queue in front of the atm machines. sometimes, customers are in hurry, but to withdraw cash from atm. customer have to wait long queue by doing nothing. not only this, inside atm also customer have choose many unwanted options repeatedly. customers have to choose his language, type of account every time which is very hectic and time consuming process. can't we do something to save our time to withdrawal the cash by doing some modification in existing atm system, while standing in the outside waiting queue or on the way to atm machine? yes we can, by using this proposed system. 'efficient cash withdrawal using qr code technology.' nowadays use of mobile applications are increasing; people are very habitual to use mobile app.

II. PROPOSED ALGORITHM

A. SHA-256 Algorithm -

This algorithm will be used to convert data in a block of block chain. The SHA-256 (Secure Hash Algorithm 256) is a cryptographic hash functions designed by the United States

National Security Agency (NSA). It was first published in 2001. It uses one way compression function using a specialized block cipher and built us-ing Davies–Meyer structure. Hash functions creates small, fixed-length bit strings called message digests using arbitrary large bit strings called messages. The mes-sage digests identify the messages that produced them with a very high probability. Message Digests are like sense fingerprints that allow identification of their message, with a very low probability that different messages will share the same message di-gests. In SHA-256, messages up to 264 are transformed into message digests of size 256 bits (32 bytes). For e.g., this means that an object very large in size if passed to SHA-256 would produce a chunk of data the size of a 32-letter string of ASCII characters and not more, and that string would be the object's very special fingerprint. A very basic use case of hashing is data integrity verification of large files, which actually relies on the comparison of actual and expected message digests after the transformation.

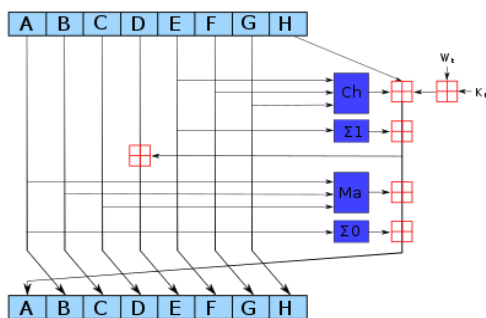


Fig. 1. Sha-256 Algorithm

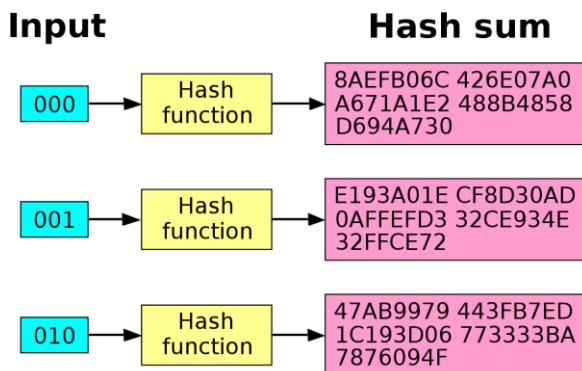


Fig. 2. Sha-256 Algorithm

B. MD5 Algorithm –

The **MD5 message-digest algorithm** is a widely used hash function producing a 128-bit hash value. Although MD5 was initially designed to be used as a cryptographic hash function, it has been found to suffer from extensive vulnerabilities. It can still be used as a checksum to verify data integrity, but only against unintentional corruption. It remains suitable for other non-cryptographic purposes, for example for determining the partition for a particular key in a partitioned database.

MD5 was designed by Ronald Rivets in 1991 to replace an earlier hash function MD4, and was specified in 1992 as RFC 1321.

One basic requirement of any cryptographic hash function is that it should be computationally infeasible to find two distinct messages that hash to the same value. MD5 fails this requirement catastrophically; such collisions can be found in seconds on an ordinary home computer.

The weaknesses of MD5 have been exploited in the field, most infamously by the Flame malware in 2012.

On 31 December 2008, the CMU Software Engineering Institute concluded that MD5 was essentially "cryptographically broken and unsuitable for further use".

Message Digest is used to ensure the integrity of a message transmitted over an insecure channel (where the content of the message can be changed). The message is passed through a Cryptographic hash function. This function creates a compressed image of the message called **Digest**.

