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Adaptive Method For Biometric Based Student Attendance System with SMS Alert

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Abstract- To identify or confirm the identity of any student, their name and signature is not enough. It requires the confirm identity of any student due to that nobody can't misuse that things which are occur in day to day life. To overcome this problem we can use fingerprint based student attendance system with SMS alert to parents. Now in this system, it includes terminal fingerprint acquisition and attendance module. It can realize automatically such functions as information acquisition of fingerprint, processing, wireless transmission, fingerprint matching and making an attendance report with SMS alert to parents.

Keywords– GSM, LCD, Student, Fingerprint, Attendance etc.

1. INTRODUCTION

Maintaining attendance is very important in all institutes for checking performance of student. There are many techniques which are used in fingerprint based student attendance system with SMS alert to parents. The technique such as using iris, palm vein technology, RFID based, Bluetooth based etc. Fingerprints are form of biometric identification which is unique as well as does not change in one's entire lifetime. It consists of two processes namely; enrolment and authentication. Fingerprint based attendance management system is one of the most advanced application in biom0etric technology. It cannot be forged easily. With the integration and use of biometric technology getting simpler, many institutions are using down the biometric road to verify the time and attendance of their students and staffs. The system also contains a GSM Modem which can be used to send the attendance information of the students automatically to

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their parents. The Embedded system using a small LCD user interface can be interfaced with the computer by using serial communication interface. The previous projects done were only the fingerprint based attendance system and a report generation. It does not have any SMS alert to the parents. This project is to send SMS alert to parents by means of GSM.

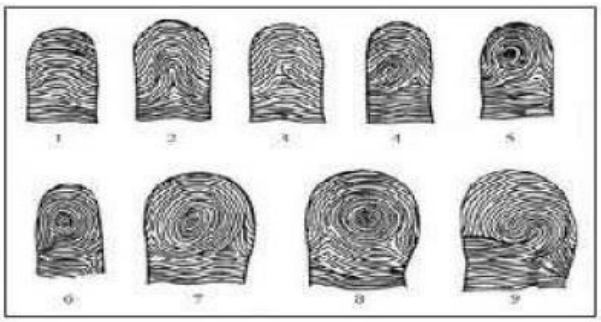

Fig 1. Fingerprint classification.

1.1 RFID based attendance system

A typical RFID system is made up of two components:

1. Tags
2. Reader

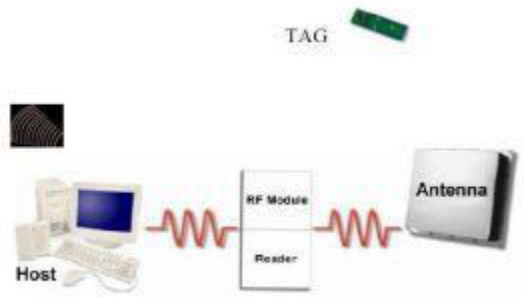

Fig no 2. Working of RFID System.

1.2 Face detection:

Detecting a face is an essence of an object detection task where object of interest in this case is faced.

1.3 Face recognition:

Face recognition is defined as process of extracting faces from scene. So system is positively

identifying a certain images

1.4 Attendance management:

This module is used to view the attendance status of student. After face detection and recognition

method, attendance is marked on server.

1.5 System description:

The system consists of a camera that captures images of classroom and sends it to images

enhancement module[3].

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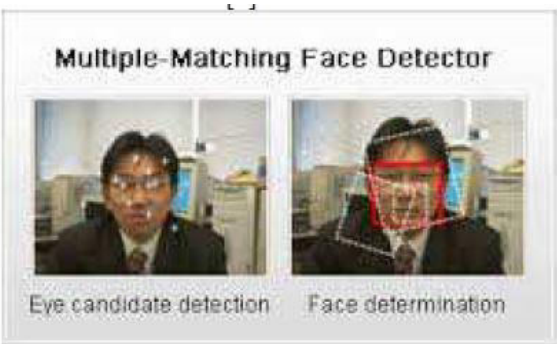

Fig.3 Face detection

1.6 Palm vein technology:

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. [5] Because of this risk, personal identification technology is used which includes Passwords, personal identification numbers and identification cards.

