REVIEW OF FINGERPRINT BASED ATTENDANCE SYSTEM WITH DAILY REPORT TO PARENTS VIA SMS

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ABSTRACT: **The paper provides the design method of portable fingerprint based attendance system using GSM. The system includes terminal fingerprint acquisition module and attendance module. It can realize automatically such functions as information acquisition of fingerprint, processing, and wireless transmission, fingerprint matching and making an attendance report. After taking the attendance, this system sends the attendance of every student to their parent's mobile through GSM. Attendance system facilitates access to the attendance of a particular student in a particular case. This system eliminates the need for stationary materials and personnel for keeping of the records. To improve the accuracy of fingerprint identification system for implementation of large data bases for e.g.:- of an institute or a country etc. This paper have many new algorithms have been used by example gender estimation, key based one to many matching. Using these new algorithms, Developed an identification system which is faster in implementation than any other available today in the market. Although this fingerprint identification system for student identification purpose in this paper, the matching results are so good that it could perform very well on large data-bases.**

Keywords— Finger-Print Matching, Key Matching, GSM technology, Image Matching.

I. INTRODUCTION

The paper describes the portable proxy preventing student attendance system based on Biometrics and GSM technology. The main advantage of this system is that, the attendance is marked based on students finger print hence no one can make proxy and this concept can be used in portable attendance system. The student's attendance record can be send to their parents with help of GSM technology used in the paper.

The existing conventional attendance system requires students to manually sign the attendance sheet every time they attend a class. As common as it seems, such system lacks of automation, where a number of problems may arise like problem of proxy attendance. To avoid such problems it is implementing this portable attendance system using biometric technology which can help to make attendance system automated with proxy prevention. Having a system that can automatically capture student's attendance by their finger print.

The basic function of the paper will take place via two phases:
1. Attendance through finger print technique
2. Student Attendance data send to their parents through GSM Technology.

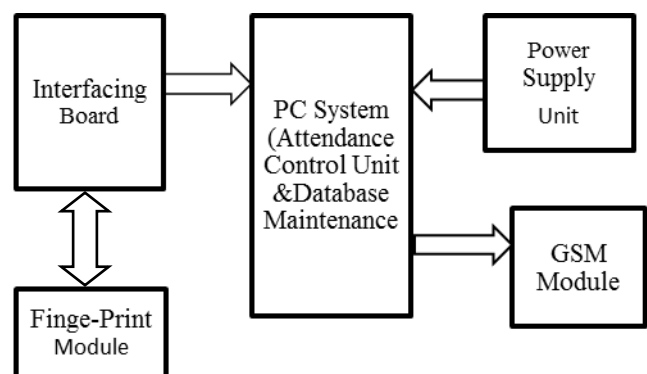**BLOCK DIAGRAM IMAGE MATCHING**

Fig 1. Block Diagram for image matching.

II. IMAGE MATCHING

numerous algorithms can be used for image matching based on the features that are extracted. in this process it has a query image given by the user that is matched with the already existing images in the database. all the images that are matched using the matching algorithm are returned as a result to the user. here in this paper it described the idea behind hierarchical fast matching algorithm and colthimatching

III. FEARTURES EXTRACTION

The efficiency is measured in terms of the number of matches founds by the algorithm. Current comparative studies asses the performance of the algorithms based on the results obtained in different criteria such as speed, sensitivity, occlusion, and others. The integrated image collecting and algorithm chip together in this paper.

There are various other kinds of student attendance management systems available like RFID based student attendance system and Zigbee based student attendance system. These systems have their own problems. This system is better because it saves time that could be used for teaching. Second is portability. Portability has its own advantage because the device could be taken to any class wherever it is scheduled.

Problem with RFID based attendance system is students have to carry RFID cards and also the RFID detectors are needed to be installed. Nonetheless, students may give proxies easily using friend's RFID card. These problems are not in this system. In this paper fingerprints is used as recognition criteria so proxies cannot be given. When portable devices are used, attendance marking will be done at any place and any time. So this student attendance system is far better to be implemented at NITR.

