ISSN No:-2456-2165

# Attendance System with Bluetoothand Android App

VAISHNAVI PATAKI, KARTHIK B., K SHABAREESH, GAGAN DEEP S. N., FAIZAN KHAN
Asst. Professor[1], ECE, Atria Institute of Technology (NAAC, AICTE)
Affiliated to Vishweshwaraiah Technological UniversityBengaluru, India

**Abstract:- The Bluetooth attendance system which gives the signal to android divices and with help of the app we can give the attendance and later we can see the reports in the app, whenever the signal is taken from Bluetooth scanner then we can give the attendance.**

**This implementation of Bluetooth Low Energy Beacon to Attendance management reduces the Duration wasted during manual mode of attendance information about the Attendance scores the each student to the administration on daily basis through their own android phones. This setup reduces the problem with regular system which consumes more time for each student to sign on Attendance sheet and manual entering of Attendance for lecturers to avoid proxy students try to give Attendance from outside the premises and to avoid proxy, we implement a virtual Beacon to provide the class name as in the signal and store data using Android devices.**

***Keywords:-*** **Android Device, BLEBeacon.**

## I. INTRODUCTION

The students college details are given in too app so that as soon as the student register we will get the unique character Attendance registration in classroom which has a built in IC chip to it.In many university ,a software device has been introduced to register Attendance by a computer connected to the excel sheet as it store the attendance of the students. the student Attendance information is registered inside a folder in the computer.the issue with this setup is it takes lot of duration the count down time should be made less by using multiple device in simultaneous to register Attendance of each individual.the students can own android phones. so that students cannot register Attendance from outside the limit or the range of the Bluetooth ,we introduce a beacon with bluetooth specifications.

### *A. BLUETOOTH LOW*

**[4]**Bluetooth device BLE is a technology to create contact less area networks. It is the most suitable device for applications which consumes less power than regular Bluetooth .It significantly decreases the consumption of power and cost.all the Android operating devices allows and support bluetooth low energy.

It is like a lighthouse which repeatedly transmit a constant signal so that other devices nearby can sense .it provides a radio signal that is given by combining letters and numbers which is transmitted for small regular intervals.Android devices which has Bluetooth can see a beacon if it is inside the range.

To save energy and increase speed the complete BLE is developed of 40fchannels ,separated by 2MHz. In place of physical Beacon we can develop virtual BLE which is nothing but a simple beacon point which is introduced to existing wifi setup. this avoids the use of beacons and batteries.

## II. METHODS TO ELIMINATEPROXY

**[3]**As soon as student Attendance is registered using Ble setup ,we need to develop a setup to avoid proxies ,if a student is standing outside the classroom or using two android devices or two ID cards .to eliminate such problems we can count the number of students entering the class by counting mechanisms at door and comparing it with the number of students registered. there are many door counting mechanisms like vedio processing ,laser technology ,using wifi and many more.we need to select a method by considering the factors like accuracy, cost, speed. The method which is suitable for this is infrared motion analyzer (IRMA) which sends a magic number or the code to the Android Bluetooth scanner inside the class room. allowing the magic code to send together with the student so that only each individual inside the session to register and avoid proxy.

### *A. DEVELOPED SYSTEM*

In the regular existing methods students had one by one ,which wastes lot of time as all the students had to scan and register.tha main aim of the project is to reduce the time consumed by scanning with multiple android systems in parallel rather than former existing idea of scanning individually.we will be using the smart android devices of the students.to avoid proxy by the students who try to register it can not be possible.only the students who are present in the classroom with their own android phones can receive the signal from the beacon which has magic number.the sent signal can cover about 30meters long and wide of the classroom and blocked by walls.the android system must send the data of the student to the server later the reports can be seen.