Lets assume, Alice sent a message and digest pair to Bob. To check the integrity of the message Bob runs the cryptographic hash function on the received message and gets a new digest. Now, Bob will compare the new digest and the digest sent by Alice. If, both are same then Bob is sure that the original message is not changed.

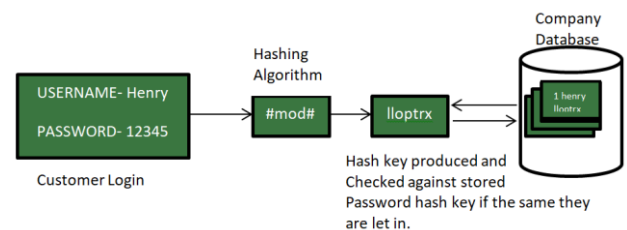


Fig. 3. Message Digest algorithm Block Diagram

III. EXPERIMENT AND RESULT

Test cases :



Test Case Id	Test Case Details	Pre-Requisite	Steps	Input	Expected Result	Actual Result	Result
1	Check whether logo is displayed	Logo should be displayed	Click on the app installed	click	Logo should be displayed	Logo is displayed	Pass
2	Check the textfield	Textfield should take value	1.Open the app. 2.enter value in textfield	Enter value	Textfield should take value	Textfield took the value	pass
3	Check the register button	On clicking the register here, register page should be opened	1.open app 2. click on the register here button	click	On clicking the register here, register page should be opened	On clicking the register here, register page opened	Pass
4	Check the submit button	On clicking the submit button verify otp page should be open	1.open app 2.enter details 3.click submit	Click submit	On clicking the submit button verify otp page should be open	On clicking the submit button verify otp page open	Pass
5	Check the withdraw cash button	On clicking withdraw cash the details page should be opened	1.open app 2.login 3.withdraw cash	Click withdraw cash	On clicking withdraw cash the details page should be opened	On clicking withdraw cash the details page opened	Pass
6	Check the scanner	On opening the atm scanner should open phones back camera	1.open atm app 2.click scan	Click scan	On opening the atm scanner should open phones back camera	On opening the atm scanner opened phones back camera	Pass
7	Check the verify button	The verify button should accept only numerical values	1.open app 2.login 3.enter otp 4.click verify	Click verify	The verify button should accept only numerical values	The verify button accepted only numerical values	Pass

