Fingerprint authenticated smart locking system using OTP

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Abstract— **In today's modern world, security plays an important role. For that purpose, we proposed advance security systems for banking locker system and the bank customers. In this project we design and implement locker high security system based on finger print, password and GSM technology which can be organized in banks, protected office and homes. It reduces wastage of time for both banker as well as customer and provides advanced security. In this bank will collect the biometric data of each person for assigning the lockers only authentic person can be recovered money, documents from the locker**

Key Terms— **finger module, GSM, ARM processor, OTP**

I. INTRODUCTION

Increase in anti social activities is a cause of concern as the banks are considered soft targets by criminal. Increasing incidence of crimes against banks has necessitated a serious re-look at the security arrangements and guidelines followed by the banks. The prevailing crime scenario demands compatible, efficient and reliable security and safety measures. In order to overcome this type of frauds, authentication of the person who wants to use the locker is very important. In the ubiquitous network society, where individuals can easily access their information anytime and anywhere, people are also faced with the risk that others can easily access the same information anytime and anywhere. Because of this risk, personal identification technology, which can distinguish between registered legitimate users and imposters, is now generating interest [1].

The proposed system will be developed on an authentication system using finger print and GSM technology. Biometrics deals with automated method of identifying a person or verifying the identity of a person based on the physiological or behavioral characteristic, and so are used for authentication in many of the online transactions. The biometric that has been chosen for implementation is fingerprint, since fingerprint biometric is easily available and highly reliable compared to many other biometrics. Finger print of the users is stored in first and the verified at the time of use. If fingerprint is matched to the trained prints then access was accepted again through GSM OTP was generated automatically and then send to registered mobile number. If it was typed by keypad then LCD displays authorized person accessed. Fingerprint verification is one of the most reliable personal identification methods in biometrics [2].

II. METHODLOGY

In this paper we use only one Fingerprint module scan for number of only authorized persons to open the separate bank locker with GSM technology. The more peoples stored the data in the RAM of LPC2148. The scanner is interfaced to LPC2148 ARM microcontroller; this controller will be controlling the scanning procedure. After the scanning has been completed, a OTP

will be send to customer mobile number via by using GSM modem if user enters that secret code to open his locker with the help of a keypad. Instantly the locker will be opened as shown in the below flow chart fig 3
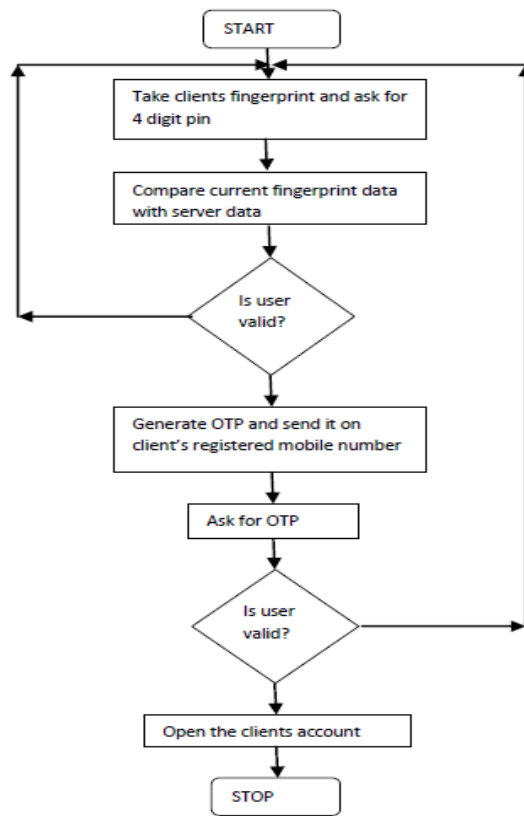

Fig 2: Flow Chart
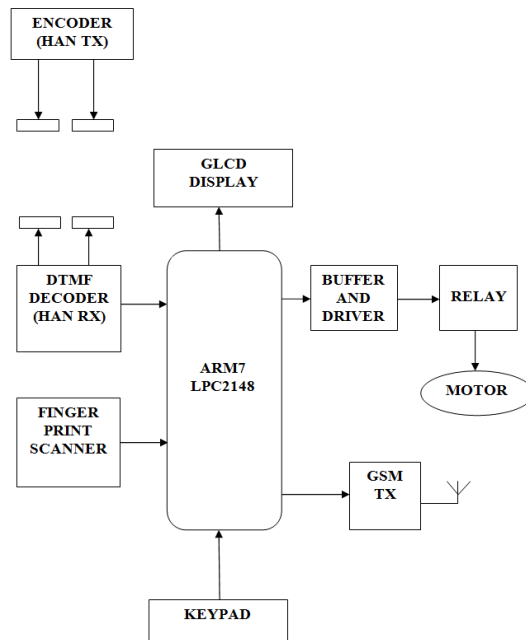
III.   BLOCK DIAGRAM

Fig 3: Block diagram

- Fingerprint Scanner

It is used for customers identification. So that there will be security for account identification. The fingerprint information is used as the standards of Identification. This is stored in data base.

