Smart Attendance System using NFC and Face Recognition

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Abstract - *Attendances of every student are maintained by every school, college, universities offices. The attendance system tracks attendance of particular person in industries, schools, universities and office places. The manual record system is not much efficient and requires more time. This way has many drawbacks. There is requirement of change in system. The technology based attendance system such as smartcards and bio-metrics are proposed which reduces human involvement and errors. We are implementing a system using NFC and face recognition for the devices. Which reliably distinguish between different people and, thus apply the attendance.*

Key Words: NFC (Near Field Communication), Face Recognition, Arduino, Signal Processing, Matcher, Storage, Transmission, Bio-metrics

1.INTRODUCTION

Attendances of every student are being maintained by every school, college and university. Faculty has to maintain proper record for the attendance. Attendance system is a system that is used to track the attendance of any student or teacher's and is applied in the industries, schools, universities or working places. The traditional attendance recording system is inefficient due to high expenditure of time for averaging attendance for each student. The traditional way for taking attendance has drawback. Many of the universities and colleges uses this kind of traditional attendance system. As this method is used, many students are helping their friends by signing in their attendance in case of their absent in the institute.

Hence a new technical system need to be developed which will help in solving the problems related to the calculation of average attendance and maintaining record for each student. The technology-based attendance system such as smart cards and biometrics based attendance system reduced human involvement and errors.

2. LITERATURE SURVEY

In order to overcome the inefficient traditional way of attendance system we develop a efficient technical system.

The faculty needs to take the attendance once again in case of the loss in attendance sheet and therefore absent students gets an opportunity to mark their fake presence in new attendance sheet. To avoid such things we are implementing technology based attendance systems which will store data permanently and with great accuracy.

There are many type's old electronic based attendance applications like Computerized based attendance system, Bluetooth based, Mobile based attendance system. All those having their advantages and disadvantages. Automated attendance system is a very good example of automation of modern era. It is the best replacement to bulky, time consuming manually fed attendance system. This system is not only used for recording attendance of official personnel but is also used for security purposes. There are various automated attendance systems available in the market. Few examples of these automated attendance systems include biometric attendance system, punch card attendance system, swipe card attendance system etc. To overcome some problems related with these systems We are combining to techniques that are Card swap and Face recognition. It maintains the records in a large database instead of conventional method of maintaining register which further simplifies the process of searching for a particular record. The system helps the faculty to easily find out defaulters in a single click.

3. EXISTING SYSTEM

The attendance system which can take attendance using Bluetooth, in this project, attendance is being taken using mobile phone. Application software is installed in lecturer's mobile phone enables it to query student's mobile phone via Bluetooth connection and through transfer of student's mobile telephone Media Access Control (MAC) addresses to the lecturer's mobile telephone, presence of the student can be confirmed.

4. PROPOSED SYSTEM

A desktop application developed, in which all the list of registered students in a particular course will be displayed when the lecturer start the application. The attendance is marked against the name of the students that are present, and then attendance is marked onto the web portal according to their presence.

We are implementing system using NFC and Face recognition. NFC stands for Near Field Communication which is a wireless communication interface for the devices that equipped with NFC. Face recognition which reliably distinguishes one person from another or used to recognized the identity. They have five subsystems: data collection, signal process, matcher, storage and transmission.

Steps in proposed system:

1. Students will mark his attendance using face recognition on gate.

2. Then he/she will use own NFC card to mark his attendance in classroom.

3. Weekly/Monthly report of attendance will be generated.

4. Marks and attendance along with comments will be sent to parent application.

5. Teachers can view student information on web portal.

6. Students can able to purchase any food items at canteen using NFC card.

7. Also able to purchase Stationary items.

4.1 HARDWARE REQUIREMENTS
- Arduino
- NFC Module

4.2 SOFTWARE REQUIREMENTS
- Net Framework (3.5 or more)
- MSSQL (2008/10/12)
- Android studio 2.1.1
- JDK 1.7/1.8
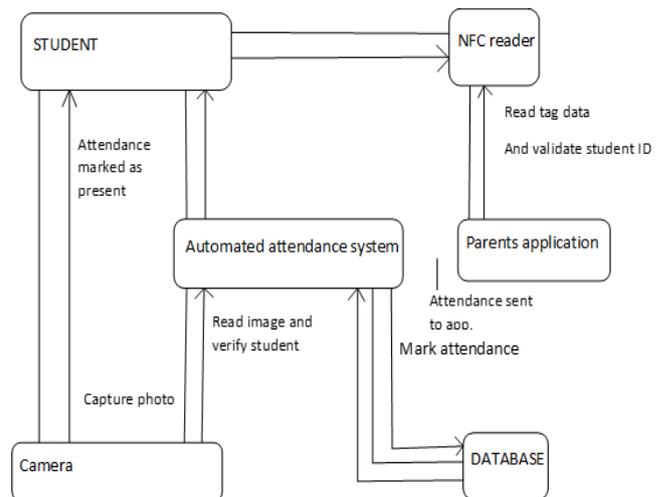
Fig -1: Architecture Diagram

5. CONCLUSIONS

This proposed system gives automated attendance of student's via NFC and Face Recognition. Typically students attendance is marked by the lecturer manually which spends a lot of time. Also amount of proxies gets recorded in manual system. NFC will mark the attendance robotically when student's card is passed through the reader and student is enters the class. While face recognition will assist in validating student and marking the attendance of that individual student ensuring avoidance of proxies.

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