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Android Based Smart Attendance System using QR Code

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ABSTRACT: Smartphones are becoming more preferred companions to users than desktops or notebooks. Knowing that Smartphones are most popular with users at the age around 26, using Smartphones to speed up the process of taking attendance by university instructors would save lecturing time and hence enhance the educational process. This paper proposes a system that is based on a QR code, which is being displayed for students during or at the beginning of each lecture. The students will need to scan the code in order to confirm their attendance. The paper explains the high level implementation details of the proposed system. It also discusses how the system verifies student identity to eliminate false registrations.

This application, once installed can be used to download the students list from a designated web server. Based on the downloaded list of students, the device will then act like a scanner to scan each of the student cards one by one to confirm and verify the student's presence. The device's camera will be used as a sensor that will read the QR code printed on the students' cards. The updated attendance list is then uploaded to an online database and can also be saved as a file to be transferred to a PC later on. This system will help to eliminate the current problems, while also promoting a paperless environment at the same time. Since this application can be deployed on lecturers' own existing Android devices, no additional hardware cost is required.

I. INTRODUCTION

In most educational institutions, participation of students in learning process is regarded as a vital exercise for allowing knowledge transfer. This signifies the importance of having students to attend the scheduled lectures and classes. Conventional methods for recording student's attendance are still adopted by most colleges. One common method is by having students to manually sign the attendance sheet, which is typically passed around the classroom while a lecturer is giving the lecture. This approach could undoubtedly allow the students to cheat about their attendance, where a student may sign for an absent student. Besides, such attendance sheet could easily be misplaced or lost. A stricter approach especially to prevent students cheating about their attendance is additionally tedious, where a lecturer calls out the individual names from the students list and validate the presence of every single student. Such manual methods of taking students attendance have been proven to be difficult and time consuming. Thus, there is a need for a semi-automated system that would eliminate all of these troubles.

II. PROBLEM STATEMENT

In past day's student mark their attendance on paper but sometimes there are chances of losing the paper. In that case we cannot calculate the attendance of students. So to overcome these issues we implement the system that will hide all student information (identity card) inside the QR Code .So that when student will scan that QR Code at that time ,date and time of scanning QR Code will be stored in database.



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III. LITERATURE REVIEW

Paper Name: Bluetooth Based Attendance Management System

Author Name: Vishal Bhalla, Tapodhan Singla, Ankit Gahlot, Vijay Gupta

Bluetooth Smart is a wireless technology aimed at innovative applications in the healthcare, fitness, beacons, security, and home entertainment industries. The technology makes use of electronic tags to facilitate automatic wireless identification, with a Bluetooth Smart enabled device. We are attempting to solve the problem of attendance monitoring using a Bluetooth Smart based system in this paper. This application of Bluetooth Smart to student attendance improves the time taken during manual attendance and human errors and provides administrators the statistics of attendance scores for use in further managerial decisions.

Paper Name: Online Attendance Management System Using RFID with Object Counter

Author Name: Ankita Agrawal and Ashish Bansal

Educational institutions proprietors in our country and the complete world are concerned about regularity of student attendance. Student taken as a whole academic performance is affected by it. The predictable method of taking attendance by calling names or signing on paper is extremely time consuming, and hence inefficient. Radio Frequency Identification (RFID) based attendance system is one of the answers to address this problem. A system that can automatically capture student's attendance by flashing their student card at the RFID reader and save all the mentioned difficulties. A system that has been built using the web-based applications such as JSP, MySQL and Apache to cater the recording and reporting of the students' attendances. NetBeans IDE 6.1 is used for developing the overall system. We have proposed the system in this paper using C#. Microsoft Visual Studio is used for the system designing. Also, the issue related to fake /false attendance from beginning to end the RFID system has been addressed, we eliminate it by using a special object counter for the leader count.

Paper Name :Fingerprint Based Student Attendance System Using GSM

Author name: Pallavi Verma1, Namit Gupta

In this paper provides the design method of portable fingerprint based student 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 class. This system eliminates the need for stationary materials and personnel for the keeping of records.

