A Review on Secured Bank Locker System using Finger Print, Image and RFID Technique

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Abstract: The main purpose of this paper is to design and implement a locker high security system based on RFID, finger print and Image processing technology which can be organized in bank, secured offices and homes. In this system only authentic person can be recovered money from locker. We have implemented a locker security system based on RFID, finger print and Image processing technology containing door locking system which can activate, authenticate, and validate the user and unlock the door in real time for locker secure access.

Keywords: Security, Bank Locker, RFID, Finger Print

Literature Review:

R.Ramani (2012) et al. described a bank locker security system based on RFID and GSM technology which can be organized in bank, secured offices and homes. In this system only authentic person can be recovered money from bank locker. We have implemented a bank locker security system based on RFID and GSM technology containing door locking system using RFID and GSM which can activate, authenticate, and validate the user and unlock the door in real time for bank locker secure access. The main advantage of using passive RFID and GSM is more secure than other systems. This system consists of microcontroller, RFID reader, GSM modem, keyboard, and LCD, in this system The RFID reader reads the id number from passive tag and send to the microcontroller, if the id number is valid then microcontroller send the SMS request to the authenticated person mobile number, for the original password to open the bank locker, if the person send the password to the microcontroller, which will verify the passwords entered by the key board and received from authenticated mobile phone. if these two passwords are matched the locker will be opened otherwise it will be remain in locked position, This system is more secure than other systems because two passwords required for verification. This system also creates a log containing check-in and check-out of each user along with basic information of user.

Raghu Ram.Gangi (2013) et al. proposed fingerprint verification of ATM (Automatic Teller Machine) security system using the biometric with hybridization. The fingerprint trait is chosen, because of its availability, reliability and high accuracy. The fingerprint based biometric system can be implemented easily for secure the ATM machine. In this system the working of these ATM machine is when the customer place on the fingerprint module when it access the ATM for draw the cash then, the machine wants to fingerprint of that user's which use the machine. Using biometric, it verify/identify fingerprint and gives accurate result that if it valid or not valid. In this way we can try to control the crime circle of ATM and do secure it.

Sanal Malhotra (2014) proposed banking locker security system with Odor identification, Security Questions using RFID and GSM technology which can be used in banks, companies and at personal secured places. Only original account holder is able to use his locker. This system uses Odor identificatiom,Security question technique, RFID technology and GSM technology which makes it more secured than any other system. The system is more secured as 4 steps are required for verification. RFID tag is verified using RFID technology, then valid person has to answer the security question using Security question software technique and it should be same as that of stored (initially during account opening),then the valid person gets message in his mobile using GSM technology and has to type password from his mobile and keypad of locker, both passwords should match to open the door of the locker,and then odor identification will be done,the odor pattern should match with the odor pattern stored in the microcontroller.

Hiloni S. Detroja (2016) et al. proposed to design and implement a high security locker system based on RFID, fingerprint, password & GSM technology which can be organized in bank, secured offices and homes. in this system only authentic person can be recovered money from locker. fingerprints are one of many forms of biometrics used to identify individuals and verify their identity. RFID is means of identifying a person or object

using a radio frequency transmission. in other words RFID is an electronic method of exchanging data over radio frequency waves the technology can be used to identify, track, detect wide variety of objects.

Shailika Sharma (2016) et al. described a bank locker security system based on Radio Frequency Identification (RFID) and Global System for Mobile (GSM) technology which can be arranged in bank, secured offices and homes. In this system only genuine person can recover money from bank locker. We have arranged a bank locker security system based on Radio Frequency Identification (RFID) and Global System for Mobile (GSM) technology which include door locking system using on Radio Frequency Identification (RFID) and Global System for Mobile (GSM) which can activate, authenticate and validate the user and unlock the door in real time for bank locker secure access. The main merit of using passive on Radio Frequency Identification (RFID) and Global System for Mobile (GSM) is more secure than other systems. This system is made up of microcontroller, Radio Frequency Identification (RFID) reader, Global System for Mobile (GSM) modem, keyboard, and Liquid Crystal Diode (LCD). In this system the RFID reader reads the id number from submissive tag and send to the microcontroller, if the id number is valid then microcontroller send the SMS request to the authenticated person mobile number, for the master password to open the bank locker, if the person sends the password to the microcontroller, which will verify the passwords entered by the key board and received from authenticated mobile phone. If these two passwords are matched the locker will be opened otherwise it will be remain in locked position. This system is more secure than other systems because two passwords required for verification. This system also generates a log containing check-in and check-out of each user along with basic information of user.

