SURVEY - STUDENT ATTENDANCE MANAGEMENT SYSTEM

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ABSTRACT

Whole world and managements of Educational Institutions' are worried about consistency of student attendance, which affects in their complete academic performance and finally affects the development of education in students'. Presently the conventional methods for taking attendance is calling name their name/roll no or by signing on a paper, which practically time consuming and less secure also since there are many chance of proxy attendance. Hence, there is a necessity of a computer-based student attendance supervision system which will assist the faculty for preserving attendance. The paper reviews several computerized attendance supervision system which is being developed by using different techniques.

Keyword: - *Attendance Management System, RFID, Biometrics, Fingerprint, QR Code, Face Recognition, Iris recognition*

1. INTRODUCTION

Empirical evidences have shown that there is a significant correlation between students' attendances and their academic performances [1]. There was also a statement stated that the students who have poor attendance records will generally link to poor retention [2]. This is also agreed by Mazza and Dimitrova where they both claimed that the students' attendances to the course may indicate their behaviours towards the subject where it can be used to judge their tendency and commitment to the course [3] .Attendances of every students are being maintained by every school, college and university. Faculty has to sustain proper record of the attendance. The manual attendance record system is not efficient and requires more time to arrange record and to calculate the mediocre attendance of each student. Hence there is a necessity of a system that will resolve the problem of student record arrangement and student average attendance calculation. The proposed system should store the absent and present student's attendance information in electronic format so that management of attendance becomes easy.

Various Automated Systems are:

A. Fingerprint based Attendance System
B. Mobile Based Attendance System
C. RFID based Attendance System
D. Iris Based Attendance System
E. Face Recognition based Attendance System

2. AUTOMATED STUDENT ATTENDANCE SYSTEM

While the move towards the digital era is being fast-tracked every day, biometrics technologies have begun to affect people's daily life. Biometrics technologies verify individuality through characteristics such as fingerprints, faces,

irises, retinal patterns, palm prints, voice, etc. These methods which use physical data, are receiving attention as a personal verification method that is more appropriate than conventional. [7]

It is important to identify the correct tools to use in marketable and scientific studies. Barcode readers, Radio Frequency Identification (RFID) system, Bluetooth and NFC are just a few of the examples of such tools [4]. They were expensive when first announced and therefore those were used for only limited purpose. Today, these tools have become cheaper and they can be used in various applications, such as, identification, tracking, positioning, etc. Barcodes and their readers are greatly used in markets to identify the sales product.

2.1 Fingerprint based Attendance System

The students mark their presence by placing registered finger on the fingerprint scanner.In this case problem is with the fingerprint device, because it gets damaged very recurrently. Again for marking attendance student has to stand in queue and has to wait for turn for the fingerprint device.

In 2012, Josphineleela.R and Dr.M.Ramakrishnan proposed one system, in which attendance is being taken using fingerprint. This system can be used for student and staff. In this system the fingerprint is taken as an response for attendance management and it is organized into the subsequent modules Pre-processing, Minutiae Extraction, Reconstruction, Fingerprint Recognition, Report generation. In this system, novel fingerprint reconstruction algorithm is used. This new system reconstructs the phase image from Minutiae. [6]

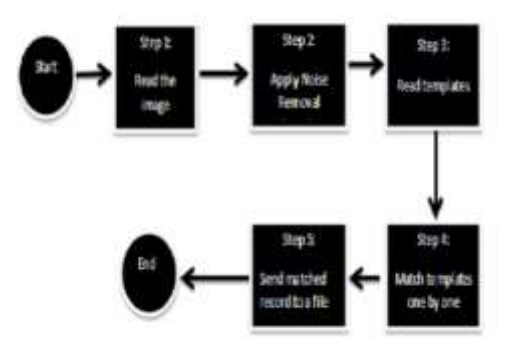


Fig -1: Flow graph of Fingerprint Based Attendance System

2.2 Mobile Based Attendance System

In [8], student information tracking system is being developed in Android to manage student attendance on mobile. This system allows teachers to take attendance, edit attendance, view student's bunks, send important documents in pdf format such as exam time table, question bank etc. and also helps teaches to inform students about the events that college is going to organize. This system is mobile independent. This system can be installed on any mobile which is having android as OS. The Problem of this system is it is developed on for Android platform so it cannot run on an iOS or any other mobile OS.

