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INTEGRATED SMART ATM CARD FOR SEVERAL BANK ACCOUNTS

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Abstract: - To integrate multiple bank accounts into the one single smart card. Many bank charges ATM usage fees from the customer has an individual ATM card for each and every bank in which he/she maintains account. So, while handling the cards many passwords are involved. In order to overcome these difficulties, we embedded more than one bank account of the user in a single ATM smart card, therefore letting the user to swipe the card so that the respective individual can select the bank from which he/she is interested to carry out transaction.

Key Words— ***Security, 12-digit RFID, Biometrics, GSM module***

I. INTRODUCTION

An Automated Teller Machine (ATM) is a computerized machine that provides customers of the banks the facility of accessing their accounts for dispensing cash and to carry out other financial and non-financial transactions without the need to visit the bank branch. ATM's were first used in London in 1967, and after 50 years, these machines were introduced nationwide. Modern ATMs are implemented with high-security protection measures. They work under complex systems and networks to perform transactions. The data processed by ATM's are usually encrypted, but hackers can employ discret hacking devices to hack accounts and withdraw the account's balance. Hence, to avoid such unauthorized transactions and to protect the confidentiality of the user, we raised the bars by introducing an additional security measure such as the biometrics. In the proposed method, the magnetic strip-based ATM card is replaced with RFID based card which have a unique number. The Arduino MEGA microcontroller is used to process the data from the sensor. The fingerprint module is used to authenticate the user. The user can register the bank details and also withdraw the amount from the registered bank details. Hence this system provides more secure and multiple bank account using single ATM card.

II. LITERATURE SURVEY

2.1 ATM SECURITY USING GSMTECHNOLOGY

Author: Sudhakar Hallur, Manjunath Bajantri, Sagar.

Automated Teller Machine (ATM)'s now a days are extensively used all over the world for the withdrawal of cash. A unique card is issued for each user along with the unique code provided to him so as to the person may do all his transactions are extensively secure there is no much more security required but in countries like India it's very necessary to have a physical security to the machine. A provision to give physical security to the machine is being discussed over here in the paper presented over here.

2.2 IMPLEMENTATION OF BANK SECURITYSYSTEM USING GSM AND INTERNET OF THINGS

Author: Moturi Phalguna Satish, Bala Kishore.G.

The Internet of Things(IoT) is one of the hottest topics in the technology sector, and with good reason. It influences the interaction of technological, economic, social, societal, andindividual changes. Internet of things has been governing the electronics product segement. Security and safety has always become a basic necessity for urban population. The Implementation

of the Bank Security System by using GSM and IoT is developed into the security application. The main objective of this system is to develop an embedded system, which is used for ATM security applications. The embedded ATM authentications. So that if there is any disturbance or any five accident in any node we can get the area information through IoT to the web page along with buzzer[1-10,21-24].

2.3 ADVANCED SECURITY MANAGEMENT SYSTEM FOR ATM'S USING GSM AND MEMS

Author: Venky Reddy Maram, Mirza Sajid Ali Baig.

Security in ATM networks is necessary because ATM is widespread and many areas such as financial- or medical-applications, network-administration, etc. require very sensitive handling of the transmitted data. If we look at other fields of interest. We see that ATM channels might be used for billing. Misuse of the ATM network, manipulation of transmitted data, spoofing,or repudiation would be fatal in billing accounting system. Robberies of ATM's,misusage of credit cards of all. Our project is going to concentrate on the ATM security system. Whenever a thief enters and tries to touch an ATM forcefully. The movement will be observed by the MEMS sensor.While MEMS observe the movement it sends a request to the microcontroller. Microcontroller will automatically lock the door which is represented with the DC motor. It will produce with the help of buzzer to alert the security. And this door will be unlocked with the switch which is present outside the room.

2.4 ATM MACHINE SECURITY SYSTEM USING GSM AND MEMS SENSOR

Author: Shinde.S.P,Chingale R.R,Dhane D.C,Vader P.B

The Idea of Designing and of Security based ATM machine security system project is born with the observation in a real life examples happening around us. This project overcome the drawback of older technology used in our society. Project deals with the security of ATM machine. Whenever robbery occur, vibration sensor and MEMS sensor is used here which senses the vibration produced from ATM machine and the movement of ATM machine. GSM is used send the message to police station and authority. We uses the PIC controller which is based embedded system process. Here LCD display board shows the status.MPLAB tools are used to run the DC motor for automatic door lock[11,12,13].

2.5 ADVANCE SECURITY SYSTEM FOR ATM

Author: Aman Kumar.