Screenshots:-

1. Android App Logo Screen:-

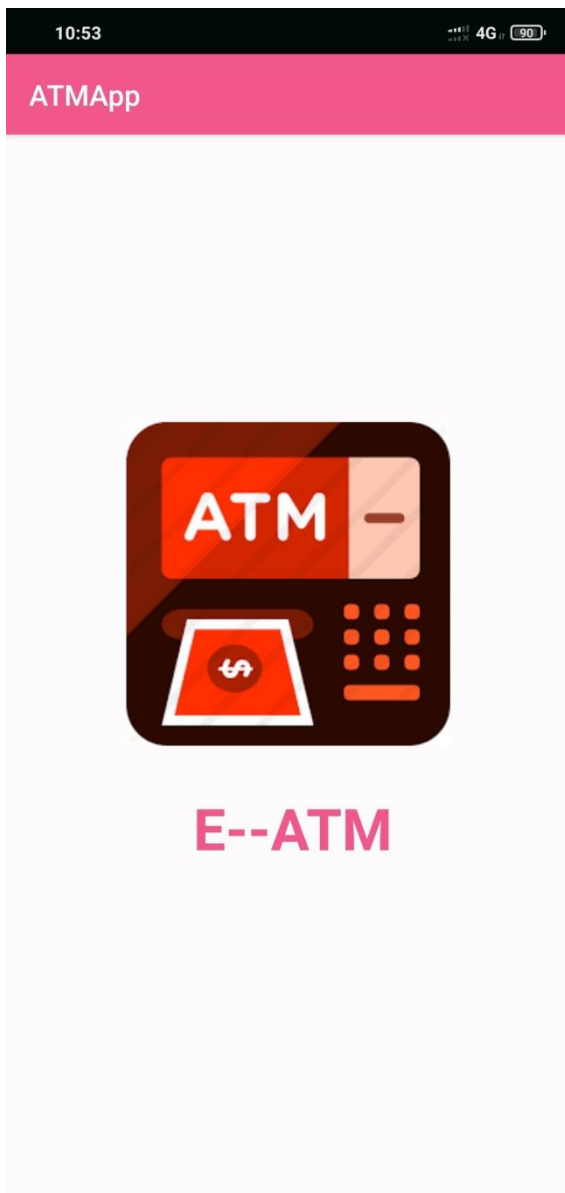


Figure 1: App Logo

This is an App logo screen which will show up first after opening ATM app.

2. Registration Screen:-

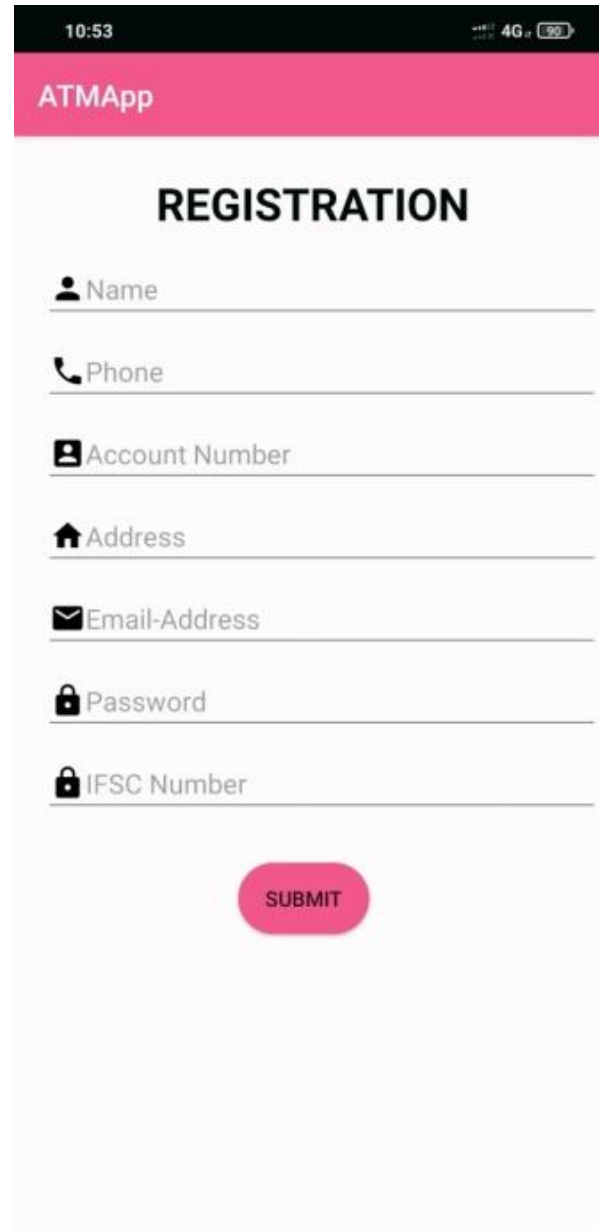


Figure 2:Registration

This is registration screen in which customer with bank account have to register the account .