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IV. SYSTEM ARCHITECTURE

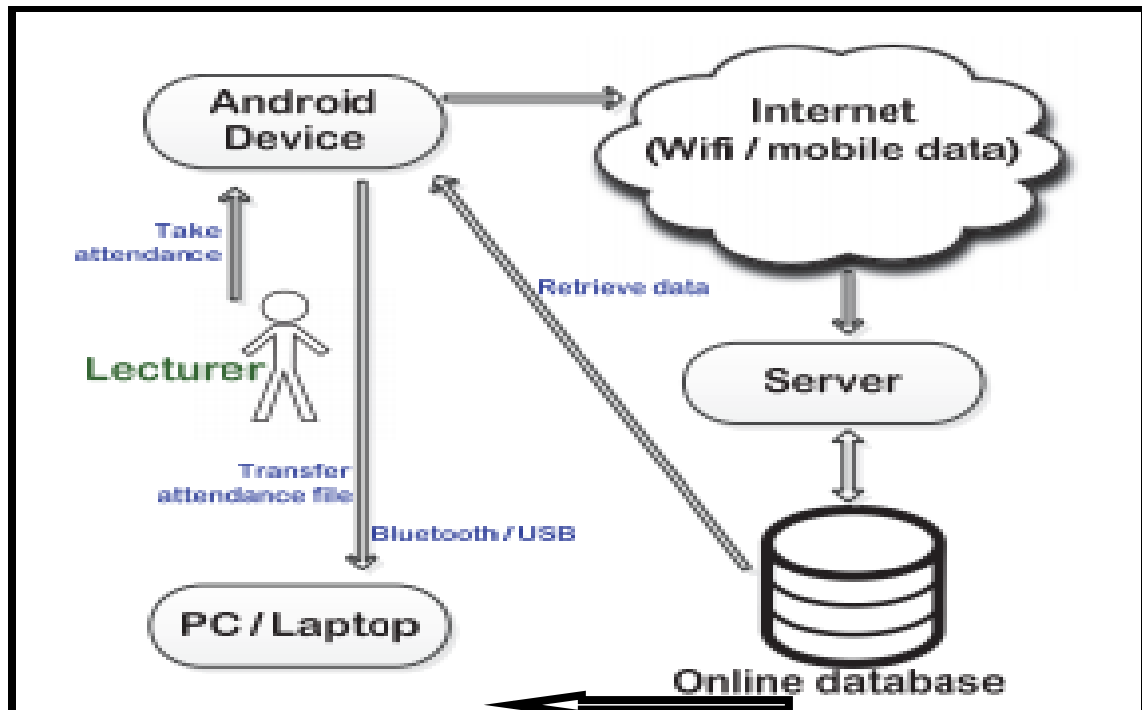


Fig: System Architecture

V. ARCHITECTURE EXPLANATION

In this system architecture there are three modules Students, Admin and teacher. In this system student information will hide in QR Code, when student will scan QR Code at that time student attendance will automatically store in database and at the end students attendance will be calculated and send it to teacher for analysis.

VI. PROPOSED SYSTEM

To develop a portable attendance system equipped with an online database, especially to prevent data loss as well as to promote paperless and a greener environment. Besides that, the application will help to reduce time being wasted, leading to a higher learning productivity in class.

In this system we are providing QR Code for student identity card so when student will scan that QR Code all his/her information will be stored in database and at month end his/her attendance will be calculated and send to teacher for analysis.

Modules:

- Student
- Admin
- Teacher



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1. Student:

The user will perform following functions:

- Registration ()
- Login ()
- Scan QR Code ()

2 Admin:

The system will perform following functions:

- Store users details in database ()
- Calculate data of each student at the month end()

3. Teacher:

- Analyse all students attendance record()

HARDWARE REQUIREMENT

- | | | |
|-------------|---|-------------------------------|
| • System | : | Intel I3 Processor and above. |
| • Hard Disk | : | 20 GB. |
| • Monitor | : | 15 VGA Colour. |
| • Ram | : | 4 GB. |
| • Mobile | : | ANDROID |