In present time ATM robbery is a common thing because we have not strong security and rule or regulation to withdraw the cash from ATM with help of ATM card. We generate many problem during robbery of ATM like police not reach in correct time, no information or no alert, weak wall of ATM room and so on. I have provide the solution of robbery of ATM to use various technology, rules and regulation. This is weakness in ATM security, remove this problem we used following technology to improve security system. This technology work in main three steps or phases, In 1st phase user needs to swipe the ATM and used palm for scanning after successfully swipe machine will generate voice you can enter for 2nd phase and palm will save in that transaction database. When you go for 2nd phase then need to scan retina and then go for the 3rd there will final ATM.

III WORKING PRINCIPLE

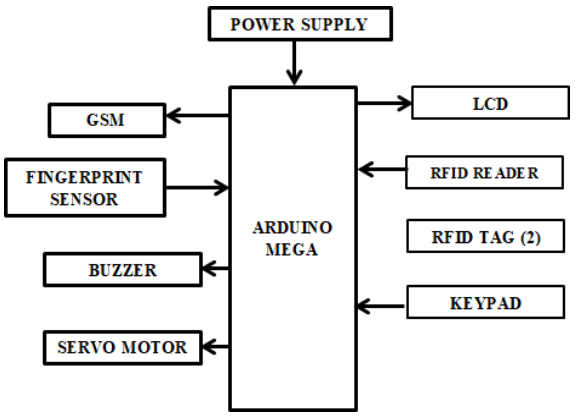

Figure 1: Block Diagram

In the proposed method, the magnetic strip-based ATM card is replaced with RFID based card which have a unique number. The Arduino MEGA microcontroller is used to process the data from the sensor. The user can register the bank details and also withdraw the amount from the registered bank details. Hence this system provides more secure and multiple bank account using single ATM card.

A power supply of +5V is given to the circuit as an input. Arduino mega acts as a microcontroller that simultaneously stores data given to it. The ATM card consist of a magnetic strip containing a unique 12-digit number which acts as an RFID tag. This tag is read by a passive RFID reader (here EM-18 module) which is connected to the microcontroller through serial communication (UART). A 4x4 keypad is connected to

the microcontroller that acts as an input to enter the 4-digit pin[14,15]. Once the authenticity of the pin is confirmed the finger print of the user is verified using an optical fingerprint reader. The money is deposited or withdrew through servo motor that rotates180 degree if the finger print matches the biometric data. On the other hand, if the finger print does not match, the buzzer starts ringing. Finally, irrespective of success or failure of the transaction a message or call is sent to the user through GSM module (SIM800L) which is 2G based network that uses AT commands[16-21].

IV RESULTS AND DISCUSSIONS

The proposed scheme of MAASC (Multiple Account Access using Single ATM Card) provides the individual, the comfort of accessing users multiple accounts of different banks using a single card. Also, it provides the user one level higher convenience than the existing system.

Advantages of proposed system:

(a) Single ATM card provides more convince of using multiplebank transactions.
(b) Higher security based on the biometric module.

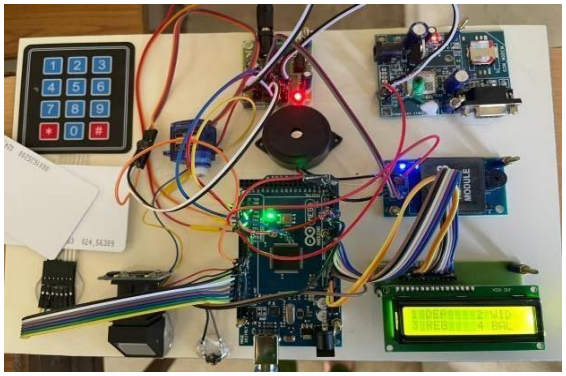

Figure 2: Hardware Implementation for multiple bank accounts using single ATM card

The below 9 figures shows the final outcome of proposed system which consist of Arduino Mega, RFID tag, RFID reader, GSM module, 16x2 LCD display, servo motor, keypad, buzzer and finger print sensor.

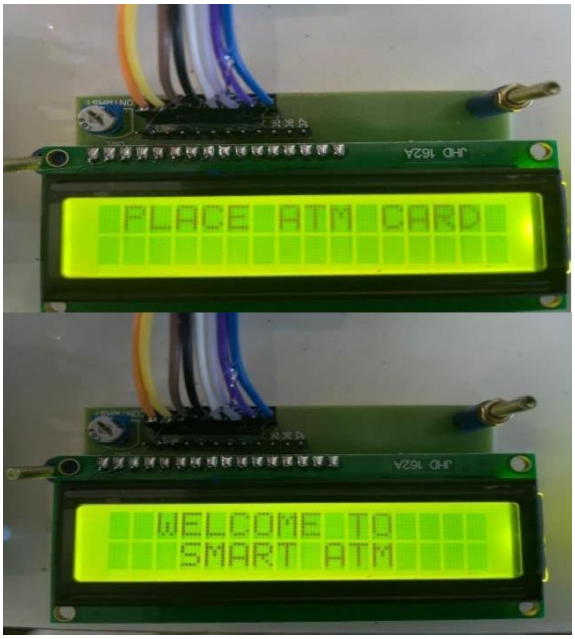

Figure 3: The RFID reader reads the ATM card having unique 12 digit

Figure 4: Finger print sensor is used to match with the database of the respective user

