KLE Technological University

Creating Value
Leveraging Knowledge

School

of

Electronics and Communication Engineering

Minor Project Report

on

SMART ATTENDANCE SYSTEM

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Semester: VI, 2019-2020

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K.L.E SOCIETY'S
KLE Technological University,
HUBBALLI-580031
2019-2020

SCHOOL OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE

This is to certify that project entitled **" SMART ATTENDANCE SYSTEM "** is a bonafide work carried out by the student team of **"Akshata Madguni,USN: 01FE17BEC017,Harish Kalwad,USN: 01FE17BEC063, Harsha Shinde, USN: 01FE17BEC065,Niketan Doddamani,USN: 01FE17BCS120"**.The project report has been approved as it satisfies the requirements with respect to the Minor project work prescribed by the university curriculum for BE (VI semester) in School of Electronics and Communication Engineering of KLE Technological University for the academic year 2019-2020.

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Name of Examiners **Signature with date**

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2.

ACKNOWLEDGMENT

We would like to extend our gratitude to each and everyone who have given us a constant support in making our project a grand success. First and foremost we would like to thank KLE technological university and our head of school Dr. Nalini C Iyer for introducing minor project for we, 6th sem students, and giving us an opportunity to explore and learn many new things. Our special thanks to the guide Prof. Prashant Acahari who was always there to help us and sort out all the technical problems we faced in our project with his valuable guidance and advice, and also for the inspiration he gave throughout the project. We would also like to extend our gratitude to the committee lecturers who reviewed our work constantly and helped us improve our project.

-TEAM VEGAM.IO

ABSTRACT

Regular attendance and punctuality are vital attributes for all the students and employees. Attendance defines the progress in work and quality education gained by employees and students respectively. Most of the universities and work places have conventional method of attendance system, which consumes lot of time and also is difficult for maintenance. So a smart attendance system is designed where in the sessions are scheduled easily and attendance is taken automatically which reduces the manual work and saves time. A smart phone is configured as a BLE tag by installing an app.The gateways are installed in every room where the sessions are held. The signals from gateways are sent to node-red through WiFi and are then processed to mark the attendance based on the RSSI value and the beacon ID. The admin first registers himself by creating a unique password. The timings of the sessions and the faculties in charge are then registered by the admin. The users are registered either by the admin or themselves which is verified by an OTP. The dashboard available is user friendly where the registrations can be done easily without any technical knowledge. There is a live display which shows the ongoing sessions and also the upcoming sessions within next one hour. A mail is sent to everyone at the end of the day regarding their attendance status. And also the organizers can check the attendance of any session by entering the date and timings of the session needed. All the universities can deploy this system to get automatic attendance of all the classes and also to manage the sessions. Even at the work stations the system can be used to mark the presence of the employees and schedule the meetings appropriately and easily.

Contents

List of Figures

List of Tables

Chapter 1

Introduction

1.1 Motivation

As attendance is a major parameter through which the performance of a student or an employee can be judged, it is of utmost importance that the institution or company should monitor it.But, the traditional method of taking attendance is a tedious process that demands time, moreover, maintaining the records of attendance is a nerve easy job. This uplifts issue of resource management such as paper resources, increased human involvement and thus human errors, possibility of manipulation of data, etc.

Thus, resolving these difficulties for the faculty as well as the other organizations inspired us to explore a new idea with minimum requirements called Smart Attendance System.

1.2 Objectives

- To design a web page at the server side that could store the data of every student registered, that would be able to register an admin with an unique ID, also includes a feature where the admin can register teachers too.
- To design and develop an application that could fetch the student data from the server.
- To design a custom app that simulates BLE beacon, that broadcasts unique instance ID allotted to each student when the app is active.
- To design and develop a Bi-directional counter.
- To integrate the following objectives with the server.
- Provide a feature that permits the staff to conduct session with their respective timings and manage each student's attendance report generated by system.
- Another feature for the students to register themselves to the server through a web page.
- To display real-time sessions that were registered through our system.
- To generate attendance report of each student registered and notify them at the end of the day.

1.3 Literature survey

1.3.1 Sensors-enabled Smart Attendance Systems Using NFC and RFID Technologies

Attendance system is the one which is used to record the presence of particular person over a session and this system is used in schools, universities, organizations or in working places. The conventional way of taking attendance has a drawback, which is the data gathered and stored in the attendance list cannot be reused and finding a particular student over 'n' number of records is difficult though and time consuming. So, in order to resolve this there were technologies introduced such as sensors and bio metrics-based attendance system which generally reduced the human errors and also the manipulation of the data was easier. Thus, in this paper, an NFC-based attendance system is presented which is a smart way when compared to the manual. A relative study between this both NFC and RFID are also discussed thoroughly, in terms of their architectures, functionality features, pros and cons. Overall, even both NFC and RFID attendance system increases efficiency of recording attendance over a particular session, NFC system is providing more advancement and affordable infrastructure in both operational and setup cost.

1.3.2 Design and Implementation of Smart Attendance Management System Using Multiple Step Authentications

In the conventional attendance system in Bangladesh the teachers used to call out the name or the unique identity number of the student which we refer as Roll no in schools, USN in universities and Employee id in organizations. To which the respective respond or hand down the attendance sheet to the students to sign. As we know this is possible in a class having handful number of students and this method fails for the particular organizations or schools having 'n' number of attendees hence the difficulties in attendance management has increased observably. Again, in case of passing attendance sheet to the respective, has caused one more problem that is fake presence(proxy) that is one particular student is recording the presence on behalf of other though he is physically not present for a session. Hence this resulted in faulty attendance record. Also, these two conventional methods are tedious. To overcome these problems this paper provides a scope for a smart attendance system. In this paper technologies like radio frequency identification (RFID), bio-metric fingerprint sensor and password-based are used and integrated to design and develop a worthwhile and efficient attendance management system. A desktop application is said to be developed in C-hash environment to monitor the status of attendance system.

1.3.3 Smart Attendance

In any universities, institution or company, supervising the records of attendee over a particular session of the staff and students or employees is a time-consuming task. This project focuses on designing and developing the smart and automated way of recording the attendance through a bio-metric scanning technique. As, in here in order to represent a person fingerprint is said to be considered as a unique feature for an individual, it would help in efficiently identifying the person and to record his presence also this technique would help in saving a lot of manual work and other problems such as supervising the

records and avoidance of a traditional method like Roll call in order to record the presence. Calling out a person by his unique identity that is roll no in school and USN in universities was a major drawback in the traditional time attendance systems. Though fingerprint recognition is a well-developed field today, but still recognizing an individual from a set of registered data that is fingerprints is a tedious process. Hence, we have developed a project to efficiently recognize the individual's finger print, go through a validation process and store the information of a particular individual in a database with number of details like time and date of the entry.