### *B. DEVELOPED SYSTEM OVERVIEW*

The figure 1 shows the system setup for the proposed project which has two parts, one is the teachers web based management system and an android application for students the teachers needs to give id for individual ,name of an individual and magic code by coding with in the device which identifies the Bl on the web system. The students should install the Bluetooth application which receives magic number and registers the attendance. the step by step process is:

ISSN No:-2456-2165

- Before start of class teachershould have the head count of the students present in class on the device management system.
- A magic code should be transmitted to the Android devices inside thesession as soon as the teacher turns on BLE beacon.
- The students should open the Bluetooth of an individual Id cards .a setof people can also use these .
- The magic code sent by the BLE is received by the Android App inside the session.
- At last the Android app send the unique code ,name and the received datato the server.

In Fig 2 The Android application is used for getting Attendance of the students as the students can take the unique code from the beacon as soon as they run the application . The registered nam will store in the excel sheet and we can view the records in the later stage.

In Fig 3 as soon as we click on register button ,the application start to sense for a BLE device .when it detects the beacon the application transmits the data to server through app whivh created from the MIT App inventor. In figure it displays the list of the classes which takes place. The student list of details to be sent to the serveris shown by Table 1. The list of the details is stord is shown by Table 2.

The successful and unsuccessful registration requests are shown by figures 4 and 5.

*C. SERVER*

**[5]**A server is a medium to share the data from one computer to another computer.The information which is the unique signal given by the beacon the signal is taken from the Bluetooth scanner and details are brought to the server.

The Bluetoot attendance system is nothing but data management system which records the Attendance in the form of tables .teachers or the admins only can access the web based system. The teacher can keep the report at Fig 6 and Table 3 .

The teacher has access to start and stop the registration of Attendance .Fig .7 shows the message if the registration is over or not started .clicking on registration start we can start registration for each student shown in Fig.8.usage of web management system we can use the tools provided such as showing the Attendance list, Altering, Deleting, importing, exporting the records.

## III. PROCESS

**[2]**Each student is attached with a beacon stickers. using it's UUID,Major and minor values a beacon can be individually identified .we can map the attendance individually. by this a student can be uniquely refered using the beacon.

The infrared motion analyzer is used to calculate the number of students entering the classroom.a easy bluetooth device takes the signal sends the data to the Android application.

We should develop the Android app, which we can see the report by the teachers that t a k e s t h e Attendance and holds the records of the individuals with respect to each class scheduled and alerts the students if their Attendance is low. the teacher can open the application at any point of time during the class and press the take Attendance button .as soon as this the Attendance of the complete set of students in the class is marked .as soon as we click on the button it will senseall the beacons which are present in the classroom within in the specified range.

If it students same equal as shown in theregistered details then we can observe the number of students present

