International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435(Online) Volume 10, Issue 3, March 2021)

Smart Student Attendance Management System

Arvind Singh[1], Mitul Nasit[2], Dharmik Savaliya[3], Nishit Talia[4], Proff. Pinal Hansora[5]

[5]*HOD of CSE Department, Laxmi institute of technology, sarigam, India*
Department of Computer Science and Engineering, Gujarat Technology University, Ahmedabad, Gujarat, India
Computer Science and Engineering, Laxmi Institute of Technology, Sarigam, Gujarat, India

***Abstract*— Nowadays, many organizations like school, colleges still using manual or traditional methods to record the attendance of their students Which is time-consuming. And if any punch card machine is used for taking attendance, several problems are faced by organizations that it is quite expensive and also time-consuming, also many other problems like student data retrieve, college event notification problem. So, we define a solution to every problem. An Attendance Management System (AMS) is the easiest way to keep track of attendance for organizations for day-to-day monitoring of attendance. Our project presents the implementation of an AMS on Bluetooth in a multi-user environment. In This AMS development, the users have at least one Smartphone. Therefore, we develop our project, E-Attendance System to utilize the existing technology by using Smartphone that is capable to record the attendance of staff using their Smartphone device with Bluetooth feature and also, we will build some extra feature like a notification dashboard, for any complaint and suggestion a report module, student data tracking attendance, time table management, Lost and Found..**

***Keywords*—Attendance management, Bluetooth connectivity, Attendance report, Event dashboard**

I. INTRODUCTION

A. Project Overview

This is our project named Smart SAMS is basically for changing the old methodology of taking attendance manually to new attendance management by using Bluetooth. Faculties takes attendance by using our mobile system using Bluetooth automatically during class time. Taken day to day attendance can be viewed by students and by the end of month as a monthly report will be generated. There are more functionalities in our project like time table management, leave management and event dashboard. Time table management done by HOD's of all department by adding timetable and provides timing of lecture by particular faculties and also leaves can be manages by it.

B. Purpose

The development of this project aims to make the work of teacher and students more accurate efficient and a smart way to reduce their work and save their time from old methodology.

C. Scope

This project will change the structure of manual attendance system and provide accurate and flexible structure of automatic attendance system. It provides an easily accessible data, reduce work and make effective and easy conversation between students.

II. RELATED WORKS

Bluetooth Smart based Attendance Management System [1]:

Author name: Riya Lodha, Suruchi Gupta, Harshil Jain, Harish Narula.

Summary: 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 provide administrators the statistics of attendance scores for use in further managerial decisions.

Advantages:

- Bluetooth Smart combines microchip technologies and radio frequency to create a secure system.
- It is accurate and ensures timely entry of data and has tremendous future scope due to its low cost and compatibility with a large number of mobile phones, tablets and computers.

- As Bluetooth Smart technology evolves, in a variety of fields like healthcare, inventory management and sports can make use of this technology to design simpler, cheaper and more efficient solutions

Disadvantages:

- One major drawback of this system is that as the distance between the RFID tags and electronic device decreases the RFID tag read rates tremendously.
- It provides efficiency but has more cost.

Bluetooth Automatic Attendance Management using Android Application[2]

Author name: Rudra Malali, Naman Jangid, Pranjali Satish Deshmukh, Halgaonkar Prasad S.

Summary: The day-to-day Attendance and its maintenance has become a big problem statement that needs to be solved with an effective but still affordable and portable system. The attendance system currently present in institutes is based on manual methods or RFID, Wi-Fi, Face recognition, etc. which has proven to be either time consuming or expensive with complex implementation. While the same is achieved in this paper using Bluetooth system auto attendance management. Hereby proposed method marks attendance by authenticated Bluetooth addresses and also checks for the false attendance, making it reliable.

Advantage:

- The Students don't have to use any extra chips or tags with their phone or ID card.
- This system will also use a double check method for tracing the present students to avoid any False Attendance from getting marked.

Disadvantage:

- It may be created problem about connection of multiple students.

A Classroom Attendance Systems Based on Bluetooth Low Energy Indoor Positioning Technology for Smart Campus[3]

Author name: Apiruk Puckdeevongs, N. K. Tripathi, Apichon Witayangkurn and Poompat Saengudomlert.

Summary: Time Student attendance during classroom hours is important, because it impacts the academic performance of students. Consequently, several universities impose a minimum attendance percentage criterion for students to be allowed to attend examinations; therefore, recording student attendance is a vital task. Conventional methods for recording student attendance in the classroom, such as roll-call and sign-in, are an incident use of instruction time and only increase teachers' workloads. In this study, we propose a Bluetooth Low Energy-based student positioning framework for automatically recording student attendance in classrooms. The proposed architecture consists of two components, an indoor positioning framework within the classroom and student attendance registration. Experimental studies using our method show that the Received Signal Strength Indicator fingerprinting technique that is used in indoor scenarios can achieve satisfactory positioning accuracy, even in a classroom environment with typically high signal interference. We intentionally focused on designing a basic system with simple indoor devices based on ubiquitous Bluetooth technology and integrating an attendance system with computational techniques in order to minimize operational costs and complications.