1.3.4 Smart Attendance Monitoring System (SAMS):A Face Recognition Based Attendance System for Classroom Environment

In these modern days regular attendance plays a vital role in the performance assessment and improvement of quality in the learners. The present conventional methods present in universities are highly time consuming and ineffective. This article represents the automated attendance system for data reliability and comfort. The system was built by the integration of ubiquitous components to make a portable device for managing the attendance of the students.

1.3.5 Smart Attendance System by using RFID

In this paper, smart attendance system using RFID modules is discussed. Students are given with the RFID tags and the student details are stored in the server with respect to the tag ID. The RFID reader is installed outside each classroom and when a student scans his tag while entering and leaving. The reader sends the tag information to the server and the attendance of that particular student is updated automatically and stored for future reference.

1.3.6 Smart Attendance Management using Bluetooth Low Energy and Android

To avoid the conventional way of taking attendance manually, which wastes time and energy, smart attendance systems can be developed using identity card scanner, Bluetooth sensors, bar code readers, fingerprint technology etc. This paper discussed on the attendance system developed using Bluetooth low energy devices. These communicate with android application, which collects and stores the data and attendance report is generated which can be used by the teachers and students.

1.3.7 Design and Implementation of Automatic Attendance Check System Using BLE Beacon

In this paper, a smart attendance system is implemented to avoid the manual conventional way of taking attendance. It exploits the features of smart phones which every student has in this era. The system uses the Bluetooth 4.0 communication of smart phones to check the presence of students and lecturers. If the location of a student is valid i.e. the class room allocated, then that student's attendance is marked automatically. This system does not need any human intervention and is completely automated.

1.3.8 IoTSAMS: A Novel Framework for Internet of Things (IoT) Based Smart Attendance Management System

In this paper, a simple Internet of Things (IoT) attendance system is designed using NodeMCUV3, RFID Module and Fingerprint sensor module. The fingerprints of every student is taken and stored in the database. Fingerprint module takes the fingerprint of students each time for authentication. RFID reader is used to scan the RFID tags and get the student information and send it to the server where the attendance of that particular student is marked. The attendance of all the students is recorded and stored and can be used anytime in future.

1.3.9 Development of Attendance Management System using Bio metrics

In this paper, bio-metric based attendance system is designed. A fingerprint module is used to get the fingerprints of every student and stored in the database. When a student gives his fingerprint, it is matched with the fingerprints stored in the database and if a match is found, then that student's attendance is marked. Eighty candidates were used to test the system and success rate of 94 percent was recorded. It was found that the time taken to mark the attendance automatically using fingerprint was much lesser (3.79 sec) than the time needed to take the attendance of the same number of students manually (17.83 sec). The results showed improved performance over manual attendance management system. Student identification is followed by attendance marking.

1.4 Need statement

To design and develop a Smart attendance system using android simulated BLE, which could be used to trace the precise location of smartphone in indoor environment.

1.5 Problem statement

To design and simulate a beacon in android environment, so that smart phones can replace the extra hardware used for BLE signal generation i.e, beacons.Also a system is modeled to detect presence of these android simulated BLE, resulting in development of Smart attendance system.

1.6 Organization of the report

- Chapter 2 is System Design which contains the details about our project design.It includes the basic **Functional block** which briefs the functionality of our project, **Morphological chart** which gives the different means available to achieve each functionality ,the design alternatives we considered, and the final design that is chosen for implementation.
- Chapter 3 gives the details of the **implementation** of project.It includes the final system architecture, algorithm and flow chart indication of the functionalities are achieved.
- Chapter 4 is **Results** and **Discussions** where the results we obtained and the inference made from the results are discussed.
- Chapter 5 is **Conclusion** and **Future scope** where the final conclusion we arrived at is discussed along with the details of how the project can be modified to get better results.

Chapter 2

System design

2.1 Functional block diagram

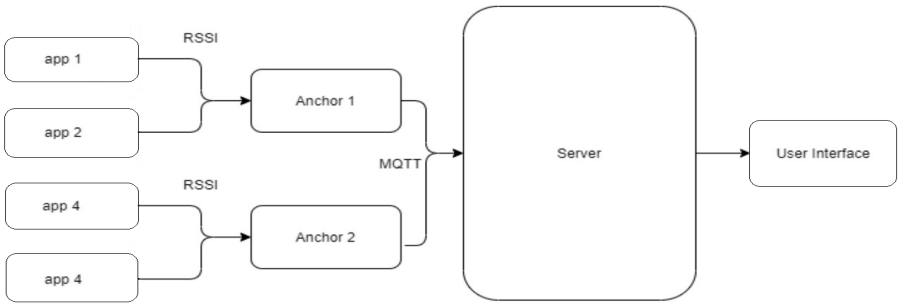

Figure 2.1: White Box

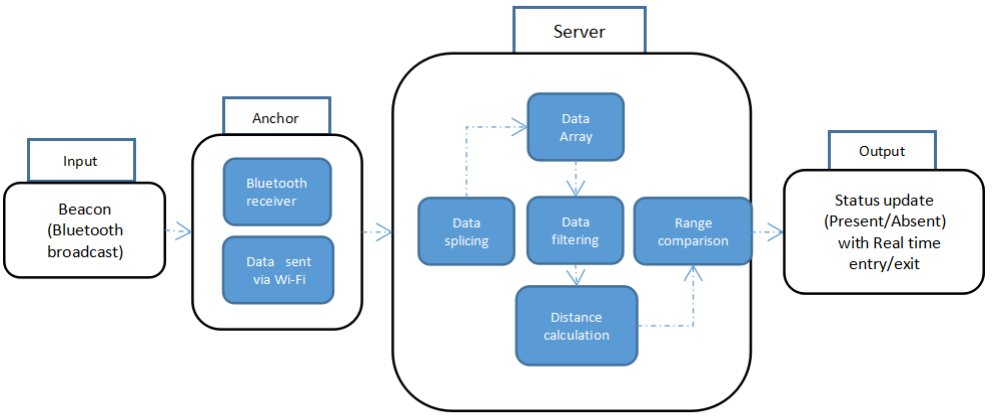

Figure 2.2: Black Box

2.2 Morphological chart

Table 2.1: Morphological chart

Functions/Means	**Option 1**	**Option 2**	**Option 3**
Transmitter	Beacon (Actual hardware)	RFID	Simulated beacon
Server	Laptop	Laptop	Laptop
Beacons	iBeacon	BLE	Eddystone
Receiver	Gateway	RFID Reader	Gateway

2.3 Design alternatives

Table 2.2 shows the comparison of the technologies.

