# AUTOMATIC ATTENDANCE MONITORING SYSTEM

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*Abstract*— **In most of the educational institutions, attendance taking as well as maintaining its records is a tedious task when it has to be done on the daily basis. Managing each and every student's attendance record on regular basis consumes lot of time and is a hectic work which is prone to mistakes as it is done manually. So we have come up with a new idea by developing efficient software. Automatic Attendance Monitoring System is basically a twofold application such as android for the user interface and asp.net as an admin interface. As most of the work in a college administration is online, the automatic attendance will be a new step towards any developing institution. In this paper we propose a system in which the whole process of taking attendance and maintaining its records in an academic institute is automated.**

*Keywords*— **Student attendance, Android, Educational institute**

## I. INTRODUCTION

The conventional way of taking attendance is the generic method of calling roll numbers to mark attendance of students. This method of marking attendance is very tedious, time consuming as well as cumbersome. There are many technologies like RFID, Bluetooth and biometric systems [1] [2] [3] that supports the idea data entry in attendance system. These systems bear high cost as well as maintenance resulting in making them complex to use. Android apps are pretty much generic these days and can be installed and used easily. An efficient software is designed by the name "Automatic Attendance Monitoring System" which is a twofold application developed for attendance maintenance in educational institutions. This system will help in evaluating attendance and eligibility criteria of a student. As most of the work in a college administration is online, the Automatic Attendance Monitoring System will be a new step towards any developing institution. In this paper, we propose a system that automates the whole process of taking attendance and maintaining its records in an academic institute. The first part

of the project involves android application development called as automatic attendance application which acts as the user interface for the faculty who does takes attendance, views attendance etc. The attendance taken will be stored in the device's database which will be sent to the database of the college later using internet connection. The second part of the project involves porting the attendance taken in the cell phone to database of college which is maintained by the admin. An admin is the person provides functionalities like adding the student information, faculty information, adding time table, all the subject codes, assigning those subjects to the particular lecturer and maintaining the database. These task performed by the admin are done using an asp.net application. This gives an attractive graphical user interface to the admin.

## II. LITERATURE SURVEY

Different principles and technologies have been employed to effectively maintain the attendance of the students. The following section gives the information about the literature carried out and their features abbreviated below.

### 2.1 Existing systems

The study of existing system helps for a new system to be developed[4]. Many student attendance management systems have been developed over past few years. Different types of technologies includes thumb impression technique, where in the student has to match his thumb impression on the biometrics [2] and thus the attendance will be marked present else absent. If the student is having scar on his/her thumb, then the finger print technique fails [6][7][8]. In [5] author describes about the record based technique in which each lecturer has to face many problems like maintaining the register, time will be wasted while managing the record of each student manually.

In [3] the author describes about a smart, location based attendance tracking system using android application where in the location of an organization has a specific location which can be determined by the GPS. Then each student's location

can be determined by the GPS using smart phone. If the registered smart phone is in the specified location then attendance of that student is marked present else absent[1]. But the drawback of this system is that it can be easily malfunctioned by giving someone your phone
.

### III. Proposed methodology

The proposed Automatic Attendance Monitoring System is blend of android and asp.net. The Fig. 1 shows flow of data of proposed methodology. There are several features of this application over the existing ones making it an efficient attendance management system. The features are like a lecturer would be able to take attendance on the app which replaces the traditional way of taking the attendance. It is an android application which is used by a faculty provided with a user id and a password thus securing security issues. The application will provide fields of taking attendance, report generation of students on monthly basis as well as for the whole semester. This application will send intimations to the student's parent about student's eligibility for a certain test or exam. The application will have separate pages maintained for each class with a specific branch, semester and division which automatically opens up the student list.
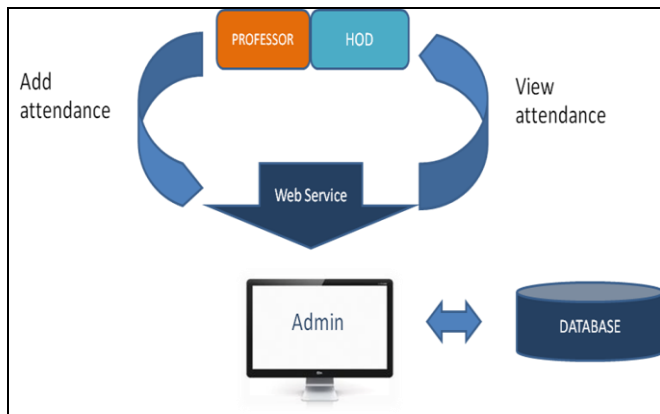