3 .Login Screen:-

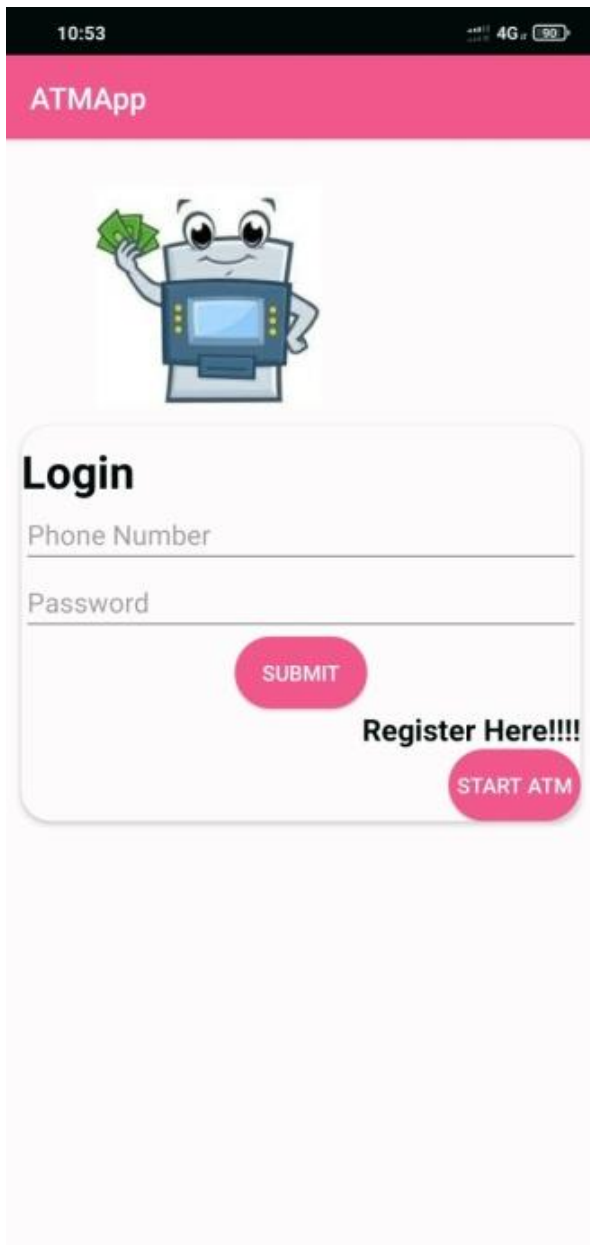


Figure 3: Login

After registration of account for further process , customer have to login with the same account .

4.Withdraw Cash Button:-

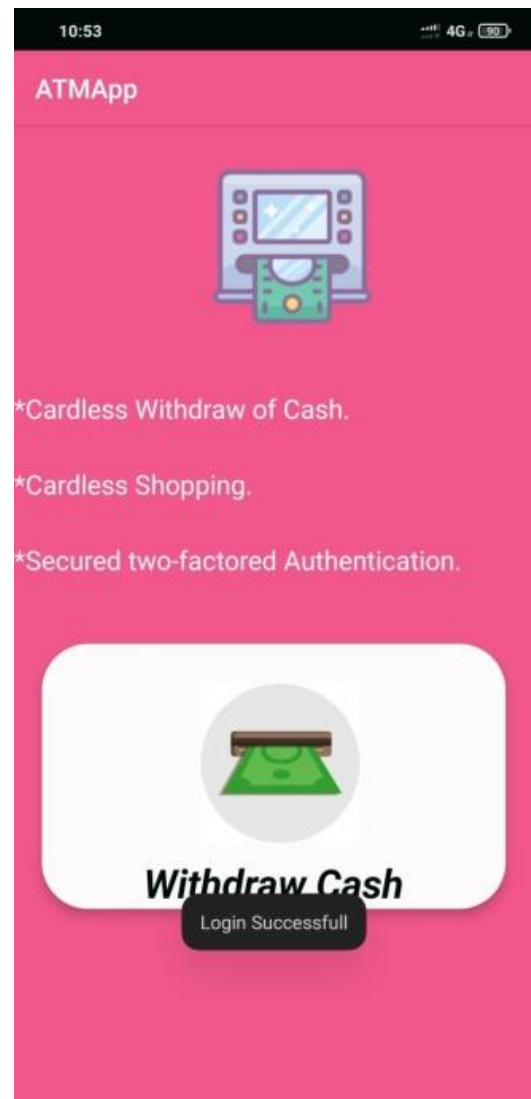


Figure 4:Withdraw Cash

For money withdrawal customer have to press WITHDRAW CASH button.