Advantage:

- This basic system with simple indoor devices based on ubiquitous Bluetooth technology and integrating an attendance system with computational techniques in order to minimize operational costs and complications

Disadvantage:

- The cost of these technologies (with the exception of BLE) is typically high, and all of them require the installation of additional equipment or devices in the target environment.

III. Components In System

The entire system includes 2 main components for the user:

1. Smart Phone
2. Internet

The entire system includes 3 main components for the admin:

1. Computer System
2. Internet
3. Database

IV. Methodology

Here, the initial efforts in the study desired here were observation of educational organization and there using methodology of taking manually attendance by using register, student by student.

International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435(Online) Volume 10, Issue 3, March 2021)

Which is very time consuming at also so based on these observations we generalized the main requirement and decided to solve this problem to save time. Here, the idea of this purposed system come in picture. This system meets all needs of these officially and will be accepted it to solve timing and make attendance word easy.

V. System Architecture

The basic concept of the proposed architecture contains the idea of communication between devices to make interactivity possible between them.

Smart SAMS application is totally based on server to user and user to server. So, between user and server there is no and any platform so it requires only internet connection and android smart phone. No need any other device.

When user gets logged in then the user will be redirected dashboard. This system main feature is to taking attendance show now we understand attendance taking will work.

When the faculty clicks on take attendance button then the faculty mobile device will scan nearby Bluetooth enable devices. When the Bluetooth device is scanning that Bluetooth, address save temporary in the application and compare this address with database Bluetooth address that student fill when he registers. If Bluetooth address is match then application send a positive response to server and the server put a present in that student section and if Bluetooth address is not match then application send a negative response then server put absent in that student section. And this data saves to report file.

The application basically works like this. The System Architecture diagram you can see below.

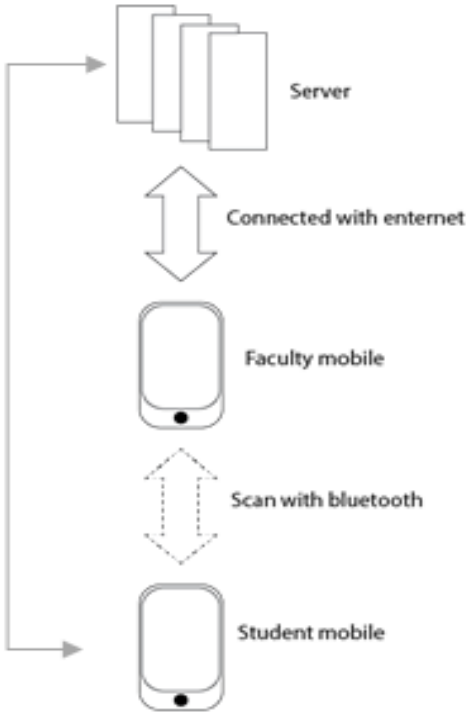


Fig: System Architecture

VI. System Analysis

A. Feasibility Study

Once the problem is understood the next step is to find the solutions and the hardware and the software required. The main objective is to determine whether the proposed project is feasible or not. The three feasibility have been carried out 1) Technical feasibility 2) Economic feasibility 3) Operational feasibility.

International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435(Online) Volume 10, Issue 3, March 2021)

B. Technical Feasibility

In the proposed system, we will be using Bluetooth for marking attendance. Time table will be upload in its dashboard which is GUI develop by using Android studio. The data base for system will be managed by MySQL server.

C. Economic Feasibility

The system will be developed with economic point of view with company or organization. The cost of development and maintenance will be reasonable and the overall cost will depend on the companies or organizations additional need and requirements of software.

D. Operational Feasibility

The proposed system will be able to work efficiently in different environment conditions. The system verifies the Bluetooth MAC address from database for marking the attendance. Also, students and faculties can keep track of attendance and track report also.

VII. Hardware And Software Requirements

User Requirements:

Hardware requirements	Software requirement
- Android Device -RAM : Minimum 2GB -ROM : Minimum 16GB	-Android version (6 and above) -Internet Connection

Developer Requirements:

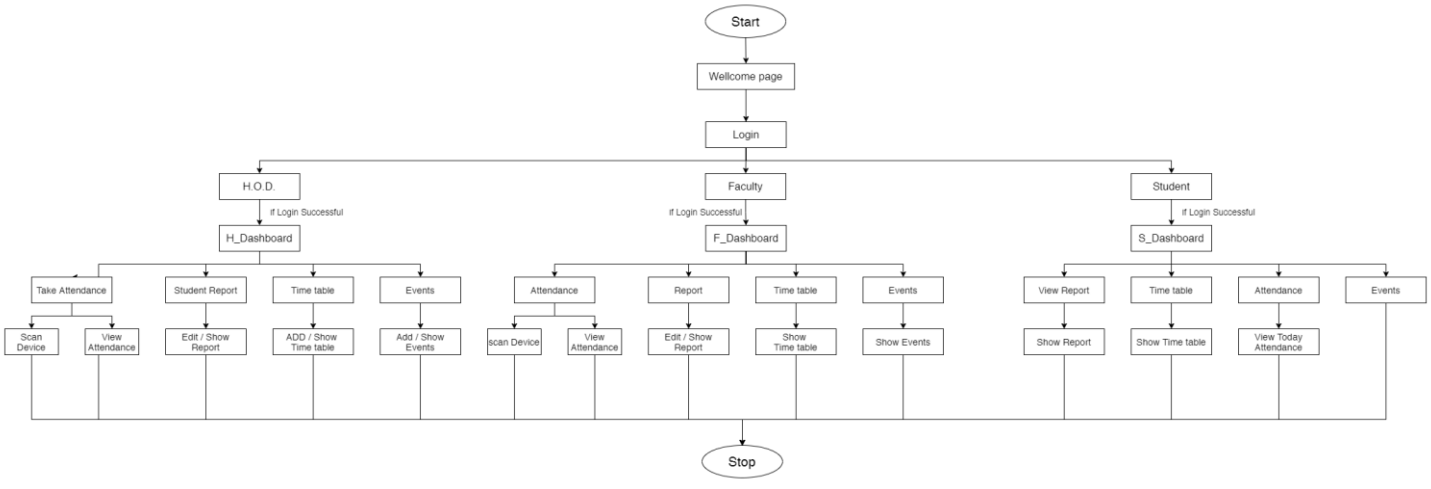
Hardware requirement	Software Requirement
Hardware: -Processor intel core (i3 and above) -Android Device Memory: - Ram : Minimum: 8GB -Hard Disk: Minimum 500GB	Development Tools: -Anaconda Navigator(V1.9.12) -Android Studio(V 4.0) -Adobe XD 2019 & photoshop CC 2015 (UI design) -Windows Database Server: -MySQL

Programming Language
- JAVA (8 and above) - XML - PHP

VIII. System Flow

Flow charts depicts the flow of the whole system, where admin will first logs in. After the admin login in the system, the admin can control the menus of the system. The admin can perform add user register.

First user starts the application. User redirected to welcome page and then login page. If the user is student it will be redirected to student panel and If the user is faculty it will be redirected to faculty panel. This app will identify user by its email id. After faculty login successfully then it will show take attendance, student report, event dashboard, and taking & accept leave.



International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435(Online) Volume 10, Issue 3, March 2021)

IX. CONCLUSION

We covered almost all the functionality of Bluetooth and include that with increasing demand of this technology. New procedures are been developed. This system successfully took the attendance at lecture and stores it, after that generate monthly report. Approval of leave of faculty work properly and also show event dashboard at home screen. The performance of system was acceptable and would be considered for full implementation because of its short execution time and resuming Bluetooth MAC address. It will be beneficial for student as well as professor as with the advantage of this technology they can utilize their lectures in best manner.

X. FUTURE WORK

This structure is preferring to taking and maintaining attendance. So further we can add more functionalities, like wise adding Library management, canteen management etc. Now in future we will going to work on time table management and leave management, also we will add event-dashboard and option for lost and found reporting.

REFERENCES

[1] Bluetooth Smart based Attendance Management System:
Author name: Riya Lodha, Suruchi Gupta, Harshil Jain, Harish Narula.
Reference: https://ieeexplore.ieee.org/document/8527837

[2] Implementation of Automated Attendance System using Face Recognition:
Author name: Mathana Gopala Krishnan, Balaji, Shyam Babu.
Reference:https://www.ijser.org/researchpaper/Imp lementation-of-Automated-Attendance-System- using-Face-Recognition.pdf

[3] Location Based Time and Attendance System:
Author name: Mohammad Salah Uddin, Member, IACSIT, S. M. Allayear, N. C. Das, and F. A. Talukder.
Reference:https://www.researchgate.net/publication /271302319_A_Location_Based_Time_and_Attend ance_System

[4] An Android Based Automated Attendance and Employee Tracking System
Author name: Dehlela Shabir, Anandhu R. Ajith, Aswin Ganesh, Rithvik R. Vorkady, Krishnaraj N S.
Reference :https://www.irjet.net/archives/V5/i5/IRJET- V5I5470.pdf

[5] System Development Lifecycle Model-Iterative Model
Reference:https://www.tutorialspoint.com/sdlc/sdlc_quick_guide.htm
GPS based Attendance Management System with RFID Technology
Reference:https://www.ijert.org/research/gps-based-attendance-management-system-with-rfid-technology-IJERTCONV5IS01026.pdf