Table 2.2: Design Alternatives

	Wi-Fi	**Bluetooth**	**RFID**	**Biometrics**
Operating range	150m	70m	1m	-
Positioning algorithm	RSSI	RSSI	RSSI	Fingerprint
Power consumption	Medium	Low	Medium	High
Cost	high	low	high	high

2.4 Final design

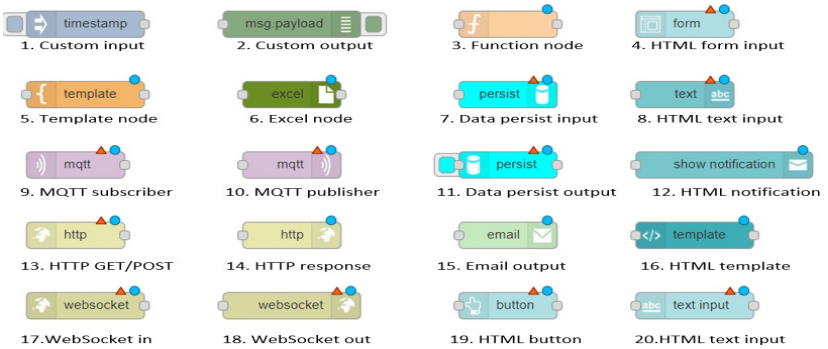

Figure 2.3: Few nodes used in our implementation: Node-Red

1. Custom input: Custom input node allows user to inject messages into a flow.
2. Custom output: Custom output node allows user to display output of a flow in the debug section.
3. Function node: Function node allows custom programming in JavaScript.
4. HTML form input: This node allows to take input from user in UI.
5. Template node: Template node allows execution of HTML raw code.
6. Excel node: Excel node stores the data in the excel sheet.
7. Data persist input: This node restores the data stored in database on the restart of node red.
8. HTML text input: This node allows text input from the end user through UI.
9. MQTT subscriber: This node receives the MQTT messages through subscribed topics.
10. MQTT publisher: This node publishes the MQTT messages through pre declared topics.
11. Data persist output: This node stores the data in the data base.
12. HTML notification: This node allows notification to pop up in the UI.
13. HTTP GET/POST: This node establishes GET or POST request.
14. HTTP response: This node outputs http response.
15. Email output: This node emails the received data to specified ID.
16. HTML template: This node executes HTML code specific to node red UI.
17. Web-Socket in: This node listens to the http response continuously.

18. Web-Socket out: This node outputs http output whenever a request is made.
19. HTML button: This node allows usage of button in the node red UI.
20. HTML text input: This node allows text input from the end user through node red UI.