Fig. 1 : Flow of data

As per rules mentioned by any institution, the faculty will be able to look at report generated by software which shows eligibility, number of classes attended and number of classes missed for a particular subject. The report will show graph of a particular student in a systematic and efficient way. The project is time efficient because the calculations of eligibility criteria are automatically made at the end of every month or as per user requirement which saves faculty time. The software also generates intimations according to the reports generated and is sent to students on regular bases. The attendance taken by faculty online is to be transferred to institution machines for records to be maintained on regular basis. In case if the student misses any class providing the appropriate reason, the concerned faculty or the responsible authority is able to alter the database of the student.

**Advantages of Proposed System over traditional method**

- **No paper work:** since the attendance is taken online, there is any hardcopy required for any kind of data maintenance.

- **Less human efforts**: This proposed project is a self sustainable project that would calculate all the information by calculating eligibility and having effective data interpretation techniques to make end user comfortable.

- **Efficiency:** Due to less human intervention, retrieval and storage of data is less cumbersome and data is maintained efficiently.

- **User-friendly**: The above facts mentioned along with simple but attractive front end would make it user-friendly. Thus making it a revolution in the field of education in this project we use the Android studio for the faculty user interface. Visual studio is the user interface for the admin to interact with the database.

#### 3.1 FACULTY INTERFACE

There are 4 modules in this section; They are: Take attendance, manage students, view attendance and Logout.

- **Take attendance**

Initially all student details are entered into database by admin. The faculty once logged in into their android application should choose take attendance module to take attendance. After choosing this icon, a list of students will be displayed. The faculty who will tick mark for a particular student, that particular student is considered to be absent. By default, all the students are present for the class. The attendance submitted by the faculty member gets stored in the database.

- **Modify Students**

The 'modify student' module is used by faculty to modify and manage the information of the student. This field considers the information of a student such as student name, USN and phone number. Then by clicking ADD button, information will be stored in the database of cell to take the attendance.

• **View Attendance**

This is another module selected by faculty to view the attendance taken. It displays faculty name, subject code, total number of classes taken. It also displays information of USN, number of classes attended and missed by the student. Thus it gives complete information about the student.

• **Logout**

This field is used to logout the application once the work is completed.

### 3.2 Admin interface

In our project, we are making use of visual studio 2010 for the storage of database of Attendance system. It is the user interface for admin in the desktop where the work of admin mainly contains three parts namely addition of student database, removal of data and viewing of data from the database.

The login here is two fold; The first part is admin, who is the actual user of the database storage through his password and he has also got an option of resetting it. Another login is for faculty usage, which includes faculty ID and password to login. This login of the faculty is used only in the case of failure of android login in the smart phone. After the successful login, the system displays eleven modules, each performing their respective function that helps for database storage.

The following are the detailed description of important modules of admin interface:

- About Developers: This page gives the information about developers of the system.

- About Project: This gives the brief information about the project which can also be termed as abstract of the project.

- Department: Department module consists of two fields

  o Add department: Here name of the department can be added to the database by entering the department name, head of the department(HOD), HOD contact number, department ID.

  o Remove department: Whenever in an institute, a department is closed, the admin can remove that department. Remove department field is used to remove the name of the department from the database. Once the information is added or deleted, the changes are immediately displayed in a table format.