Subhash H.Jadhav (2016) et al. proposed a highly secured and reliable smart bank locker security system based on RFID, Biometric fingerprint, password and GSM technology. This can be organized in bank, offices(treasury), schools and homes. In this system only the authentic person can open the lock and collect the important documents, jewellery or money from the lockers. In this security system RFID, biometric fingerprint, passwordand GSM technology systems are used. In our proposed system first the user will enroll his user name, password and his mobile number, then the person will put finger on finger print module and finger print will be scanned and stored with fingerprint id . In this way user enrolment process will be completed. Then user will perform login operation. During login operation user first swipe RFID tag on the RFID

reader if it is ok then finger print of authentic person will be scanned. If the finger is correct of that particular person then it will allow and display finger is matched and if the finger is not matched of that particular person then it will gives the signal to the siren and will play some time and then message goes to the user that the unauthorized entry is there please check. And if the finger print is matched then it will gives the signal to do next step to enter the Password, then the authorized person will enter the password. If the password is incorrect then it will play siren and the system will send the message to the user i.e. the unauthorized person is trying to open the lock so please check it and so on, if all the conditions are matched then the microcontroller processes the data and correspondingly drives the motor to operate the load i.e. lock will be opened. The main advantages of using RFID, biometric fingerprint, password and GSM technology is highly secure and reliable locker system than any other locker systems. This system can also create a log containing check in and check out of each user along with basic information.

Amit Saxena (2017) et al. proposed normally available locks in the bikes do not provide enough security to the bike owners. Traditional locks available in the bikes are well known to thieves and they can be easily broken by them. Thus there is a need for more security options to be available for the motorcycle which is unique and must be different from the traditional key locks. Biometrics system can be used as a good and effective security option. An important and very reliable human identification method is fingerprint identification. As fingerprint of every person is unique thus it can be used in various security options. In this paper we are focusing on the use of finger print recognition to start or ignite the motorcycle against the use of conventional methods of key locks. A detailed comparison is shown in the paper related to this work. In this paper the work done before in this field is shown. Various other methods that can be used to enhance the security have been shown in a comparative way. Related work include enhancing the security of the bikes by adding different types of locks and alarming unit to alert owner of the bike in case of danger.

Ambrish Kumar (2018) et al. proposed as today fingerprint based system provides high accuracy in terms of security. Also there is a high demand for integration of fingerprint matching techniques for making secure authentication systems. This research paper introduces this door locker system which integrates fingerprint reader in it so as to provide a good level of security. The main goal of fingerprint door locker with image capture project is to provide security with no manual security flaws. It is easy to

use and requires no special training or equipment. This system needs fingerprint authentication while operating the door locker as well as captures the images of person who is handling the locker and saves it in memory card which can be later viewed with card reader to the authorized person. The functionality of system is that it will scan the fingerprint and if it matches with registered fingerprint the locker opens and also captures the image of user. The system uses an atmega 328 microcontroller for this purpose. The microcontroller processes data sent by theaccess. Controller operates the motors to open the locker door on encountering registered valid users. If the fingerprint does not match with register fingerprint of user, it will show the error message as unauthorized user and immediately saves the picture in memory card. So, the system is very beneficial for stopping the robbery by providing security.