- Integrated image collecting and algorithm chip together
- Finger-Print reader can conduct secondary development, can be embedded into a variety of end products
- Low power consumption, low cost, small size, excellent performance.
- Professional optical technology, precise module manufacturing techniques.
- Good image processing capabilities, can successfully capture image up to resolution 500dpi
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ALGORITHM:

1. Process start
2. Select a option either registration or Attendance
3. If registration then enter all details of students / Faculty along with their fingerprints
4. If Attendance then professor has to keep his finger then only attendance for that particular lecture can start
5. Student can put their attendance
6. At the end when again professor put his / her finger then only a record of attendance can create
7. If Send option is select then attendance of students can send to their parents
8. Stop

Finding the reference point:

Reference point is very important feature in advanced matching algorithms because it provides the location of origin for marking minutiae. This device find the reference point using the algorithm as in [2]. Then it find the relative position of minutiae and estimate the orientation field of the reference point or the singular point. The technique is to extract core and delta points using Poincare Index. The value of Poincare index is 180o , −180o and 0o for a core, a delta and an ordinary point respectively. Complex filters are used to produce blur at different resolutions. Singular point (SP) or reference point is the point of maximum filter response of these filters applied on image. Complex filters, $\exp(im\theta)$, of order m (= 1 and -1) are used to produce filter response. Four level resolutions are used here: level 0, level 1, level 2, level 3. Level 3 is lowest resolution and level 0 is highest resolution. Only filters of first order are used: h = (x + iy) mg(x, y) where g(x,y) is a Gaussian defined as $g(x, y) = \exp^{-((x^2 + y^2)/2\sigma^2)}$ and m = 1, −1.

Implementation environment

The tested this algorithm on several databases like FVC2004, FVC2000 and Verifinger databases. It used a computer with 2GB RAM and 1.83 GHz Intel Core2Duo processor and software like Matlab10 and MSAccess10.

IV. FINGERPRINT ENHANCEMENT

Segmentation and Normalization:

Segmentation was performed and it generated a mask matrix which has values as 1 for ridges and 0 for background. Normalization was done with mean = 0 and variance = 1

Orientation estimation
Orientation Estimation In orientation estimation, It used block size = 3*3. Orientations are shown in figure

8.2: Orientation Image

GSM technology
Gsm/gprs module i used to establish communication between communication (gsm) is an architecture used for mobile communication in most of the countries. Global packet radio service (gprs) is an extension of gsm that enables higher data transmission rate. Gsm/gprs module consists of a gsm/gprs modem assembled together with power supply circuit and communication interfaces (like rs-232, usb, etc) for computer. The modem is the soul of such modulesconclusion

GSM/GPRS modem
GSM/GPRS MODEM is a class of wireless MODEM devices that are designed for communication of a computer with the GSM and GPRS network. It requires a SIM (Subscriber Identity Module) card just like mobile phones to activate communication with the network. Also they have IMEI (International Mobile Equipment Identity) number

Similar to mobile phones for their identification. A GSM/GPRS MODEM can perform the following operations:
1. Receive, send or delete SMS messages in a SIM.
2. Read, add, search phonebook entries of the SIM.
3. Make, Receive, or reject a voice call.

The MODEM needs AT commands, for interacting with processor or controller, which are communicated through serial communication. These commands are sent by the controller/processor. The MODEM sends back a result after it receives a command. Different AT commands supported by the MODEM can be sent by the processor/controller/computer to interact with the GSM and GPRS cellular network.

V. CONCLUSION

The idea represented in this paper can be used to implement Finger print based attendance system with daily reports to parents via SMS through GSM technology that requires extracting features of an image and matching those features with the query image features. The performance can be improved by using for efficient algorithms that might reduce the time required for matching the query image with the images existing in the database.

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