- Class: It shows different semester classes in a department. For viewing a class in a department, we need to enter department ID and submit the information. If we want to add or remove a class, there is a provision available for it. They are:

  o Add class: Once "Add class" is selected, new page pops up asking for branch ID, class name and class ID which gets stored in the database when submitted.

  o Remove class: If the admin choses to remove a class as it might not be existing due to some reason, the existing classes may be removed.

- Subject: Subject module is used to view all the subjects for a class by entering the class ID. Subject module has two fields and they are

  o Add subject: In this field, the admin enters class ID, subject name and subject ID to store into the database.

  o Remove subject: The existing subjects can be removed from the database using this field.

- Faculty: Faculty module is used to view the faculty information by entering faculty ID. After entering faculty Id, the same page displays the faculty name for the given ID along with their password and contact number. The two more fields of faculty module are :

  o Add faculty: Any faculty name can be added using this field.

  o Remove faculty: Whenever any faculty resigns from an institute, the existing faculty name from the database can be removed.

- Student: Student module is used to store student information into the database that contains student ID, student name, phone number, parent phone number and e-mail ID. Here we have an extra provision of choosing a file directly from desktop to import it. After all the information is stored, it is displayed on the same page in a table format.

- Faculty assignment : In this module we assign faculty by entering faculty ID, branch ID, class ID, subject ID into the database. Here if we want to view a faculty, we have an extra field of entering faculty ID.

- Student assignment : In this module, the admin is going to enter student information by entering branch ID, class ID, student ID and counselor ID. View students is an extra field provided here by entering branch ID and class ID of a particular student.

- Time table: It gives the overview of the classes taken according to the time table.Here the time table will be added by the admin. According to time table the faculty engages the classand then takes the attendance of a particular student.

## IV. RESULT AND DISCUSSSION

Here we propose a system that automates the whole process of taking attendance and maintaining its records in an academic institute by using Android application running on android phone having Ice-cream sandwich version or higher, 512MB of RAM and 1GB of internal storage and admin system that requires the operating system with windows 7 or higher with 4GB of RAM and 500GB of HDD.
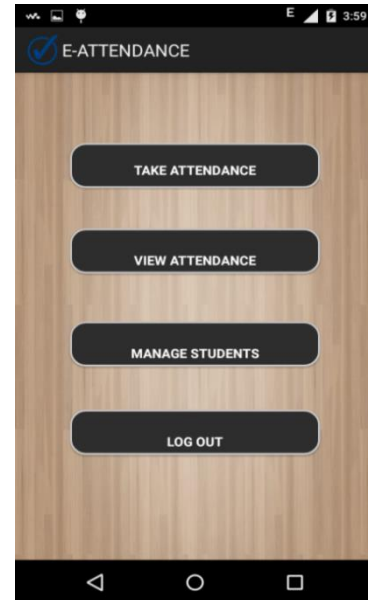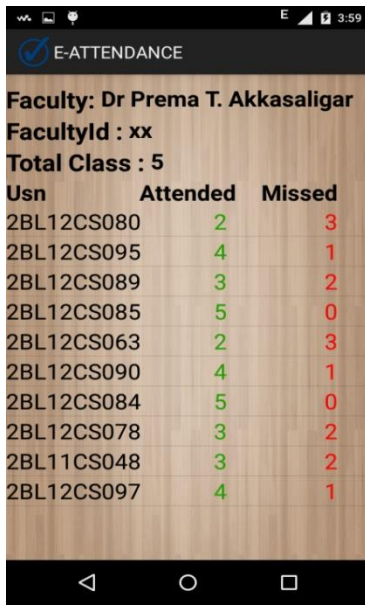


Fig-4.2 Modules of E-attendance application

After the successful login, the 4 modules appear as shown in Fig-4.2. They are 'take attendance', 'view attendance', 'manage students' and 'logout'.