Prajwal D (2018) et al. proposed the need of a bank customer, who waits for an authorized bank staff, to open the customer's bank locker with a master-key. To resolve this issue, we have proposed a locker system, based on RFID and Password technology. This system also finds its application in house safes, Smart cash box, offices, etc to safe guard valuables. When a customer steps in front of locker room the IR sensor gets activated and the customer needs to give the access card, if the customer fails to do so in 60 seconds the buzzer gets activated, only authenticated person can enter the locker room. Once the customer is inside the locker room, the customer is again asked to give the access card for their respective locker. If the customer is authenticated, they are required to enter the correct password, otherwise safe gets locked.

Pooja K M (2018) et al. proposed a bank locker security system based on Finger print and OTP technology. This can be organized in bank, offices and homes. In this system only the authenticate person recover the documents or money from the lockers. In this security system fingerprint and OTP is used. In this system first person enroll user name and password and mobile number. If user name and password matches then Finger of person will detect and store with ID. If the ID gets matches. Then four digit code will be sent on authorized person mobile to unlock. So biometric and Bluetooth security is more advantages than other system. This system can also create a log containing check in and checkout of each user along with basic information.

Conclusion: We have implemented a locker security system using RFID, finger print and Image processing technology which can be organized in bank, secured offices and homes. It is a low cost, low in power conception, compact in size and standalone system. The microcontroller compares the passwords entered by keyboard and received through mobile phone. If these passwords are correct the microcontroller provides necessary control signal to open the locker.

References:

1. Ambrish Kumar, Anish Kumar, Kushagra Gohil, Laxit Porwal, Manish Cheepa, Ankit vijayvargiya, "Fingerprint Based Bank Locker with Image Capture",International Journal of Advanced in Management, Technology and Engineering Sciences, Volume 8, Issue III, March/2018.
2. Amit Saxena, Sarthak Sharma, Shivam Gaur, Shubham Chauhan, Shantanu Varshney, "Ignition Based on Fingerprint Recognition", International Journal of Scientific Research and Management Studies (IJSRMS) ISSN: 23493771 Volume 2 Issue 1.
3. Hiloni S. Detroja, Prutha J. Vasoya, Disha D. Kotadiya, Prof. C. B. Bambhroliya, "GSM Based Bank Locker Security System using RFID, Password and Fingerprint Technology", IJIRST – International Journal for Innovative Research in Science & Technology| Volume 2 | Issue 11 | April 2016.
4. Pooja K M, Chandrakala K G, Nikhitha M A, Anushree P N, "Finger Print Based Bank Locker Security System", International Journal of Engineering Research & Technology (IJERT), NCESC - 2018 Conference Proceedings, Volume 6, Issue 13.
5. Prajwal D, Naaga Soujanya N, Shruthi N, "Secure Bank Lockers Using RFID and Password Based Technology (Embedded System)", International Journal of Scientific Development and Research, May 2018 IJSDR | Volume 3, Issue 5.
6. R.Ramani, S. Selvaraju, S.Valarmathy, P.Niranjan, "Bank Locker Security System based on RFID and GSM Technology", International Journal of Computer Applications (0975 – 8887) Volume 57–No.18, November 2012.
7. Raghu Ram.Gangi, Subhramanya Sarma.Gollapudi, "Locker Opening and Closing System Using RFID, Fingerprint, Password and GSM", International Journal of Emerging Trends & Technology in

Computer Science (IJETTCS), Volume 2, Issue 2, March – April 2013.

8. Sanal Malhotra, "Banking Locker System With Odor Identification & Security Question Using Rfid & Gsm Technology", Proc. of the Intl. Conf. on Advances In Engineering And Technology - ICAET-2014.

9. Shailika Sharma, Mirtunjay Kumar, Satyajeet Kumar, "Bank Locker Security System based On RFID and GSM Technology", Journal of Emerging Technologies and Innovative Research (JETIR), May 2016, Volume 3, Issue 5.

10. Subhash H.Jadhav, S. S.Agrawal, "Smart Bank Locker Security System Using Biometric Fingerprint and GSM Technology", International Journal of Science and Research (IJSR), Volume 5 Issue 10, October 2016.