VII. IMPLEMENTATION MODEL

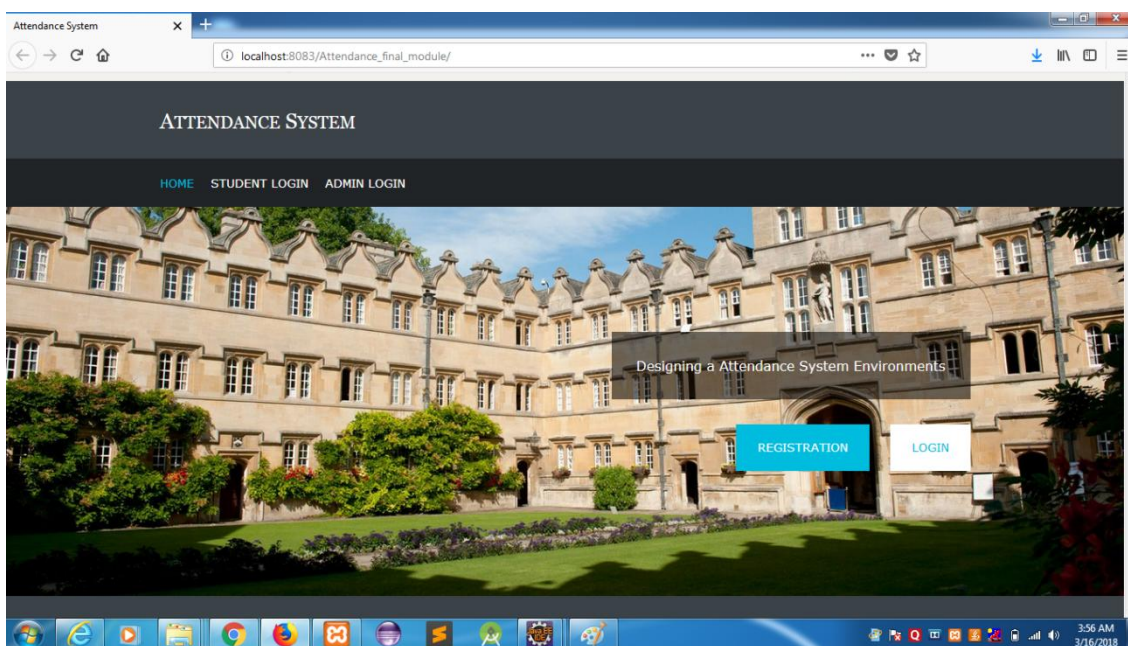


Fig. Home Page(WEB)

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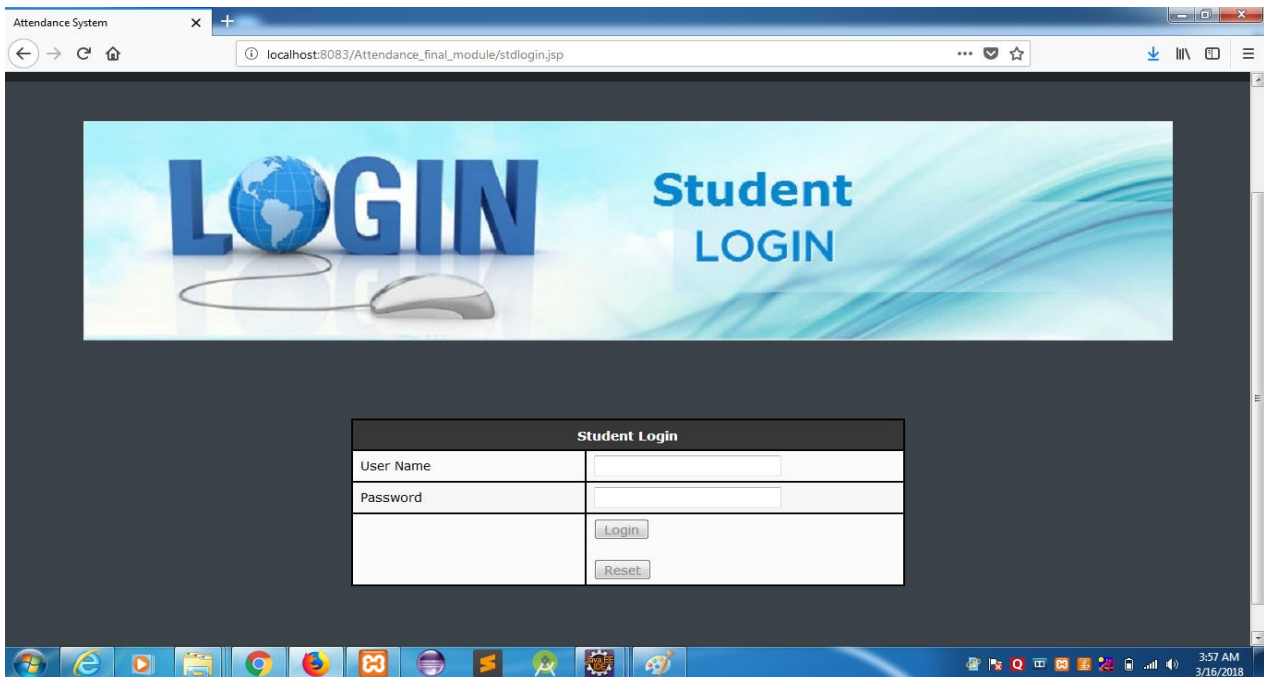


Fig.Student Login(WEB)