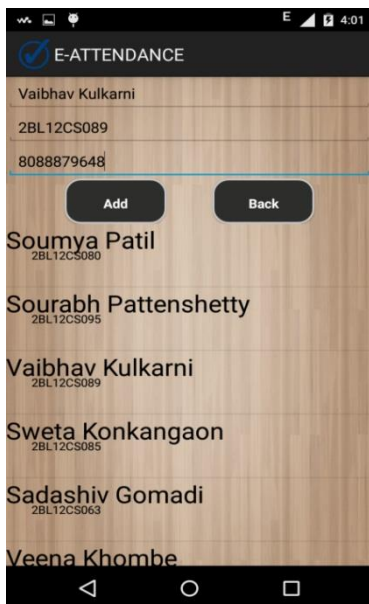Fig. 4.3 List of students to take attendance.

The 'Take Attendance' module is selected to mark attendance. A list of students appears as shown in Fig 4.3. If the tick is marked by the faculty for a particular student then that student is treated as absent. The unmarked students are present by default



Fig-4.1 login page of android application

Initially faculty is authenticated by the E-attendance application by entering the correct faculty id and password as shown in Fig 4.1 which shows the authorization of faculty.

Fig-4.4 View attendance screenshot

The next is the view attendance module where in the Faculty will be able to view the total number classes engaged by particular faculty. Faculty name and ID and list of students along with their number of classes attended and missed by the student as shown in Fig 4.4.



Fig 4.5 Adding Student Information

The student information can be added by using the manage student module as shown in Figure 4.5. Here the list of students along with their USN displays whose name will be added in this list.

Asp.net screenshots

The following are the screen shots of the desktop on which the admin has a user interface to interact with database.
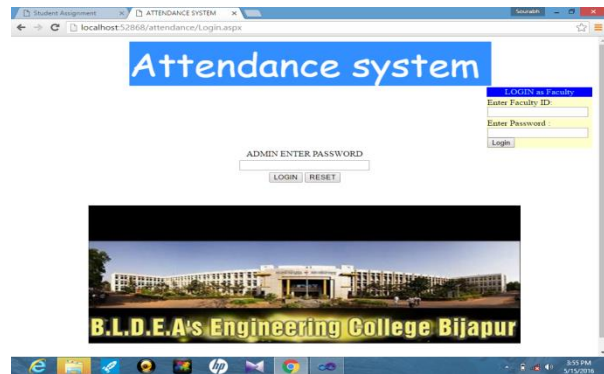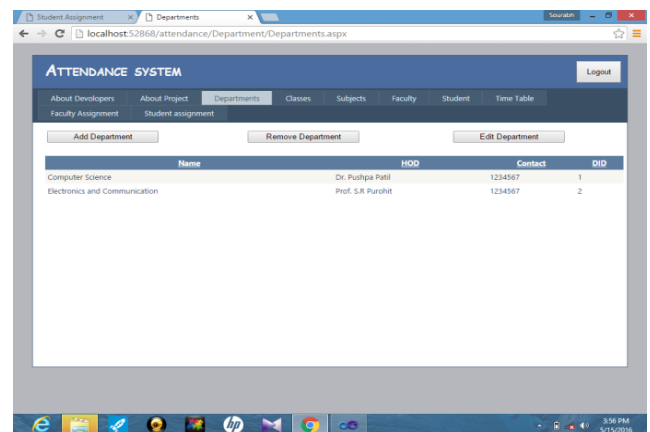


Fig. 4.6 Login page for admin

The above snapshot shows the login page for the admin to enter the data to the database. There is another facility provided for the faculty to login though desktop in any case of failure of the android application. This can be viewed in above fig 4.6.