Fig 4. Palm on sensor

1.7 Bluetooth based attendance: To solve these problems, [6] Fujitsu developed four methods: fingerprints, faces, voice prints and palm veins. We all know the traditional way of taking attendance is by passing attendance sheet or calling student name one by one. This method is time consuming, to reduce the time automatic attendance system is developed. In this system, Bluetooth and RFID reader is used. Bluetooth is used to send the data to professor and student.

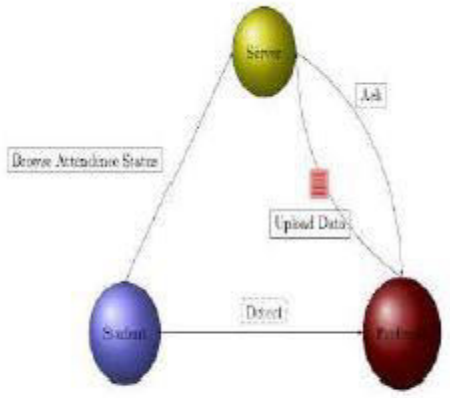

Fig 5. Working of system

2. PROPOSED SYSTEM:

The generalized block diagram below represents the fingerprint-based attendance management system

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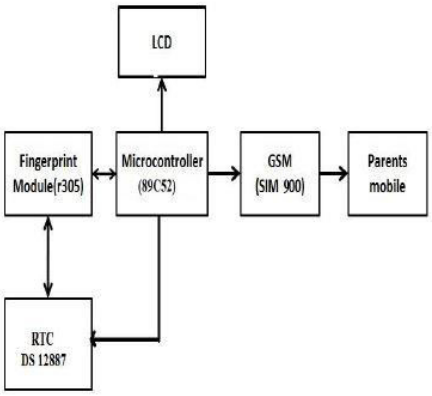

Fig 6. Generalized Block Diagram

The Fingerprint authentication has many advantages such as very high accuracy, the most economical biometric PC user authentication technique. It is one of the safest biometric authentication methods widely used. It is very easy to use. Small storage space required for the biometric template. Reducing the size of the database memory required and it is to be standardized. Fingerprint module starts to compare the results and it gives the hex codes to the microcontroller for further operations. The microcontroller starts to send the commands to GSM based on the results from the module. This system however is a cost effective simplified system that uses fingerprints for identification. The fingerprint is unique to each individual and cannot be shared. It allows students to register for lectures with ease and eliminate errors that are associated with attendance reports because the system generates reports at the end of the semester. A fingerprint scanner system has two basic jobs - it needs to get an image of the finger and it needs to determine whether the pattern of ridges and valleys in this image matches the pattern of ridges and valleys in pre-scanned images. The heart of an optical scanner is a charge coupled device (CCD)[4]. A CCD is simply an array of light-sensitive diodes called photo sites which generates an electrical signal in response to light photons. The scanning process starts when the finger is placed on a glass plate and a CCD camera takes a picture. The scanner has its own light source typically an array of light-emitting diodes to illuminate the ridges of the finger. The CCD system actually generates an inverted image of the finger with darker areas representing more reflected light. Every student has its own RFID matrix card. This card is unique for every student. When student enter in the class must scan its card of RFID reader. Then RFID reader detects its unique code and mark attendance at this student. This data is stored in computer. RFID reader and computer is connected by USB cable.

3. CONCLUSION:

The fingerprint-based attendance management system is implemented with Microsoft C# on the .NET framework and Microsoft Structured Query Language (SQL) Server 2005 as the backend. The future work may consist of creating the database of students which contain the academic details. We can send the academic details of the students periodically to the parent's mobile along with the attendance report. So in near future we can use finger vein recognition which is very unique com with the\ attendance report. So in near future we can use finger vein recognition which is very unique compared to the fingerprint authentication. The authentication can also be made as more secure by using human order for the security purpose.

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