Fingerprint Based ATM Security System

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Abstract- *Security o f individuals is necessary for our daily communication specially in ATMs. But the security provided with ATM systems has some backdoors. This technique has been improved by using biometric verification like face recognition, fingerprints, voice and other traits, comparing these existing traits, there is still need for considerable computer vision.*

The purpose of this project is to increase is to increase the security that customer who uses ATM machine. Issues in current ATM network. This paper describes a system that replaces the ATM cards and PINs by the physiological biometric fingerprint and iris authentication. Moreover, the feature of one time password (OTP) imparts privacy to the users and emancipates him/her from recalling PINs. The process of transaction begins by capturing and matching fingerprints The system will automatically distinguish between real legitimate trait and fake samples. A GSM module connected to the PIC 18F4520 will message a 4-digit code generated by the system to the registered mobile number. After the valid OTP is entered the user can either withdraw or deposit cash or check his/her balance.

Keywords- Enrollment, Global System for Mobile Communication GSM, Fingerprint module, LCD Display.

I. INTRODUCTION

Now-a-days ATM is a mode of money transaction from accounts. No one likes to stand in a long queue to withdraw money from the ATM. Therefore the ATM plays a vital role in our day to day life. Bank transactions such as cash deposits, money transfer, balance enquiries, mini-statements, cash withdrawal and fast cash etc., [1] can be done very rapidly with the help this Automated Teller Machine (ATM) which is a mechanical device that has its roots embedded in the account and records of machine that allows the bank customers to carry out banking transaction with ease.

A 24 x7 self banking service has made the ATM the heart of banking. The surplus use of ATMs, has not only lead to an increase in their number but has also increased fraudulent attacks on the ATMs. This calls for the biometric systems to be integrated in the traditional ATM. Authors in [2] proposed an efficient system which used the method of analyzing iris patterns for user identification In [3] a system using iris recognition and palm vein recognition technology was proposed in order to avoid crimes in the ATM transactions. This proposed system utilizes minutiae matching algorithm for fingerprint recognition.

Each individual has unique fingerprints. A fingerprint is the pattern of ridges and valleys furrows in the fingerprint literature on the surface of a fingertip.

II. PROBLEM STATEMENT

To avoid the ATM frauds.

III. PROPOSED SYSTEM

In this system 3 vital things are to be matched i.e. 6 digits unique code, finger print and 4 digit password. In this system, a 6 digit number will be given to every user. The second thing will be the users finger print which will be detected by finger print recognition sensor. The third thing which is to be matched is the 4 digit pin code. The 4 digit pin code is the same concept which we are using nowadays for withdrawing money from ATM. The important PART of the system is fingerprint scanner. The user can store the finger print data in the module and can configure it in 1:1 or 1: N mode for identifying the person. The FP module can directly interface with 5v Microcontroller. A level converter (like MAX232) is required for interfacing with PC serial port.

Figure 1. Human Fingerprint

IV. LITERATURE SURVEY

1. Atm Client Authentication System Using Biometric Identifier &Otp" April 2014 By JaydeepShamdasani et al Int. Journal of Engineering Research and Applications www.ijera.com ISSN : 2248-9622, Vol. 4, Issue 4(Version 5), April 2014.

    In this paper we propose a design, to add more security to the current ATM systems by using biometric and GSM technology. In conventional method identification is done based on ID cards and static 4 digit password. Whereas in our purposed system, Bankers will collect the customer fingerprints and mobile number at the time of opening the accounts then only customer will be able to access ATM machine.

2. "Fingerprint Based Biometric ATM Authentication System", 2014 IJEIJ. By DhirajSunehra at International Journal of Engineering Inventions e-ISSN: 2278- 7461, p-ISSN: 2319-6491 Volume 3, Issue 11 (June 2014)

    The paper presented a prototype design of an ATM access system using finger print technology. The system consists of finger print module, DC motor, LCD display. These are
    interfaced to the PIC microcontroller. When a user registers his fingerprint to the finger print module, this is fed as input to the microcontroller.

3. "ATM Terminal Security using Fingerprint Recognition" 2013 IJAIS

    Identification and verification of a person today is a common thing; which may include door lock system, safe box and vehicle control or even at accessing bank accounts via ATM, which is necessary for securing personal information. The conventional methods like ID card verification or signature does not provide perfection and reliability. The systems employed at these places must be fast enough and robust too.
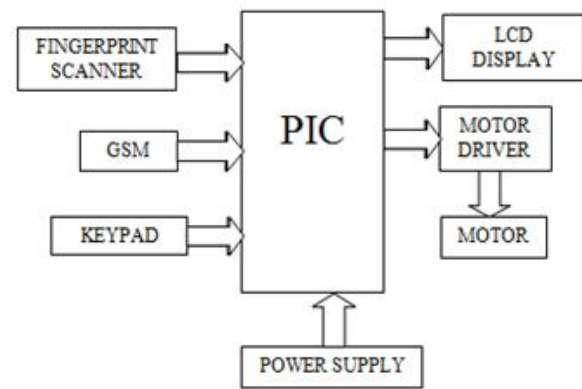
V. PROPOSED SYSTEM

Figure 2.

Figure 2 shows the fingerprint image undergoes preprocessing stages like binarization which uses fixed threshold to convert a grayscale image to a binary image and then proceeds to thinning process to reduce the thickness of all ridge edge lines to a single pixel width after which an initial code is generated, prior to the secured final code. The power supply section is required to convert AC signal to DC signal and also to reduce the amplitude of the signal. It acts as output terminal of the module has 16*2 specified bits, when gas level gets increase it displays on the LCD also it continuously provides the data from input modules. Keypad is basically used to provide the input to the microcontroller. A DC motor converts direct current electrical power into mechanical power.

VI. CONCLUSION

The use of the biometric as a password has made the ATM transaction system more reliable and secured.

In these system, bankers will collect the customer finger prints and mobile number while opening the accounts then customer only access ATM machine. The OTP concept added to the system further enhances the security and avoids the need for us to remember passwords. Moreover the system is built on embedded technology which makes it user friendly and non-invasive. Using this system the ATM terminal is secured from fire and thief attacks.

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