International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

A Review on Web-Based Attendance Management System

Arvind Lal[1], Chumphila Bhutia[2], Bidhan Pradhan[3], Retika Sharma[4], Monisha Limboo[5]

Namchi, Sikkim, 737126, India

Abstract: ***There have been many proposals to optimize the students' management system in higher education. Managing student attendance during lecture periods have become a difficult challenge. Manual calculation of attendance produces errors and wastes a lot of time. This proposed system manages the student's attendance in a web portal and the records of the attendance will be stored in a database. The attendance of the students will be further forwarded to their HOD (Head OF Department), class teacher and their parents/guardians. This system will use MySQL for database. The template of the website will be built using HTML and CSS (Cascading StyleSheet) code. JavaScript will be added to improve the use of the system. Student's details will be stored in the database. Also, it will contain the details of the teachers according to their subjects and the classes they teach. The system will be responsive which can be used in mobile phones. Also, the development of this project will be user friendly by facilitating with clear and understandable tabs. Hence, this website will be beneficial to institutes.***

Keywords: Website, Student's attendance, MySQL database, HTML, CSS, PHP, JavaScript

1. Introduction

The proposed system is web based which will be fully responsive and the user can use it in their mobile, tablets and computers. The records will be kept safe and secure and the attendance information of students of all the classes can be accessed easily. This system will reduce the chances of errors in attendance calculations. The data will be stored in the database and the data from the previous year can also be accessed. The 'presence' in the class is denoted by (P) and 'absence' denoted as (A).The mobile application automatically calculates the percentage according to the data. The percentage less than 80% is marked by red color and others marked as green. At the point when a student is effectively signed in, the student gets the entrance to the primary page that shows a menu containing an arrangement of features provided to the student [4]. The attendance management system will be developed using HTML, CSS, Java Script, MySQL and PHP. Our developed project will be secure by authentication and authorization technique.

1.1 Attendance management

Attendance management is the act of managing the presence and absence of students or employees in a school, institution or a managing company and offices. The current world uses various attendance managing technologies from biometric machines to applications. There is a compelling need for a well-designed attendance management system so that the records of their participation are efficiently managed; especially in the case of the lecture has large numbers of participants. Therefore, many systems to optimize the students' attendance management so far have been proposed. Following are the important factors of this project:

- Authentication
- Authorization
- CSS
- HTML
- JavaScript
- MySQL

Authentication: Authentication is the process of determining whether someone or something is who or what it declares to be or not. Authentication provides access control for systems by checking to see if a user's data match the data in a database of authorized users or in a data authentication server.

Authorization: It is the function of specifying access rights to resources related to information security and computer security in general and to access control in particular. More formally, "to *authorize*" is to define an access policy.

CSS: It stands for Cascading StyleSheet. CSS is used to control the style of web document in a simple and easy way.

HTML: It stands for HyperText Markup Language. With CSS and JavaScript, it forms a triad of cornerstone technologies for the WWW. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages.

JavaScript: JavaScript is a lightweight programming language. It is designed for creating network-centric applications. It is contemplimentary to and integrated with Java.

MySQL: MySQL is an open source relational database management system which is an abbreviation for Structured Query Language. MySQL is free and open-source software.

2. Literature Survey

[1] Mohammad Ausaf Anwar, Durgaprasad Gangodkar, "Design and Implementation of Mobile Phones based Attendance Marking System", Department of Computer Science Engineering, Graphic Era University, Dehradun, Uttarakhand, India, 2015.

In this paper, the architecture and design specifications of Student Attendance Marker Application on an Android platform are presented. The authors with their team have

compared both iOS and Android OSs and they came up with a conclusion that although iOS is more robust in virus attacks and other security threats, but android is cheaper in terms of cost and being open source more enhanced. At the very first, Users/Lecturers on their device will fetch the list of students of the class for which attendance is to be recorded. They have used SQLite as a local database to store the data. For the purpose of demonstration of this application, they have used the WAMP (Windows Web Development) server using phpMyAdmin service.

[2] Jun Lio, "Attendance Management System using a Mobile Device and a Web Application", Department of Socio-informatics, Faculty of Letters Chuo University 742-1 Higashinakano, Hachioji-shi, Tokyo 192-0393, Japan, 2016.
In this paper, a novel framework for the attendance management is proposed, which consists of a mobile device and a web application. They have adopted the combination of a mobile device and web services. Registration of students is passed around among participants, one by one. Users can select one from two options, registration by selfie or registration by signature. After the registration, the ID and name which have been already registered are removed from the list of participants. An application running on the mobile device is implemented as a Monaca-application.