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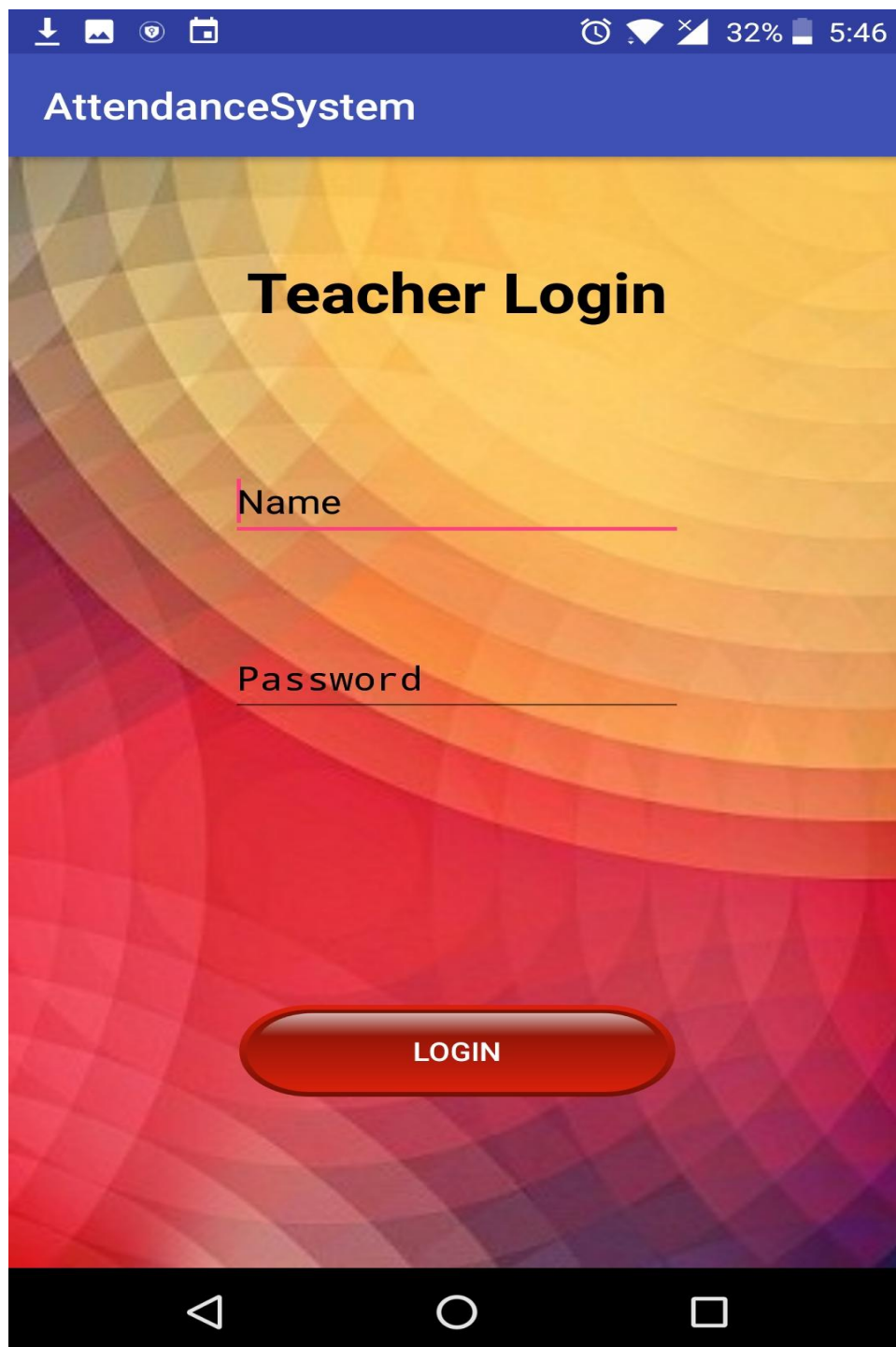


Fig. Teacher Login (Android App.)



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VIII. ADVANTAGES

- Less time consuming.
- Minimal hardware requirement
- Enhancing the mobility aspect of the existing attendance systems.
- Smart and Paperless work.

IX. APPLICATION

- School
- College
- University
- Small Scale Organization
- Large Scale Organization

X. CONCLUSION AND FUTURE SCOPE

In recording student attendance, conventional methods are still adopted in some institutions, where the instructors call out the student names one by one or by taking signature from each student to determine their presence. Nowadays, better methods are also employed, i.e. by relying on a system to record the attendance of students in semi-auto manner, such systems are absolutely excellent as a solution to existing problems, but one obvious drawback is the additional cost of hardware and maintenance. Hence, it was our target to develop an attendance system that will require minimal hardware cost, setup and maintenance. i.e. by having the application to run on the instructor's existing Android mobile device. Besides that, to prevent data loss, an online database will be used especially to store the recorded student's attendance. The system was successfully developed by following the client-server framework. A complete design of the system was created first, followed by the actual implementation of the system both on the server and Android device. The development was finalized with the system testing on the overall system.

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