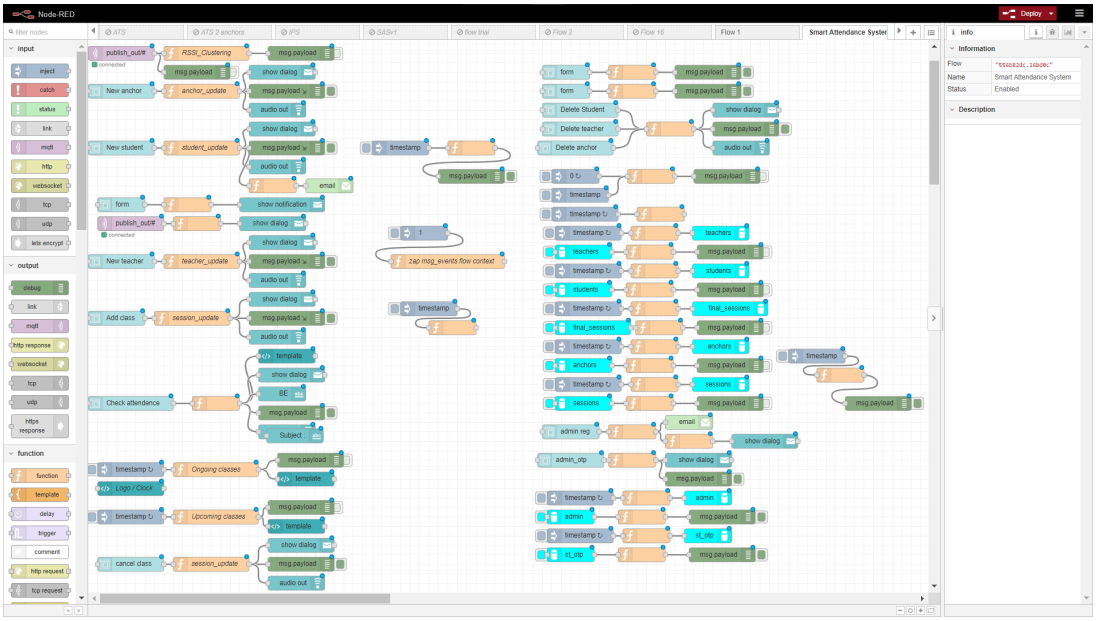

Figure 2.4: Final Node-Red Flow

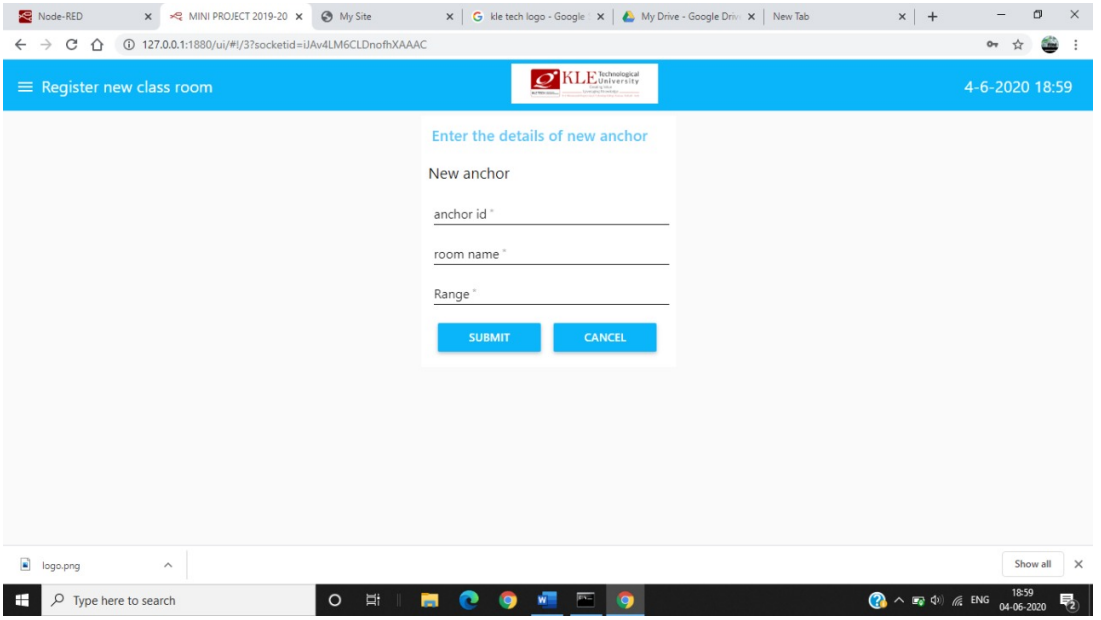

Figure 2.5: Anchor Configuration Window

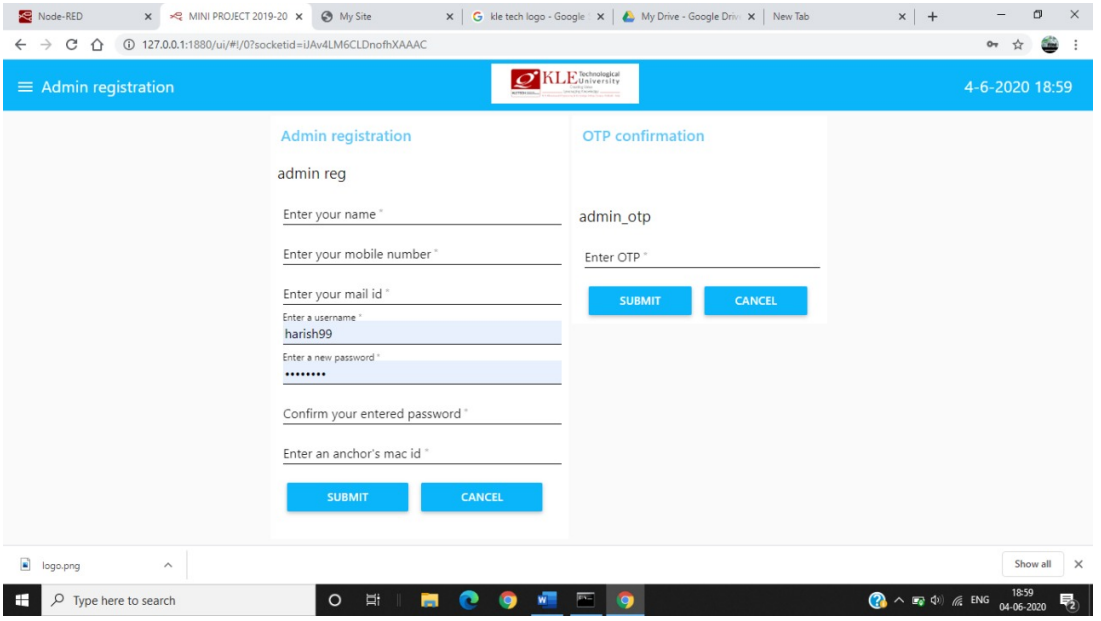

Figure 2.6: Admin Registration Window

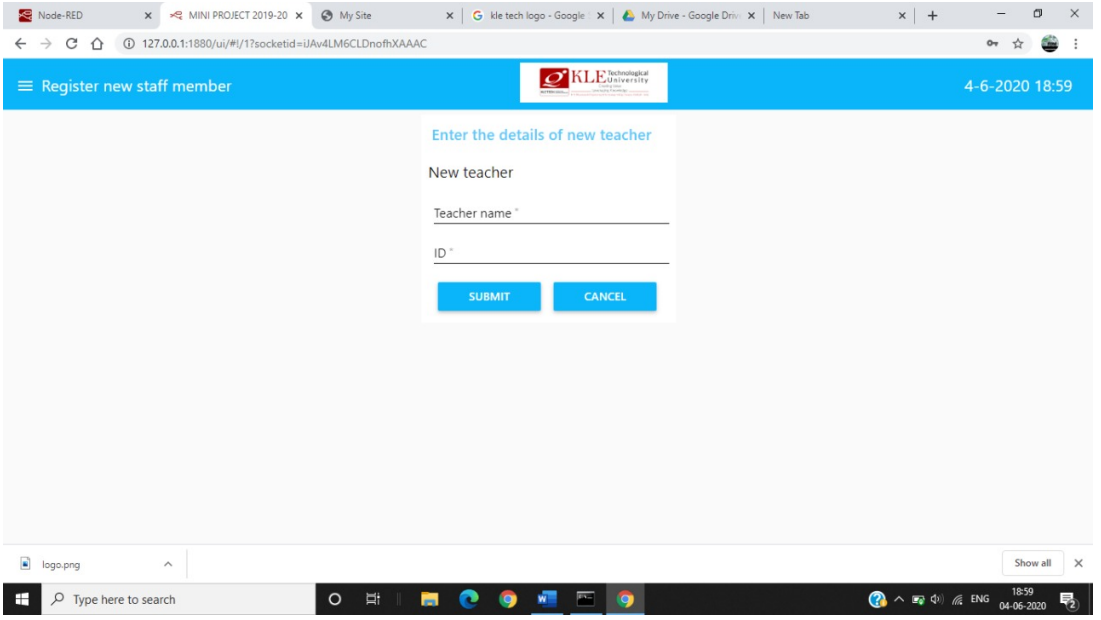

Figure 2.7: New Teacher Registration Window

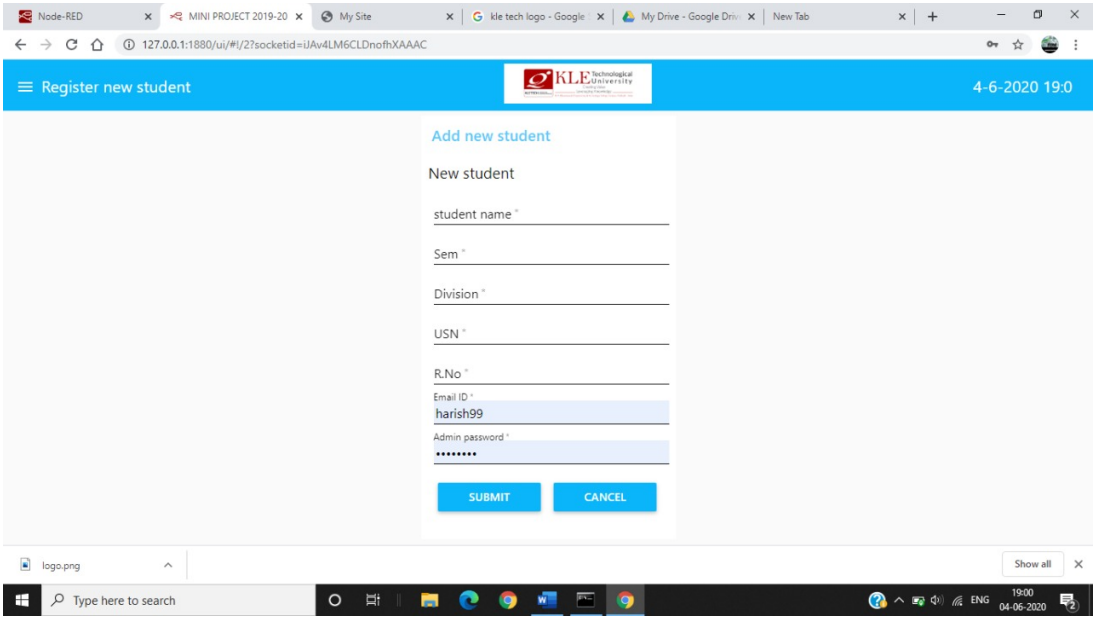

Figure 2.8: New Student Registration Window

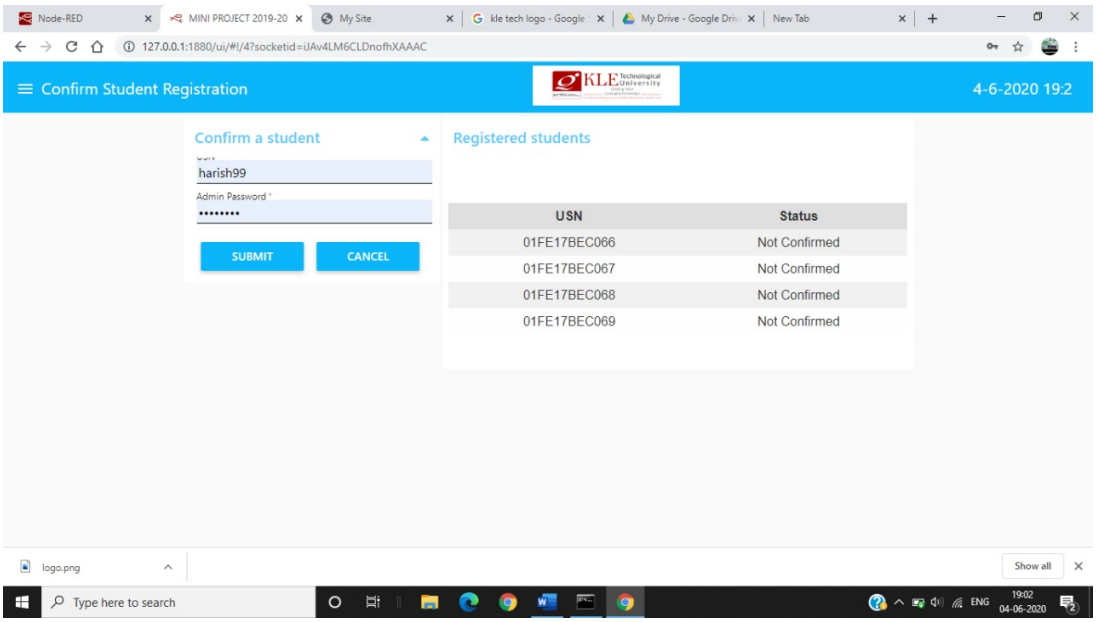

Figure 2.9: Student registration confirmation window

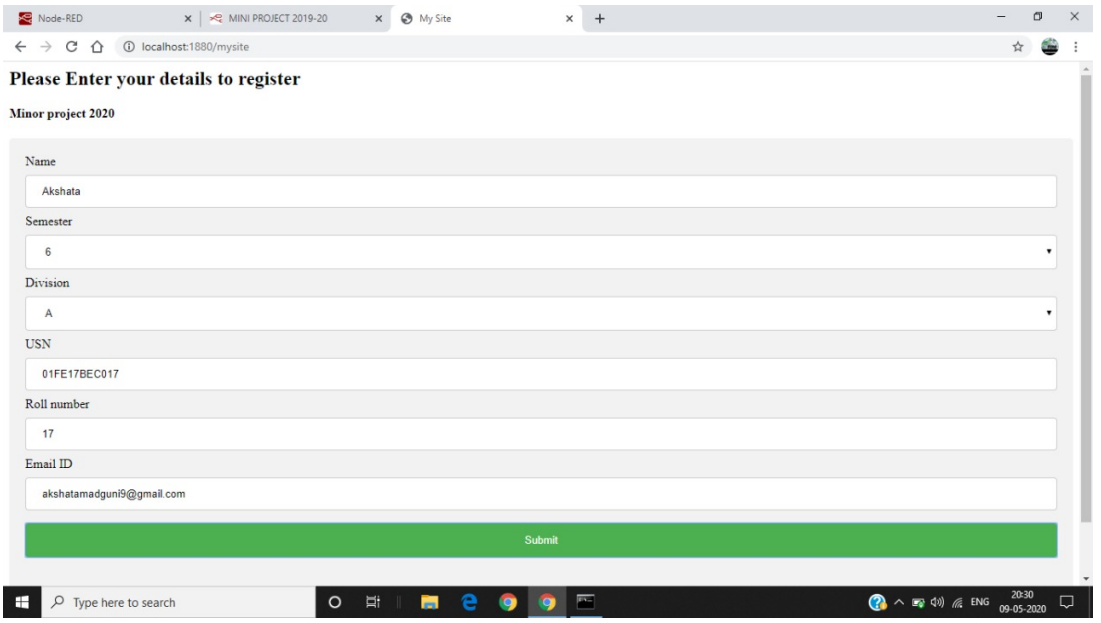

Figure 2.10: Student Registration Window