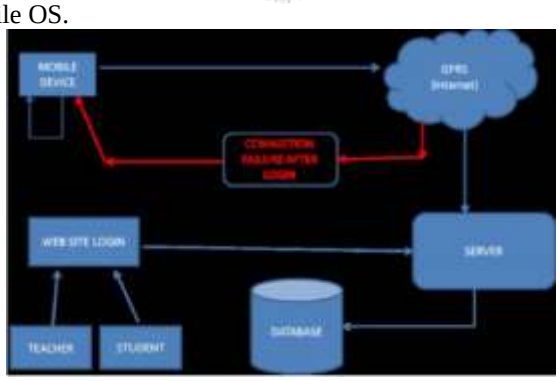


Fig -2: Architecture of Mobile Based Attendance System

2.3 RFID based Attendance System

In this system, attendance of a student is marked while entering in a class. The reader is placed at the entrance of a classroom, labs. Each time when student enters a room for lectures RFID tag is scanned and while leaving the respective class again. After scanning the tag, the tag id is being verified from the database at the backend.

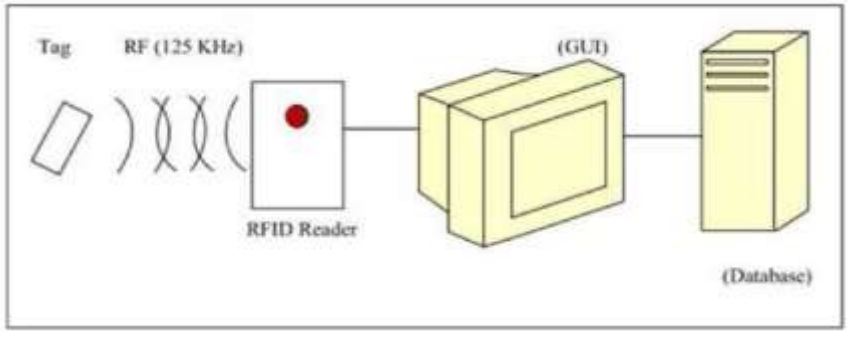


Fig -3: RFID system Operational principle

BIS [5] present a commercial system based on RFID for attendance management for schools and colleges. The system can send SMS and email alert to parents/guardians of the students automatically. The student will register at the gate by touching RFID device with their RFID tag and send the data to BISAM server in the school. The server will process the attendance data and send a SMS to the parents/guardians of the absentee student through BISAM SMS gateway server. The system also has Time Manager Software for managing employees' attendance and HR related functionalities. The problem in this exploration is that verification is not done. So proxy attendance may be marked.

2.4 Iris Based Attendance System

In 2010, Seifedine Kadry and Mohamad Smaili have proposed one system. In this paper, a wireless iris recognition attendance management system is designed and implemented using Daugman's algorithm (Daugman, 2003). This system is based on biometrics and wireless system which solves the difficulty of spurious presence and the trouble of laying the corresponding network. It can make the users' attendances more easily and effectively. In this paper, Radio Frequency wireless technique is being used for employee ID. It is too expensive. Main problem in this system is it is too expensive and it is very short distance as well as for every class student has to stand in long line of iris scanner for marking presence. [7]

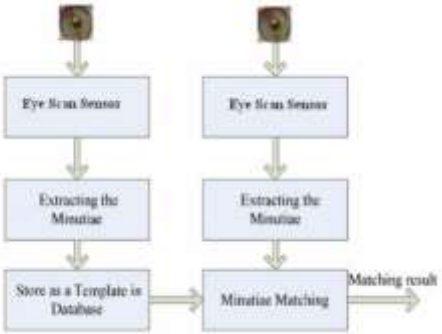


Fig -4: Iris recognition verifying process

2.5 Face Recognition based Attendance System

In [9], Student attendance is being taken using one of the bio-metric technique. i.e. Face Recognition. Since Iric and Fingerprints are very short-distance biometrics but our application requires a person to be at a medium distance from the camera, which is fixed at the centre of the classroom near the black board, so that the view of the camera covers the entire classroom. The model is developed with the aid of real time OpenCV library. The proposed system comprised of using the Viola Jones algorithm for detecting the human faces and then the detected face is resized to the required size, this resized face is further processed by using linear stretch contrast enhancement and finally it is recognized using a simple PCA / LDA. Once acknowledgment is done, automatically attendance will be updated in an Excel Sheet along with his name, date and time. An html file is automatically updated by our system so that a remote authenticated user can access the attendance file. The main problem in this system is recognized face has to be compared with all the entries stored in the database.