5. Enter Amount :-

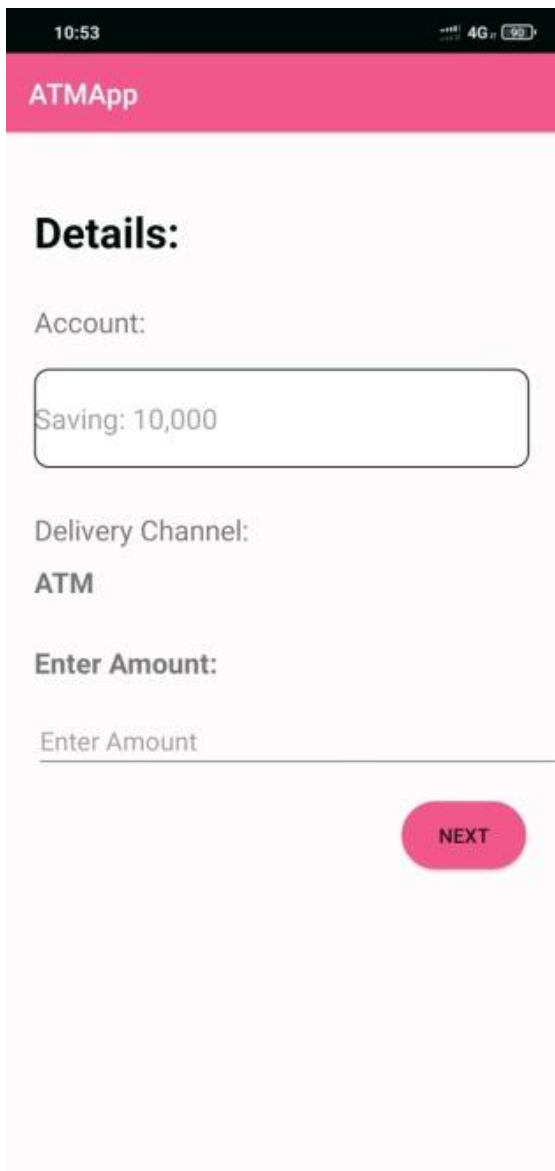


Figure 5:Enter Amount

6. Create PIN :-

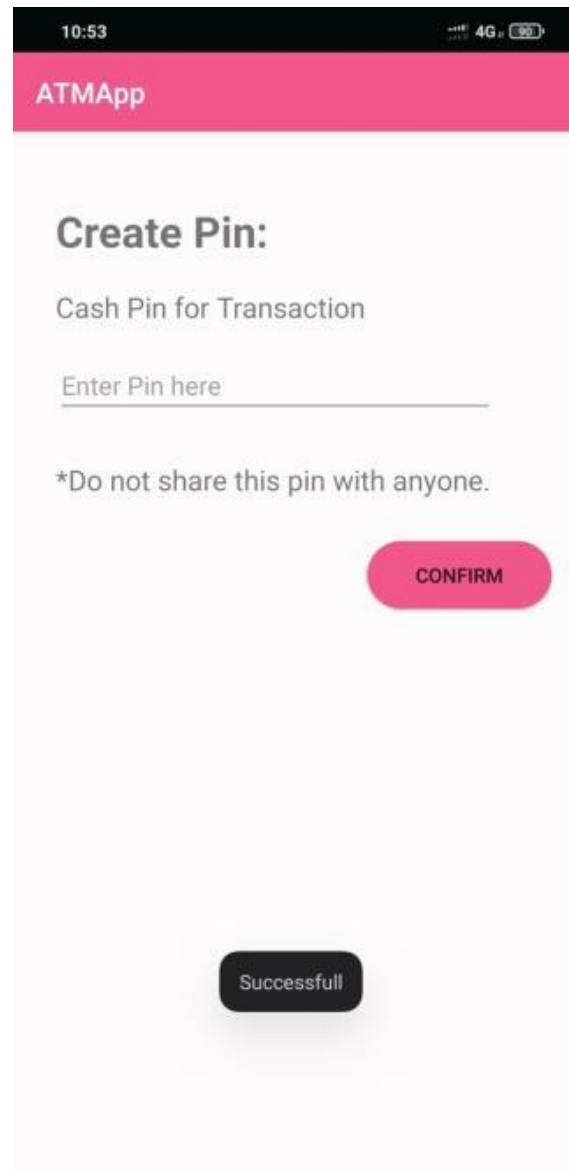


Figure 6 : Create PIN

Customer have to enter the amount he /she wish to withdraw.