Figure 5: Account matched with the authorized user

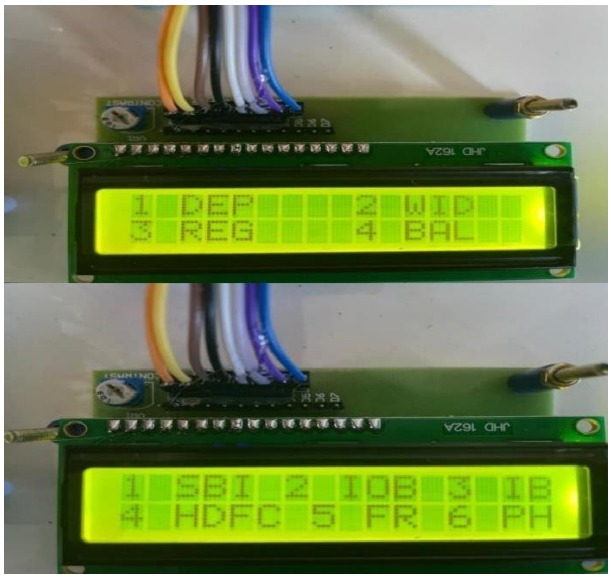

Figure 6 : Menus Displayed in LCD

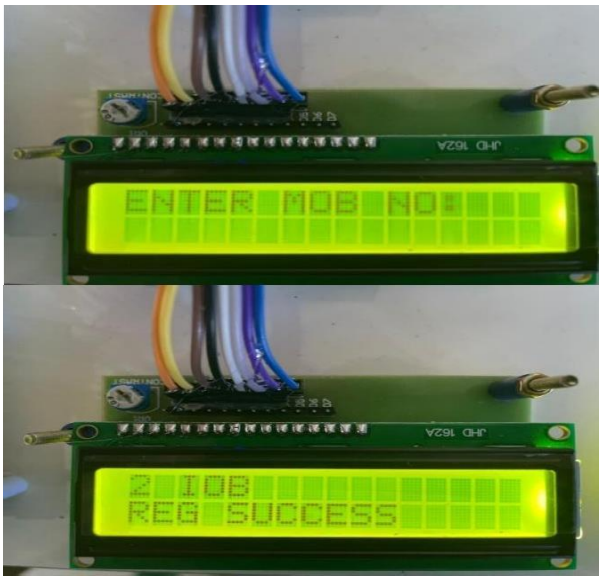

Figure 7 : Mobile Number is Successfully registered after the user login

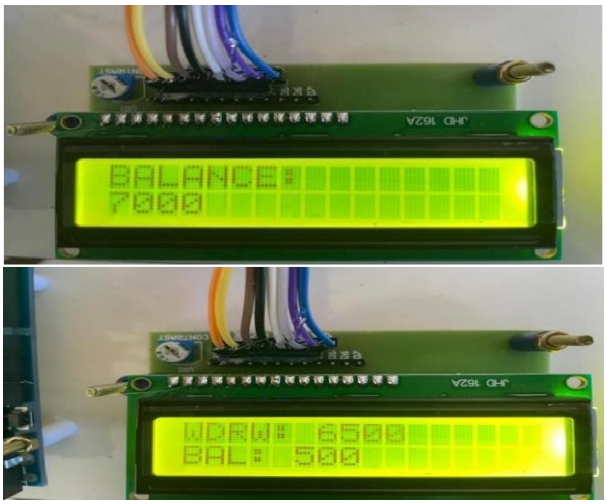

Figure 8 : Amount is deposited and withdrawn successfully

Figure 9 : If user is found unauthorised buzzer goes on Finally, before logging out it shows “Thank you”

Figure 10 : The GSM sends message to the registered mobile number

V CONCLUSION

In this project,the user can manager his/her multiple accounts in various banks with the help of this single smart ATM which provides easy access and reduces the complexity of managing more than one ATM card and their respective passwords. Here we providing the user with biometrics in order to create a viable ATM system. The security features were enhanced largely for the stability and reliability of the owner's recognition. The whole system is built on the technology of embedded systems which makes the system is safe, reliable and easy to implement. Hence the vulnerability of the ATM fraud are reduced.

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