[3] Mahesh G, Jayahari KR, Kamal Bijlani, "A Smart Phone Integrated Smart Classroom ",Amrita e-Learning Research Lab (AERL) Amrita School of Engineering, Amritapuri, Amrita Vishwa Vidyapeetham, Amrita University, India, 2016.

This paper involves research and survey to identify how usage of mobile phones at education institutions can be made under the control of authorities and how 1000s of lecture hours can be saved in a year using this device. They propose a mobile application which will help institution authorities to control the students' mobile phones and attendance will be taken by the students itself for saving the time of taking attendance.

There will be server at the campus, which can be connected from the students' Smartphone's using the Wi-Fi routers, this server stores the attendance data and performs the face recognition. The app in student's Smartphone will automatically identify the router device and get connected to the Wi-Fi network. The MAC address of student's Smartphone will be stored in the router's access level in order to uniquely identify each student and to ensure that only student mobile phones are connected to that router. The face recognition service used is Face++.

[4] Ekta Chhatar, Heeral Chauhan, Shubham Gokhale, Sompurna Mukherjee, Prof. Nikhil Jha, "Survey on Student Attendance Management System", S.B. Jain Institute of Technology, Management and Research, Nagpur, 2016.
In this paper, the system deals with the maintenance of the student's attendance. It generates the attendance of the student on the basis of presence and absence in class. The staffs will be provided with the separate username & password.

[5] Md. Milon Islam, Md. Kamrul Hasan, Md Masum Billah, Md. Manik Uddin, "Development of Smartphone-based Student Attendance System", Department of Computer Science and Engineering Khulna University of Engineering & Technology, Khulna-9203, Bangladesh, 2017.

In this paper, the system is able to mark attendance, marking intruders' entry, attendance percentage calculations, send emails, and send SMS to the guardian to keep them updated about their child's attendance at the Institute. The designed system has an online access from any place and any moment which may extraordinarily assist the course teacher with keeping track of their student's attendance. The system employs in Android API level 19. The application is implemented in eclipse android ADT bundle as IDE. The system used the internal SQLite database as phone database and www.golapmilonkuet.byethost16.com as web server database. The server holds MySQL database.

[6] Karwan Jacksi, Falah Ibrahim, Shahab Ali, "Student Attendance Management System", University of Zakho, Iraq, 2018.
In this paper, the system is designed in a way that can differentiate the hours of theoretical and practical lessons since the rate of them is different for calculating the percentages of the student's absence.

INFERENCES DRAWN

Table 1: Inferences drawn from Literature Survey

Author name and publication	Title of the paper	Techniques used	Limitation
Mohammad Ausaf Anwar, Durgaprasad Gangodkar, Department of Computer Science Engineering, Graphic Era University, Dehradun, Uttarakhand, India, 2015.	Design and Implementation of Mobile Phones based Attendance Marking System,	WAMP, SQLite,	More prone to hacking or being misused by other physical attacks.
Jun Lio Department of Socio-informatics, Faculty of Letters Chuo University 742-1 Higashinakano, Hachioji-shi, Tokyo 192-0393, Japan, 2016.	Attendance Management System using a Mobile Device and a Web Application	Monaca-application	There is no increase of the feedback comments.
Mahesh G, Jayahari KR, Kamal Bijlani Amrita e-Learning Research Lab (AERL) Amrita School of Engineering, Amritapuri, Amrita Vishwa Vidyapeetham, Amrita University, India, 2016.	A Smart Phone Integrated Smart Classroom	Face recognition, Android	Automatic switching of profile to airplane mode in Android versions 4.1 i.e. Jelly Bean and above are restricted by Android due to security reasons.
Ekta Chhatar, Heeral Chauhan, Shubham Gokhale, Sompurna Mukherjee, Prof. Nikhil Jha, S.B. Jain Institute of Technology, Management and	Survey on Student Attendance Management System		Not automated.

Research, Nagpur, 2016.			
Md. Milon Islam, Md. Kamrul Hasan, Md Masum Billah, Md. Manik Uddin Khulna University of Engineering & Technology Khulna-9203, Bangladesh, 2017.	Development of Smartphone-based Student Attendance System	Eclipse Android ADT bundle as IDE, SQLite and MySQL.	Can be used only in Android devices.
Karwan Jacksi, Falah Ibrahim, Shahab Ali, University of Zakho, Iraq, 2018.	Student Attendance Management System		Past attendances are not stored.