Customer have to create PIN for transaction, this PIN will be confidential, customer should'nt share this PIN to anyone for account safety.

7.Verify OTP :-

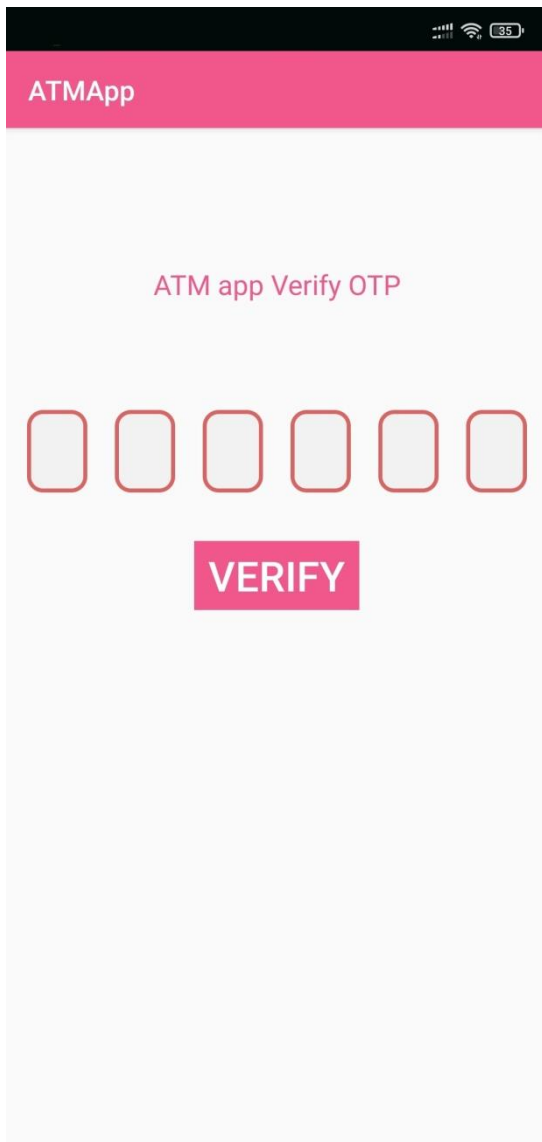


Figure 7 : Verify OTP

ATM app will generate OTP , customer will enter OTP and ATM app will verify that OTP. This will add more safety and security to the transactions.