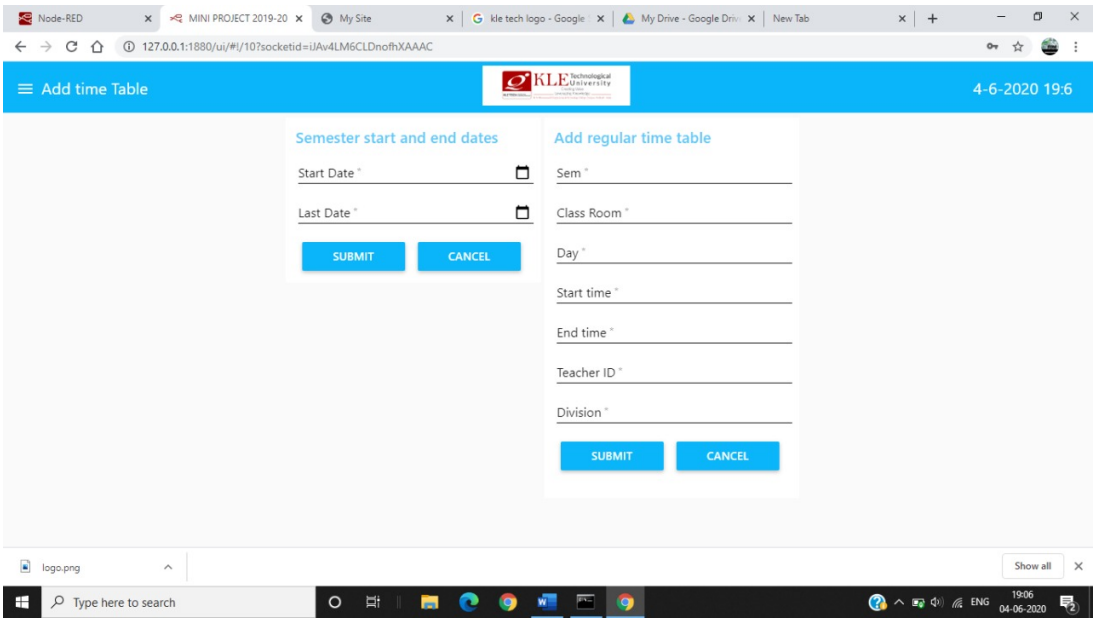

Figure 2.11: Adding time table

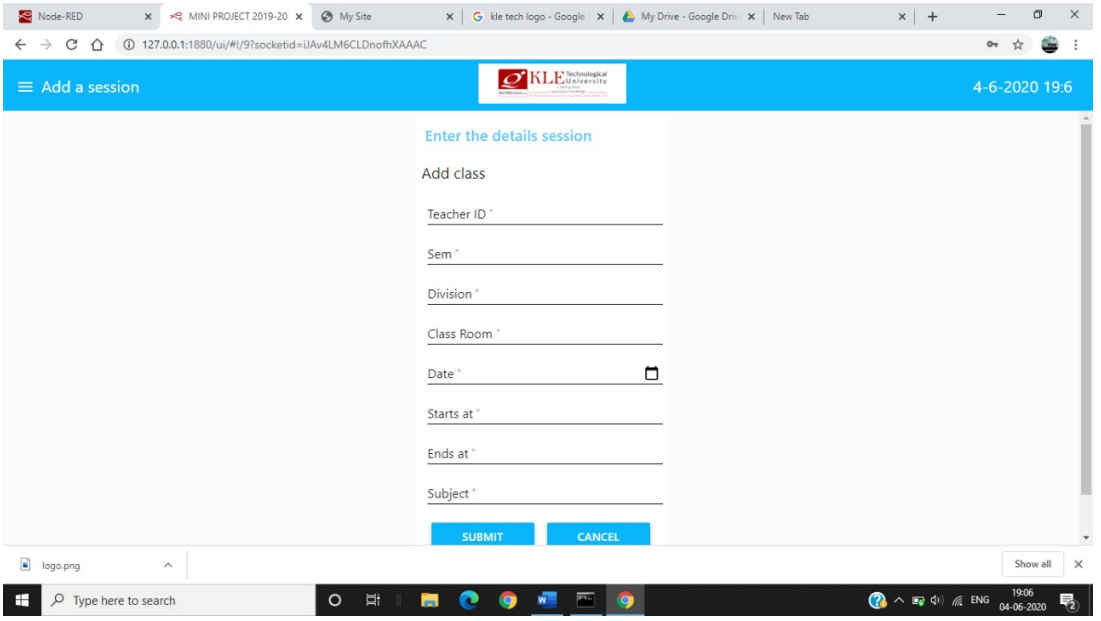

Figure 2.12: Session addition Window

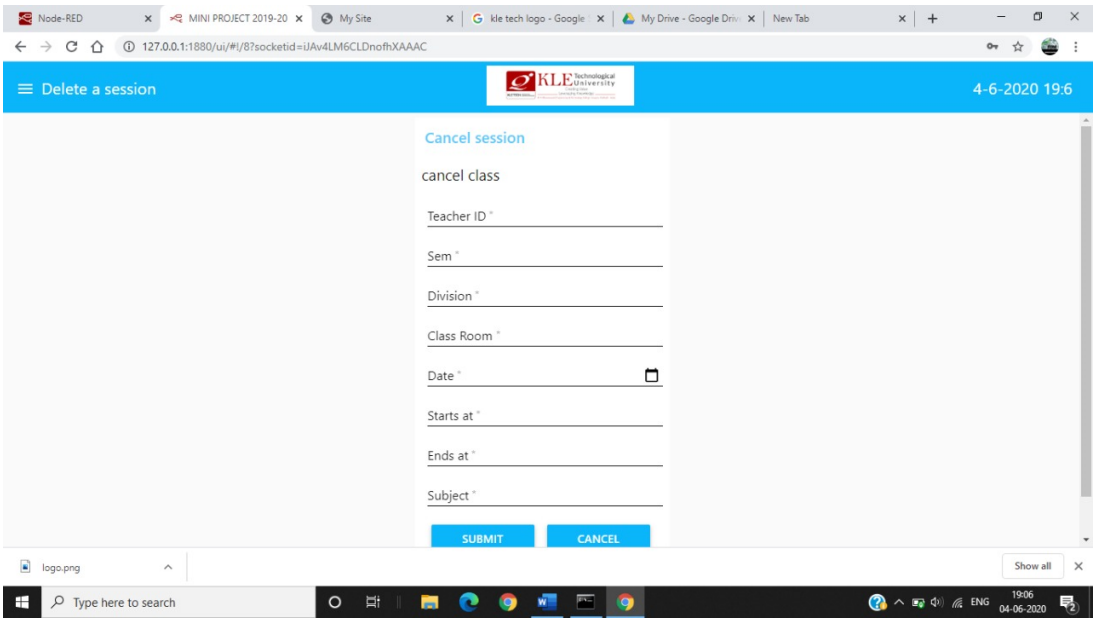

Figure 2.13: Session deletion Window

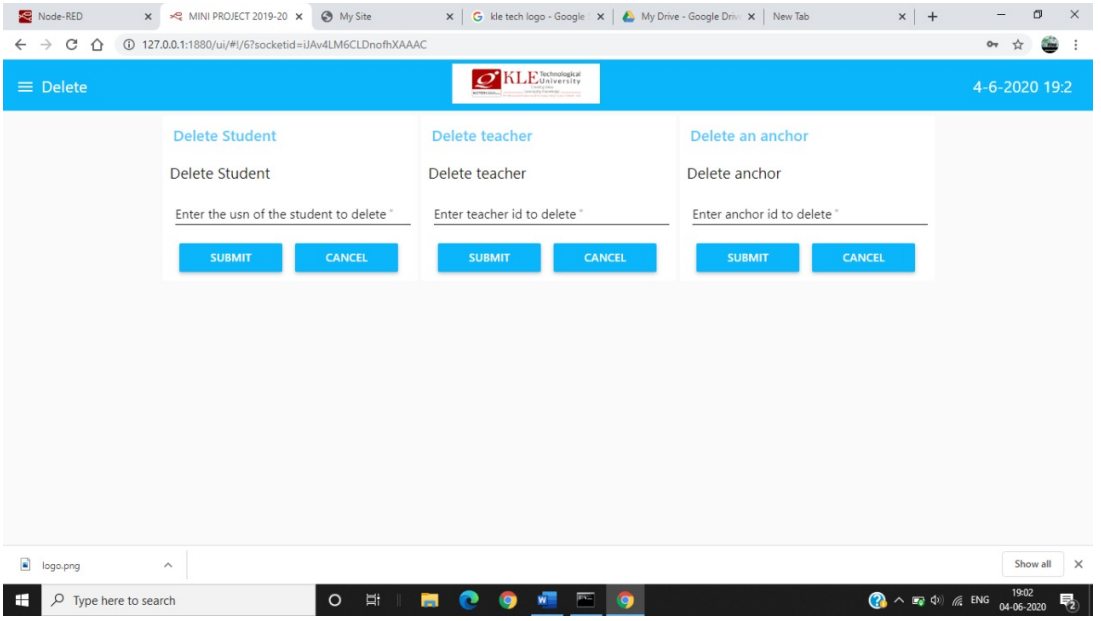

Figure 2.14: Deleting Teacher/Student/Anchor details

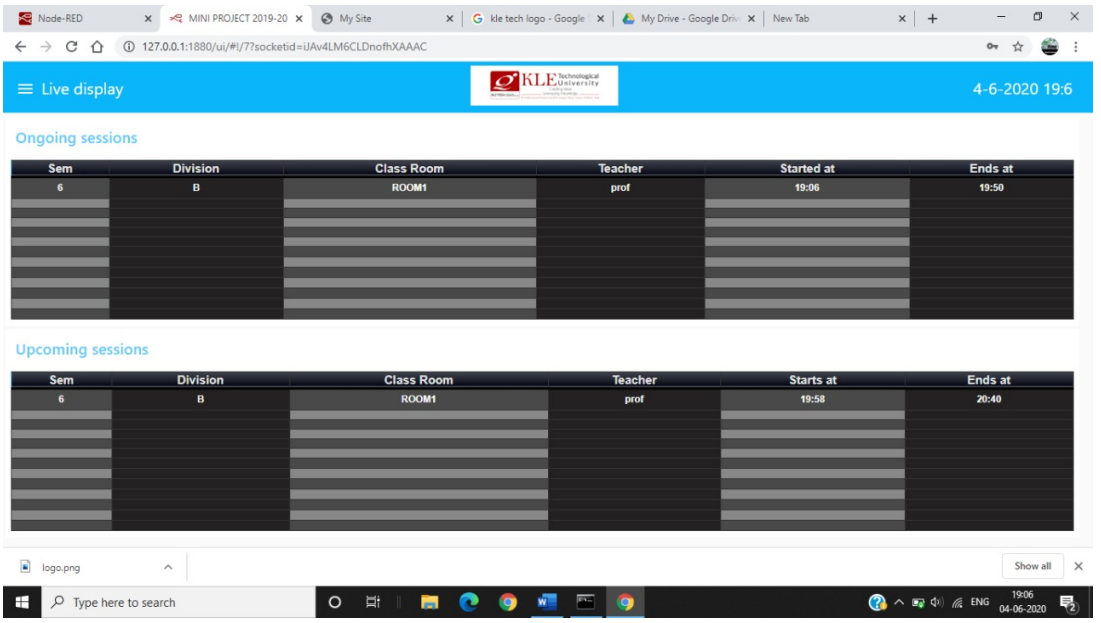

Figure 2.15: Live Display window

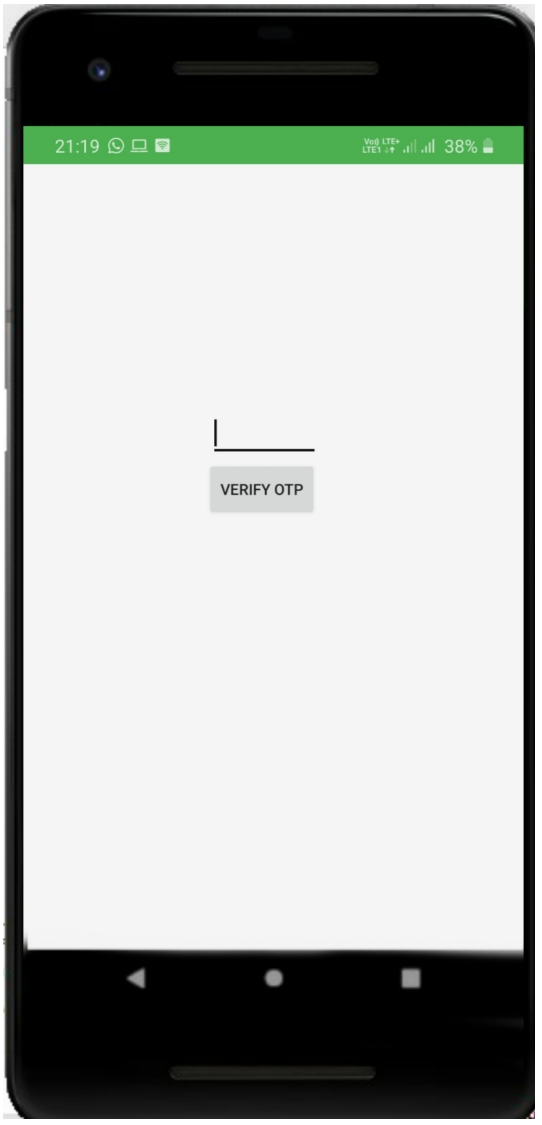

Figure 2.16: App Login page

Figure 2.17: Cooked BLE Eddystone-Beacon ready to use

Chapter 3

Implementation details

3.1 Specifications and system architecture

