Attendance Management System for College Student using Fingerprint Scanner

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Abstract: This project uses a biometric concept to facilitate the attendance system in educational institutes it uses the most reliable way of uniquely identifying students through fingerprint reading. Such type of application is very useful in school as well as in college for daily attendance. Through this application we can keep a systematic track of student's attendance. This project enables the easy way of maintaining class attendance with fewer efforts. In this a smart way of taking attendance is done without wasting paper and time. When teacher enters the classroom, the attendance marking will start. Computer software will start the process after inputting fingerprint of teacher. It will find the Subject ID, and Current Semester using the ID of the teacher or could be set manually on the software. If teacher doesn't enter classroom, attendance marking will not start. After some time, say 20 minutes of this process, no attendance will be given because of late entrance. This time period can be increased or decreased as per requirements. Here, in this project we aim at designing a student attendance system which could effectively manage attendance of students at institutes, schools and colleges. Attendance is marked after student identification. For student identification, a fingerprint recognition based identification system is used. Fingerprints are considered to be the best and fastest method for biometric identification. They are secure to use, unique for every person and do not change in one's lifetime. Fingerprint recognition is a mature field today, but still identifying individual from a set of enrolled fingerprints is a time taking process. Although we are using this fingerprint identification system for student identification purpose in our project, the matching results are so good that it could perform very well on large databases like that of a country like India. Now a days, every new day SOFTWARE are launched in the market. In today's life Biometrics is been the most popular among people. Biometrics is the automated identification, or verification of human identity through the measurement of repeatable physiological, or behavioral characteristics. In Attendance Management System project our team got motivation from the wrong things done by the students to increase their attendance so this was making a lot of mis-confusion for the staff so to maintain this we came for a solution on this by taking attendance through their fingerprints.

Keywords: Biometric system, Finger print scanner, authentication, android mobile.

INTRODUCTION

Attendance management system uses a biometric concept to facilitate the attendance system in educational institutes. It uses the most reliable way of uniquely identifying students through fingerprint reading. Such type of application is very useful in school as well as in college for daily attendance. Through this application we can keep a systematic track of student's attendance. This project enables the easy way of maintaining class attendance with fewer efforts. In this a smart way of taking attendance is done without wasting paper and time. As now days everything is possible through a small handset so why not with the attendance also by this we can take attendance through the smart phone without any wastage of paper pen. The need of this is to get the proper attendance of the student without any fraud attendance by this we can immediately get to know about the students who are absent without wasting any time.

Biometrics technology verify identity through characteristics such as finger print, face, irises, voice etc. these techniques, which use physical data are receiving attention as personal authentication method that is more convenient than conventional methods such as id cards[1].

LITERATURE SURVEY

Attendance management is a major part of today's human life system, to take organization to better human resource practice, system and excellence , hence regular attendance are expected of all students. This smart way of taking attendance is done without wasting paper and time. When teacher enters the classroom, the attendance marking will start. Computer software will start the process after inputting fingerprint of teacher. It will find the Subject ID In and Current Semester using the ID of the teacher or could be set manually on the software. If teacher doesn't enter classroom, attendance marking will not start. After some time, say 20 minutes of this process, no attendance will be given because of late entrance. This time period can be increased or decreased as per requirements. This will help the

lecturer to keep track of their student; it's an easy way of keeping an eye on the students who don't attendant the college. As now days everything is possible through a small handset so why not with the attendance also by this we can take attendance through the smart phone without any wastage of paper pen. The need of this is to get the proper attendance of the student without any fraud attendance by this we can immediately get to know about the defaulters list without wasting any time.[2]

METHODOLOGY

Information of students stored is generally paper work which may cause sometime errors and to take attendance on this paper takes a lot of time. This system developed will reduce the paper work and avoid errors. By keeping the track of record through fingerprint we can generate reports weekly, without any wastage of paper and time. As the attendance is maintained in registers and computers of the college it has been tough to maintain it or carry the registers every time. Instead this software can keep it for long and even we can use it immediately when we need it. Proposed real time computer vision algorithms in automatic attendance management systems using computer vision and image of the fingerprint algorithms. The system eliminates student identification such has calling students name, or checking respective identification cards.

MODULES

Firstly login screen appears. Where the teacher has to fill the detail, systems identifies whether the user ID & password matches or no. Procedures are as follows:

It has 3 main Characters
1. Enrolment module.
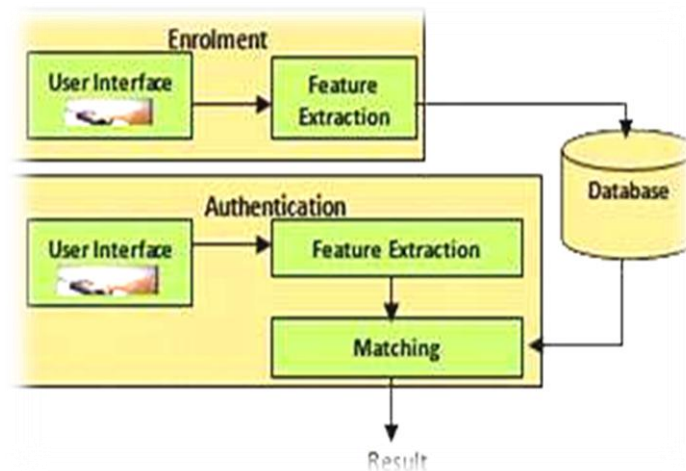2. Authentication module.
3. Database module.

Figure 1 Architecture diagram.

1.   Enrolment Module:
This module deals with the enrolment system of the student and teacher. The task of enrollment module is to enroll users and their fingerprint into the system database. During this the fingerprint and other bio data of the user is taken and the unique features are extracted from the fingerprint scanner and the stored data in the database as a template for the subject along with the user's ID. Even the staffs data is stored which include their ID, subject, sex, level, phone number.

2.   Authentication Module:
This module deals with the authentication system of the students. The task of this module is to validate the identity of the person who intends to access the system. Student to be authenticated indicates his\her identity and places this\her fingerprint scanner. The fingerprint images captured is enhanced and thinned at the image processing stage, and at the feature stage, the biometric template is extracted. Then the matching of fingerprint is done, if the fingerprint is matched the authentication is done, if not then the admin has to register that students data in the stored data.

3.   The Database :

This database system consists of tables that stores records, each of which corresponds to an authorized person that has access to the systems. Each record has the data stored already. This data consist of fingerprint and the users name and other information.[3]

ATTENDANCE MANAGEMENT FRAMEWORK

Technical

a.   Hardware Requirement:

Table 1

Name	Details
Android mobile	To take attendance
Ram 4GB	To store data
Fingerprint scanner	Scans finger

b.   Software Requirement:

Table 2

Name	Details
Android Studio	To create Android app
Jdk	To create

CONCLUSION

In this paper, we have presented a fingerprint based attendance management system. This system consists of fingerprint recognition system based on minutiae points. The minutiae points are the fingerprint which is already stored in the database. These minutiae points get matched during the registration and verification processes, if the match if not verified the person has to register again. The developed project system is very helpful in saving time, paper. It will reduce the manual work, which used to create lot of confusion and required a lot of place to keep the registers. Fingerprint recognition is universally applied. Can be used in industries, schools offices etc. It will be very useful in institute and colleges as it will save the time of the teachers which can give the teachers more time in teaching .even the teachers won't have load of carrying registers in their hand while going to different classes.

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