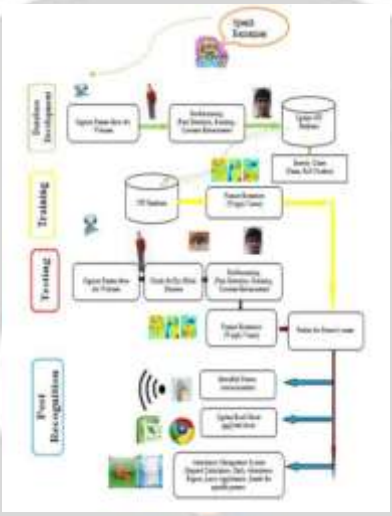


Fig -5: Face Recognition based Attendance System

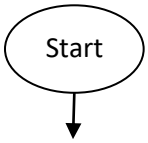
3. PROPOSED SYSTEM

The proposed System is a generic application design in Android using Quick Response Code/Barcode to automate and enhance the manual work of recording and reporting in real time. A Log is maintained in the database of students.

In *Fig.6*, The proposed system has 3 options for login as teacher, student and administrator. In teacher login, teacher generates the QR Code. Information in image is of Subject, No. of Hours, and Class.

In Student login, student logins with his login details. After successful login, student scans the QR Code generated by the teacher. After Scanning, at the backend student attendance will be marked for that particular subject on no of hours of lectures student has attended.

In Administrator login, admin can register new student with new id and password. Also admin can register new teacher with id and password. Viewing of all attendance of each class is given to the admin.



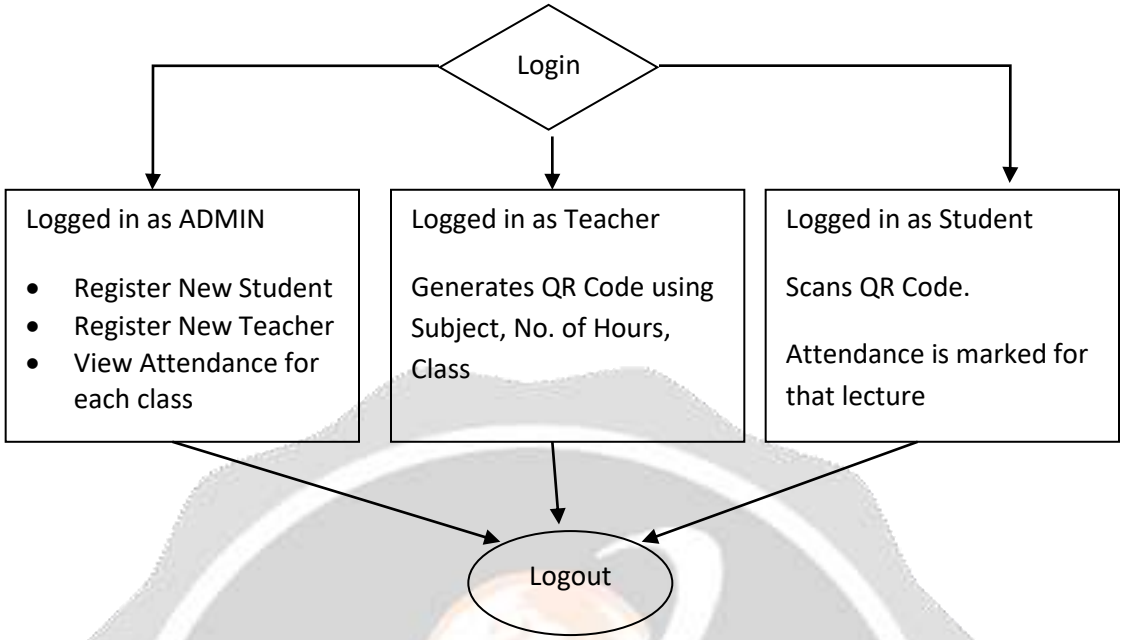


Fig -6: Proposed System on Mobile Based Attendance System

4. CONCLUSION

This paper presents an analysis of different technologies which are used for attendance making system. Conventionally student attendance is taken by professor and it is waste of much time of lecture. Too much of proxy attendance can be recorded in manual system. This can be replaced with computerized system i.e. Mobile Based Attendance System, using Android OS and Quick Response Code. The same android application can be used for much purpose in future such as for payments in canteen, issuing book from library by generating static QR code for students.

5. ACKNOWLEDGEMENT

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