3. Proposed Methodology

Fig 1 is the flowchart of our proposed system. The figure depicts how our system will run. The course teacher enters the system through a login page by providing his/her required information. Only the course teacher has full access to the system and can change the data in the system. After the teacher takes attendance of a class the data will be stored in the database of the web server. At the end of the semester calculation of attendance is done and if the student has less than 80% attendance in a class, message will be sent to the HOD, class teacher and the student's parents/guardians.

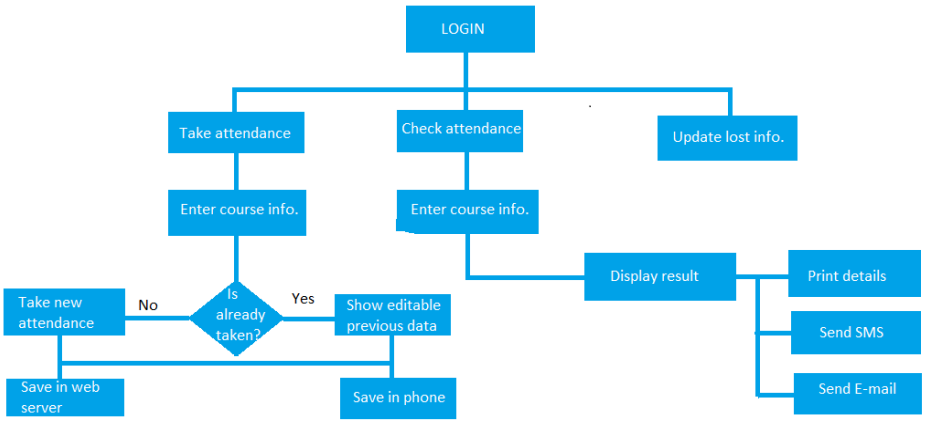

Figure 1: Flowchart for our proposed system

Steps to developing the system:
Step 1: Students details are collected from I, II & III year of CCCT College, along with the details of the teachers and parents/guardians.
Step 2: In this step students' data will be stored according to their course and semester including their parents' details. Teachers' data will be stored according to the subject they teach and classes they take.
Step 3: The website will be designed using HTML, JavaScript and CSS as the front-end tools.
Step 4: The data of the attendance will be stored in MySQL as the database. PHP will be used as the back-end design.
Step 5: The system will contain all the data from the previous years and the present data. The system can be hosted in the college website.
Step 6: After the website is done and a mobile application can also be made which will work on Android platform only.

4. Conclusion

This system is web-based attendance management system which will be developed using PHP, CSS, HTML and JavaScript. The course teacher can easily monitor the attendance of students which may develop the excellence of instruction because the fewer time required to collect and process data. Implementing the system in educational environment helps the user to identify attendance, calculate percentage. SMS and Email messages are sent via the system automatically to inform parents so that they can get notified about their child's progress in the institution. The system will be responsive which can be used in mobile phones.

References

[1] Mohammad Ausaf Anwar, Durgaprasad Gangodkar, "Design and Implementation of Mobile Phones based Attendance Marking System", Department of Computer Science Engineering, Graphic Era University, Dehradun, Uttarakhand, India, 2015.
[2] Jun Lio, "Attendance Management System using a Mobile Device and a Web Application", Department of Socio-informatics, Faculty of Letters Chuo University 742-1 Higashinakano, Hachioji-shi, Tokyo 192-0393, Japan, 2016.
[3] Mahesh G, Jayahari KR, Kamal Bijlani, "A Smart Phone Integrated Smart Classroom", Amrita e-Learning Research Lab (AERL) Amrita School of Engineering, Amritapuri, Amrita Vishwa Vidyapeetham, Amrita University, India, 2016.
[4] Ekta Chhatar, Heeral Chauhan, Shubham Gokhale, Sompurna Mukherjee, Prof. Nikhil Jha, "Survey on Student Attendance Management System", S.B. Jain Institute of Technology, Management and Research, Nagpur, 2016.
[5] Md. Milon Islam, Md. Kamrul Hasan, Md Masum Billah, Md. Manik Uddin, "Development of Smartphone-based Student Attendance System", Department of Computer Science and Engineering Khulna University of Engineering & Technology, Khulna-9203, Bangladesh, 2017.
[6] Karwan Jacksi, Falah Ibrahim, Shahab Ali, "Student Attendance Management System", University of Zakho, Iraq, 2018.