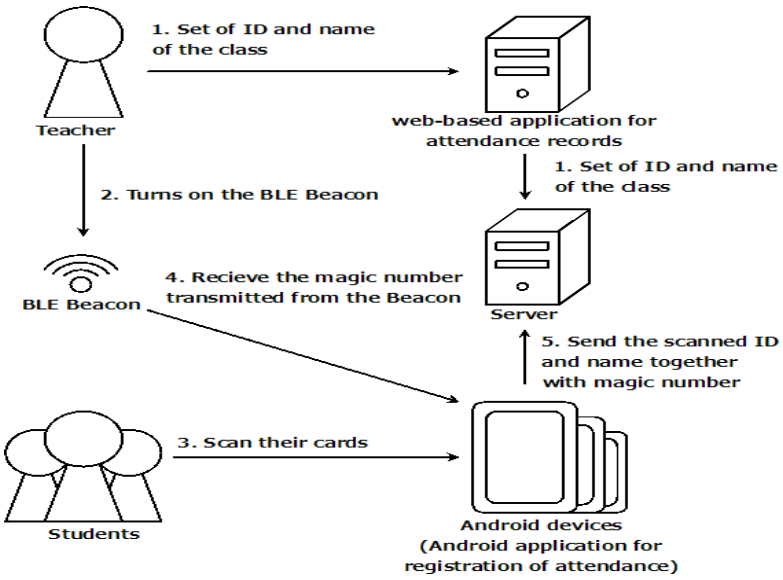


Fig. 1: Overview of the system

ISSN No:-2456-2165

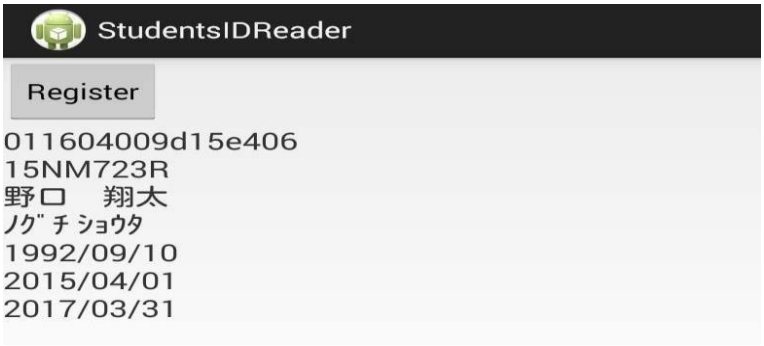


Fig. 2: Giving the value by the individual

Corresponding to the beacons are registered and marked present and remaining students are marked absent after the registration completed it gives list of student who are present and absent .using of web management system we can understand the strength ofparticular class and the trend of the class during the entire week or a month by various charts and table.


