

BANK LOCKER SECURITY SYSTEM USING MULTI-BIOMETRICS FUSION

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ABSTRACT

Many of the systems available today, allowing the entrance only to those persons who know a specific code, own a card or have determined physic marks. The more complex is the system, the most difficult is to be attacked, although it will be more expensive and will require more software and hardware resources. The password method is the cheapest and simplest technology, because it only requires elementary software resources. On the other hand, this system is easily attackable, since it is quite simple to obtain the password data from a person. The Smart Cards based systems are very useful, but used like the only identification system, are not excessively trustworthy, since cards can be easily stolen, lost or simply forgotten at home. Our system is going to use fingerprint from pc as password for authentication. The advantage of biometrics is that the information is unique for each individual and that it can identify the individual in spite of variations in the time (it does not matter if the first biometric sample was taken year ago). The advantage of our system is that, it not only collects single fingerprint from user as password. Instead our system will randomly collect few fingerprints from either hands of the user and gives authentication. Since the biometric data cannot be stolen, the system would be safe and secured.

1. INTRODUCTION

In the real world, people are more concern about their safety for their valuable thing like jewellery money etc.so the bank lockers are the safest place to store them .but the traditional security system is not providing the higher security because in traditional security system a user can open the lockers using keys. Sometimes the keys could be stolen. Then the user will apply for new keys but the time period is longer to get new keys so instead of using this security system I have implemented biometric and GSM based security system which provide more security then traditional system. So we will discuss about biometric and GSM technology. Biometric recognition offers a reliable solution to the problem of user authentication in identity management system .Biometrics measure individual"s unique physical or behavioural characteristics to recognize or authenticate their identity. The physical characteristics are fingerprint hand, face, iris etc. and behavioural characteristics are signature, voice keystroke patterns etc [2] . Biometric system is operates in verification mode or identification mode in the verification mode the system validates person"s identity by comparing the captured biometric template which is prestored in the system data base [3].In the identification the system recognition an individual by searching entire template data base for match. And the system is perform one to many comparisons to establish the individual identity or fails if the subject is not enrolled in the system data base.so in our project we are

using fingerprint and face biometric security. Global system for mobile communication is mainly used for sending or receiving data such as voice and message. security system GSM plays important role through GSM the use of GSM the user will receive random number.

2. RELATED WORK

Our system is going to use fingerprint as password for authentication from PC. The advantage of biometrics is that the information is unique for each individual and that it can identify the individual in spite of variations in the time (it does not matter if the first biometric sample was taken year ago). The advantage of our system is that, it not only collects single fingerprint from user as password. Instead our system will randomly collect few fingerprints from either hands of the user and gives authentication. Since the biometric data cannot be stolen, the system would be safe and secured. When the fingerprint password is matched then the lock will open that can be identified by using the DC motor rotation. If suppose fingerprint password does not match means DC motor does not rotate and buzzer will ON, at the same time sends a message use to authorized person.

In this section some related works are discuss below The purpose of this project is to increase the security for lockers .because traditional banks lockers are not secure .so to rectify the problem which we discuss above we are implementing this project. The finger print sensor used here is R305 sensor is having excellent performance low power consumption, low cost small in size. The ARMLPC2148 microcontroller is used here because it performs multiple numbers of operations at a time. And we are using SIM300 GSM modem to send the code on authorised person mobile.

3. BLOCK DIAGRAM

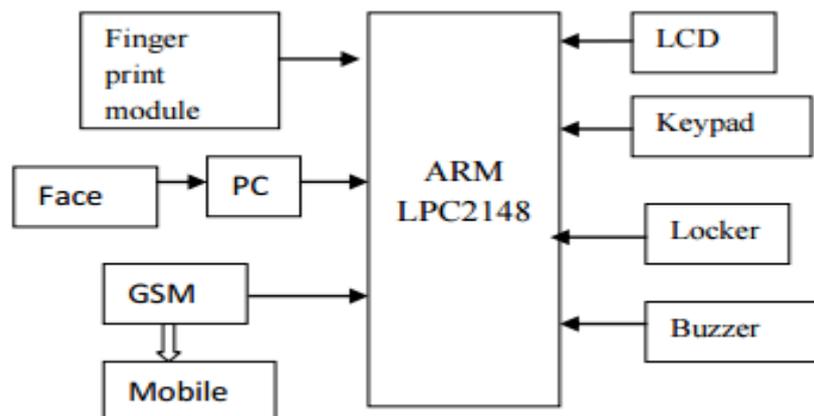


Fig.1. Block Diagram

In our proposed system first the user will enrol his user name password and his mobile number .then the camera of pc will automatically on and capture the face store with face id then the person will put finger on finger print module finger print will be scan and store with finger id . In this way user will enrolment process will be completed. Then user will perform login operation during login operation user face of person will detect and finger print will be scan. if the id get matches LCD will show mobile number of the user which entered during enrolment .then code will send on person mobile through GSM. And user will punch the code through keypad if the code get match then led will be blink or lockers will be open. And LCD will show message access granted.

Multispectral imaging is a sophisticated technology that was developed to overcome the fingerprint capture problems conventional imaging systems have in less-than-ideal conditions. The core problem was that conventional technologies rely on unobstructed and complete contact between the fingerprint and the sensor, a condition that is elusive in the real world. The more effective solution was based on using multiple spectrums of light and advanced polarization techniques to extract unique fingerprint characteristics from both the surface and subsurface of the skin. The nature of human skin physiology is such that this subsurface information is both relevant to fingerprint capture and unaffected by surface wear and other environmental factors. The basic operation of the multispectral sensor is straightforward. The sensor consists of two main components: a light source, which provides the light to illuminate the finger resting on platen; and an imaging system, which images this region of the platen onto a digital imaging array. The multispectral illumination system consists of a source of multiple illumination wavelengths rather than the quasi-monochromatic illumination commonly used for TIR imaging. Linear polarizers are used in the illumination and detection portions of the sensor.

4. ANALYSIS

The Criminals whose arrest warrant are issued and face recognition biometric is directly connected to the police crime branch. The software matches his face with the criminals. If the face is matched, then send message to the police control room. If the person is not a criminal then he can be able to access their bank locker. For that he should put his hand on hand geometry scanner which is based on multi-spectrum technology and is able to work in all conditions/environment like dry, wet, dirty, elderly, high ambient light etc.



Fig.2. Hardware Implementation

Lumidigm technology is the best technology in the world which capture very high quality & clear input image in all conditions. If the hand of the customer is matched with the template stored in the database then the door of the locker will be automatically open for a few second so that only one person will enter in the lockers area and also enable the finger print lock of that particular person. The biometric finger print locker is based on verification technology, for that a mifare smart card is issued to the customer. The template & finger image of the customer is stored in the mifare card which provides ultimate against fake, spoof or Trojan hoarse attacks on template database. The biometrics industry is introducing new and more secure ways of exchanging information, services, money, and goods through automated

transactions. Many experts predict the science and technology of biometrics will continue to experience explosive growth. Biometrics could also be used to restrict access to dangerous items such as firearms and automobiles.

CONCLUSION

Finger print and face based security is providing higher security than existing system. And GSM will also provide security if someone opens the locker of an authenticated user. The message will be directly sent to the authenticated person's mobile. He found out someone is trying to open his locker. Biometric is an emerging area with many opportunities for growth. Possibly in the near future, you need not to have remembered PINs and passwords and keys in your bags or pockets will be things of the past. There is no security system that is completely out of spoofing. Every system is subject to being breakable.

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