8 .Review :-

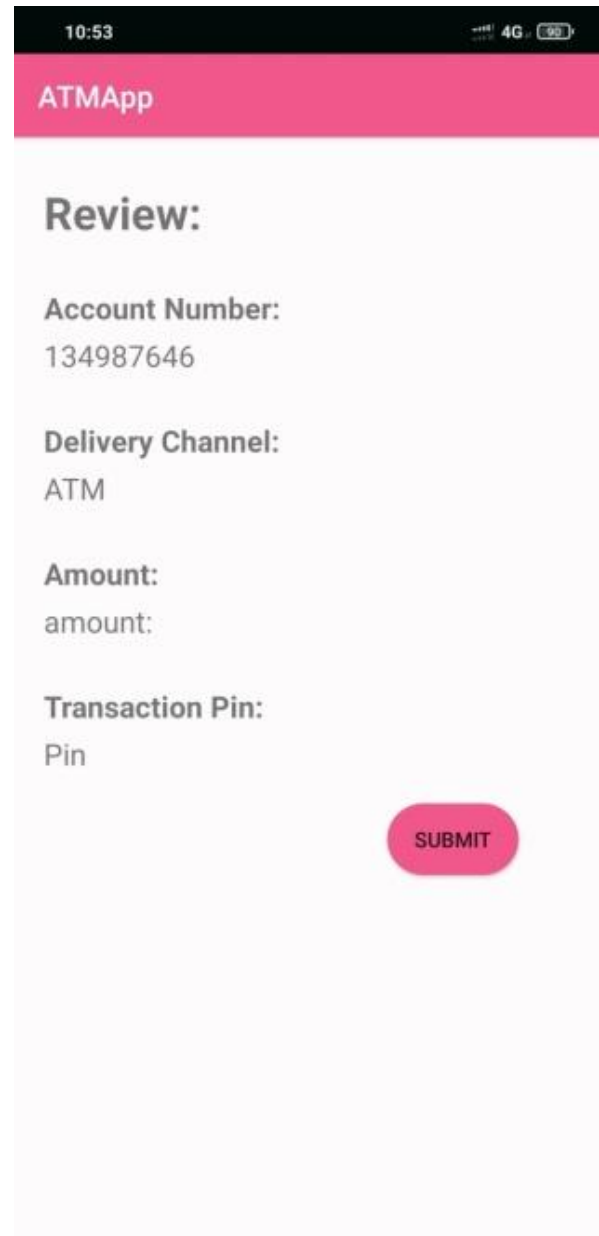


Figure 8 : Review

This screen is to confirm amount and transaction PIN .

9. QR Code :-



Figure 9 : QR Code

QR code will be generated and will pop up on the screen after confirming the details, then QR code scanner which will be situated in the ATM machine's camera will scan the code.

10. ATM QR code scan :-

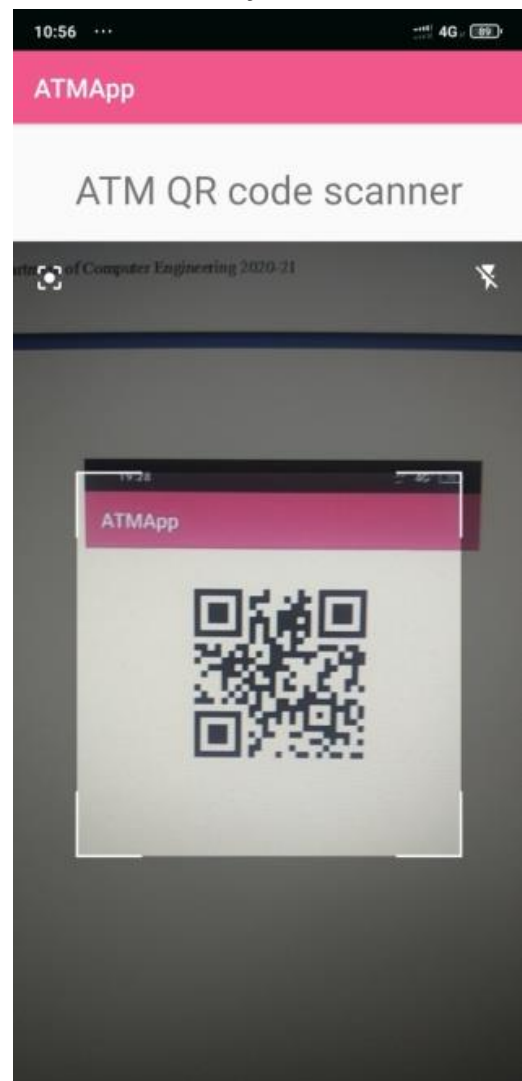


Figure 10 : ATM QR code scanner

This is QR code scanner screen for demonstration, that will scan the QR code from ATM app and after scanning the values of QR code if the values matched, then only the cash will be dispense from the ATM machine.

IV. CONCLUSION

Time Saving The main purpose of this research is to save customer time to withdrawal cash from ATM machine, by utilizing waiting time in the ATM queue. Normally a successful cash withdrawal transaction takes at least 30 seconds, more in case of wrong attempts; but using this



feature, successful transaction will be done only in 10 seconds. That means transaction of cash withdrawal using this feature will take less than half time, so there is more than 50 ATM PIN privacy After using this feature, there is no need to hide ATM PIN on the ATM machine, because customer will not use it on ATM machine. Customer will use QR-code to withdraw cash. Security enhancement Using this feature, PIN security to withdrawal cash is increased. Other than ATM PIN, someone require Mobile banking PIN and QR-code (which is sent on registered Mobile number only) to complete the transaction. Availability of existing system If the ATM machine is free, there is no waiting time; and then we can directly use existing cash withdrawal process. There is no change in system, who don't want to use this feature.

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