- Keypad Module

A keypad is a set of buttons arranged in a block or "pad" which usually bear digits, symbols and usually a complete set of alphabetical letters. If it mostly contains numbers then it can also be called a numeric keypad. Keypads are found on many alphanumeric keyboards and on other devices such as calculators, push-button telephones, combination locks, digital door locks, which require mainly numeric input. 4*4 matrix keypad is used to enter the OTP.

- Buffers

Buffers do not affect the logical state of a digital signal (i.e. a logic 1 input results in a logic 1 output whereas logic 0 input results in a logic 0 output). Buffers are normally used to provide extra current drive at the output but can also be used to regularize the logic present at an interface.

- Drivers

This section is used to drive the relay where the output is complement of input which is applied to the drive but current will be amplified.

- Relays

It is a electromagnetic device which is used to drive the load connected across the relay and the o/p of relay can be connected to controller or load for further processing.

- Buzzer

A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers and confirmation of user input such as a mouse click or keystroke.

- ARM processor(LPC2148)

ARM is computer processor based RISC architecture. A RISC-based computer design approach means ARM processors require significantly fewer transistors than typical processors in average computers. This approach reduces costs, heat and power use. The low power consumption of ARM processors has made them very popular:

The ARM architecture (32-bit) is the most widely used architecture in mobile devices, and most popular 32-bit one in embedded systems.

- GSM Modem

GSM Shield (SIM 900): The SIM900 which is a complete Quad-band GSM/GPRS solution comes in a SMT module which can be embedded in customer applications.

- GLCD

It is made of grid of pixels common resolution is 128X64.It is used to display data received from arm7.

IV. ADVANTAGES

1. The most commonly available device.

2. Relatively low cost.

3. Maintenance of time

4. High accuracy in terms of security..

5. Simple to use and require no special training equipment.

6. No false intrusion

7. No manual errors

8. Fingerprint is unique for each person it cannot be imitated or fabricated.

V. DISADVANTAGES

1. There are some weaknesses to finger-scanning, most of which can be mitigated.

2. One time investment cost.

VI. APPLICATIONS

1. Secured offices.

2. Industrial automation.

3. Prevent unauthorized access to ATMs, Cellular phones, Smart cards, Desktop PCs, Workstations, Computer & network security.

4. port security, voter cards, Healthcare, DNA Matching, Time and Attendance.

5. Electronic commerce, Electronic banking & financial services.

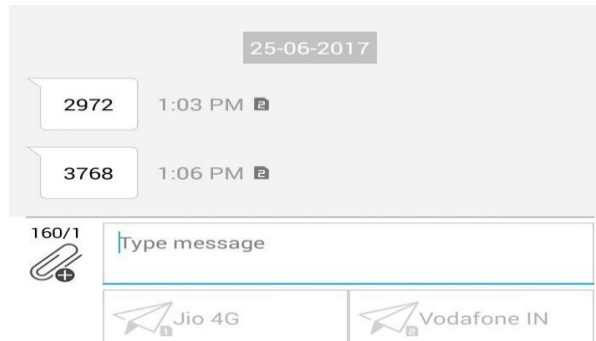6. Criminal identification, prison security, Courts.

VII. RESULT

1. Authenticate the admin ID.
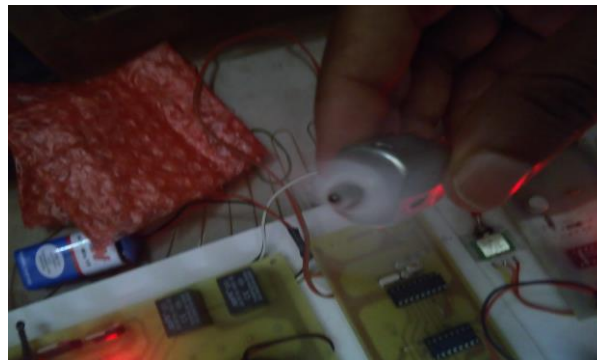2. Enter the admin password.

3. If the admin password is entered correctly it will ask for fingerprint.

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4. If fingerprint matches with the store database then it will ask for a user OTP password, which will be generated to user mobile

5. On entering correct OTP the locker will get open.

VII. CONCLUSION

We have first reviewed the recently proposed using locker key for banking though they are secured there are some disadvantages. It may be providing incorrect person access the account. So in this we are implementing security system based on biometric. This system is secure and less cost it will be a best banking system. Biometric and GSM security is provided correct and fast user verification. Because biometric cannot be forgotten they are difficult for attackers to forge and for user to repudiate. Fingerprint a unique identification for everyone. He found out someone is try to open his locker. The system has successfully overcome some of the aspects existing with the present technologies, by the use of fingerprint biometric as the authentication technology.

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