Fig 4.7 List of Departments Display

The Fig 4.7 shows the module of department. Similar to the working of department module are the other modules which performs same tasks. They are class, subject, faculty and students.
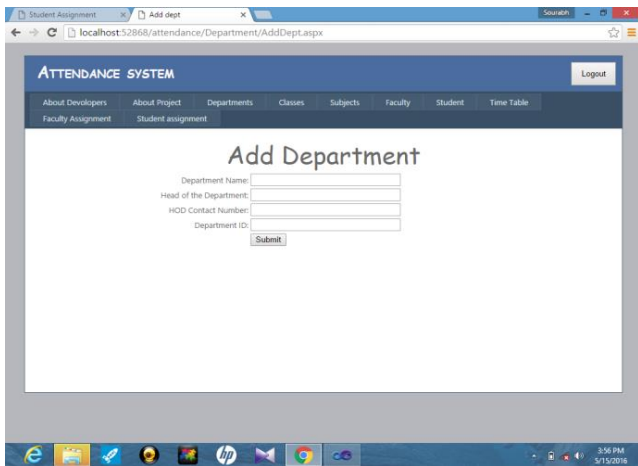
Fig-4.8 Different information added to put a department into a list.

The above Fig 4.8 shows the different information that are to be added to display a department into the list. The fields are department name, HOD, HOD contact number and department ID. By filling these information and then once we submit a department will be added in the list.



Fig-4.9 Student information

The above Fig 4.9 shows the Add student fields like Student ID, name, contact number, parent's contact number and e-mail ID. Once we fill and submit these information a student will be added into the list.
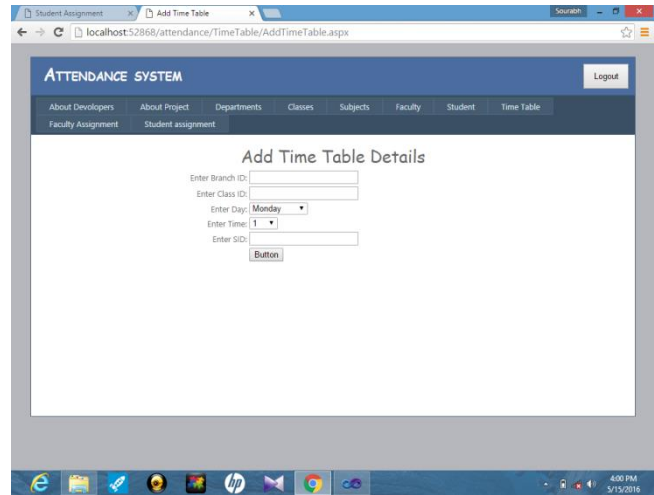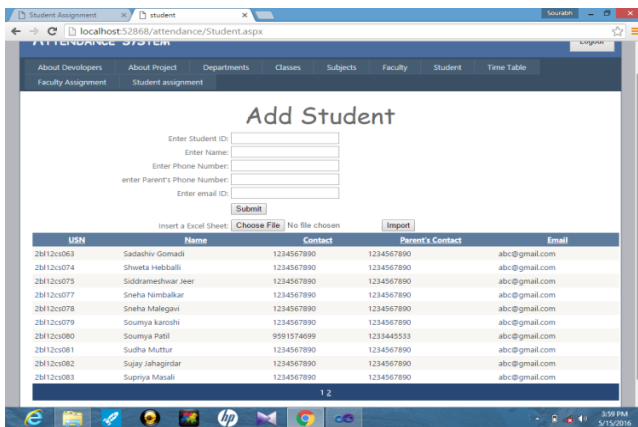


Fig- 4.10 Adding time table to database

The last is the Fig 4.10 which shows the adding time table details into the database. Here branch ID, class ID, day, time and SID has to be submitted. Then the time table will be created.

## V.    CONCLUSIONS

The Automatic Attendance Monitoring System through mobile device is the most effective way of attendance taking since it optimizes the work of faculty. As the mobile phones supporting Android OS are portable, the application of Automatic Attendance Monitoring System supports portability too. This system reduces the huge time spent on taking the attendance of every student using traditional pen and paper work. It provides a separate user interface for both the faculty and admin for taking attendance and storing the information in the database respectively. The number of classes attended or missed by the student is sent to their parents on the regular basis as mentioned by the institutions. Malfunctioning can be avoided to greater extent. The admin who uses asp.net application provides the best way to maintain the entire institution's attendance information by the faculty of students and storage of database and backup of the database. Thus Automatic Attendance Monitoring System is an efficient application that any educational Institution can install and use to maintain attendance of students.

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