Fig. 3: The subject to be selected

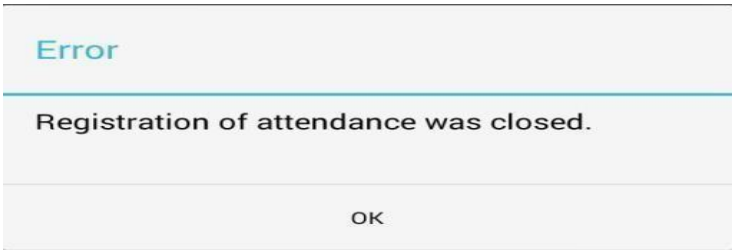


Fig. 4: Notification of a failed registration request

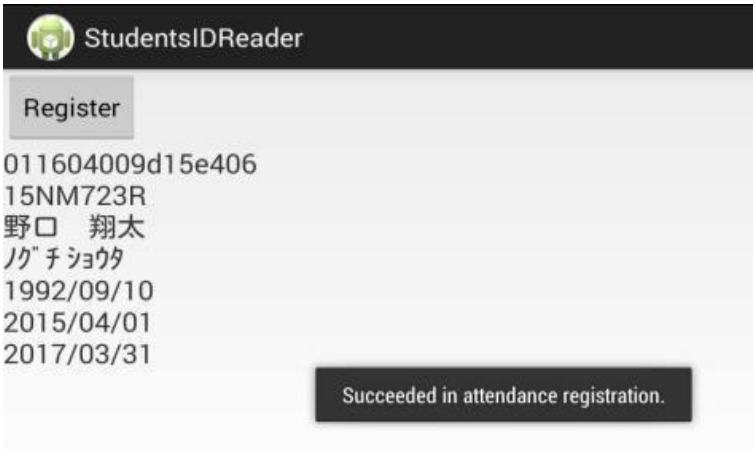


Fig. 5: Successful in registration

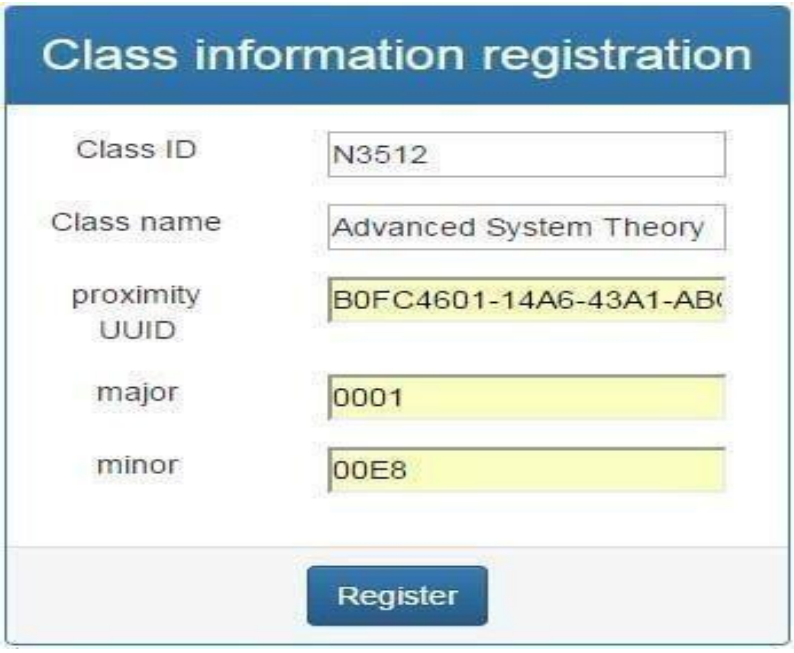


Fig. 6: App screen

| parameters | meanings |
|---|---|
| Student id & name class id | takes from the blurtooth scanner Student will be taken to register the attendance |

Table 1: SERVER DATA

| Parameters | Meanings |
|---|---|
| 1 | Registration of attendance is sucess |
| -1 | Registration of attendance is ended |
| other | Failed |
| | |

Table 2: LIST OF RESPONSES TO REGISTRATION REQUEST OF ATTENDANCE

| field Name | Contents |
|---|---|
| class ID | That identifies the class by unique id |
| class name | Identifies the class by name |
| proximity UUID | BLE beacon by proximity UUID |
| major | BLE beacon field contain major bits |
| minor | BLE beacon field contains minor bits |

Table 3: Registration


Fig. 7: Attendance registration currently not open


Fig. 8: Open for attendance registration

## IV. CONCLUSION

In this paper, we explained the method of an Attendance system which uses more devices to scan the UNIQUE CODE and student can register their Attendance using their own android devices which cutdown the time wasted in regular method. Usage of BLE device reduces proxy by providing a magic number which can be received only for short range inside the classroom and Cannot be used outside the classroom.

## REFERENCES

[1.] Smart Attendance Management using Bluetooth Low Energy and AndroidRaghav Apoorv**,** Mathematics and Computing Engineering, Puja Mathur Electrical Engineering Delhi TechnologicalUniversity Shahbad Daulatpur, Main Bawana Road, Delhi- 110042India

[2.] Student Attendance Management System with Bluetooth Low Energy Beacon and Android Device Shota Noguchi Michitoshi Niibor ErjingZhou Graduate , Masaru Kamada Department of Computer and Information Sciences, School of Science and Engineering, Ibaraki, University Hitachi,Ibaraki 316-8511, Japan

[3.] S. Shukla, S. Shah, P. Save, "RFID Based Attendance Management System", International Journal of Electrical andComputer Engineering, vol. 3, no. 6, pp. 784-790, 2013.

[4.] Vishal Bhalla, Tapodhan Singla, Ankit Gahlot, Vijay Gupta, "An NFC Supported Attendance System in a University Environment", International Journal of Innovations in Engineering andTechnology (IJIET).

[5.] Ankita Agrawal, Ashis Bansal, “Attendance System using NFC Technology with Embedded Camera on Mobile Device", International Journal of Information and Computation Technology, vol. 3, no. 3, pp. 131-138, 2013.

[6.] S. Kardy, M. Smaili, "Face Detection System for Attendance of Class Students", Scientic Research and Essays, vol. 5, no. 12, pp. 1428-1435, June 2010.

[7.] Pallavi Verma, Namit Gupta, "Bluetooth Based Attendance ManagementSystem", International Journal of Science and Research (IJSR), pp. 2319- 7064.

[8.] P Subpratatsavee, "Wireless attendance management system based on iris recognition" in , IEEE, May 2010.