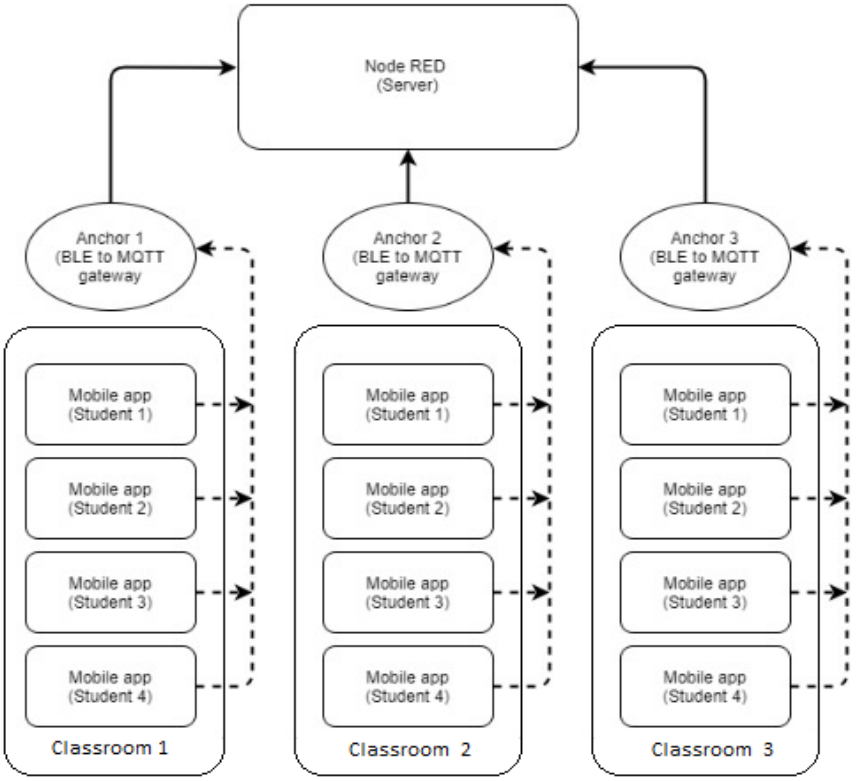

Figure 3.1: Detailed Flow

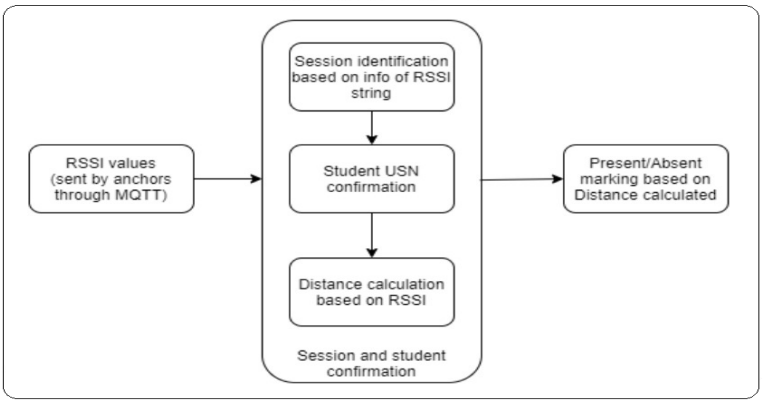

Figure 3.2: Node-Red back end process flow

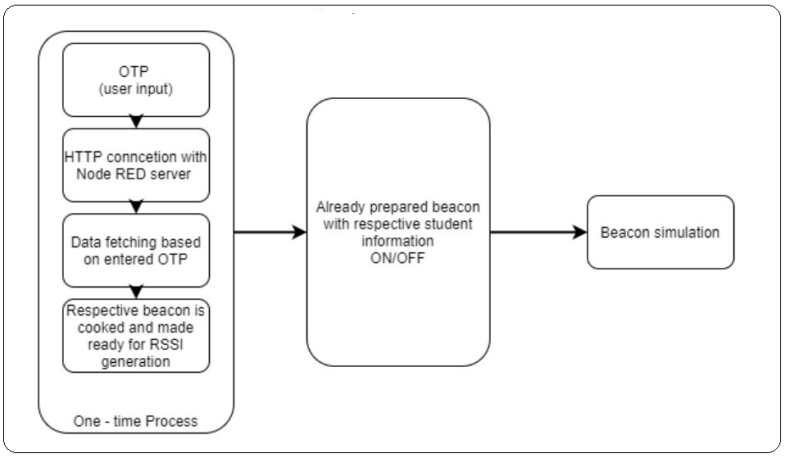

Figure 3.3: Custom Mobile App process flow

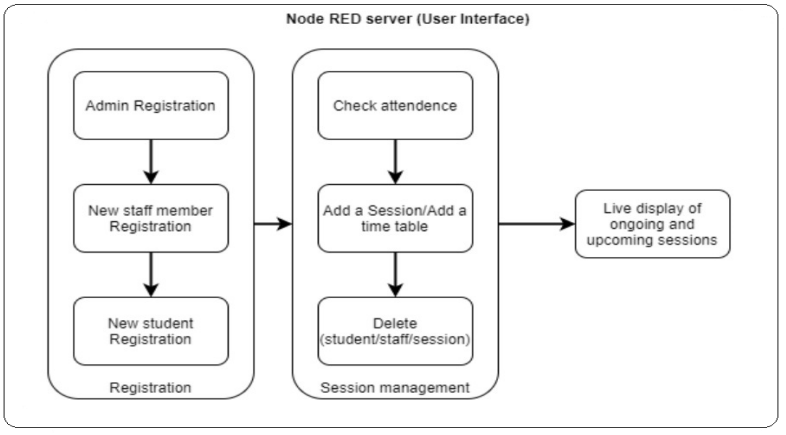

Figure 3.4: Sequential steps to be followed in the UI

3.2 Algorithm

1. Set a PC as a local host.
2. Run node red server on the local host.
3. Enter the details of admin in the admin portal of the UI.
4. Enter the received(through mail) One-Time-Password(OTP) in the OTP confirmation portal to complete the admin registration.
5. Enter the details of the gateways to configure them with the system.
6. Enter the details of the faculty members in the faculty registration portal to register new faculty member.
7. Receive student information through separate http portal and provide details to admin to confirm the student registration.
8. Send an OTP to successfully registered student's mail.
9. Enter the received OTP in the mobile app, in OTP section.
10. If OTP is found to be valid, fetch the data from node red server through http protocol from mobile app.
11. Cook a beacon with received information.
12. Make ready the beacon to emit the RSSI values upon a single tap of a button.
13. Gateways receive the RSSI data sent from mobile.
14. Schedule a session by entering the session information in the Add session portal.
15. Once the session is started Gateways start receiving RSSI string from student's mobile.
16. In background the student's information is fetched from RSSI string and if found valid, the attendance is marked.
17. Attendance can be checked in the Check attendance portal.
18. Live display of upcoming and ongoing sessions is displayed on LIVE portal.

3.3 Flowchart

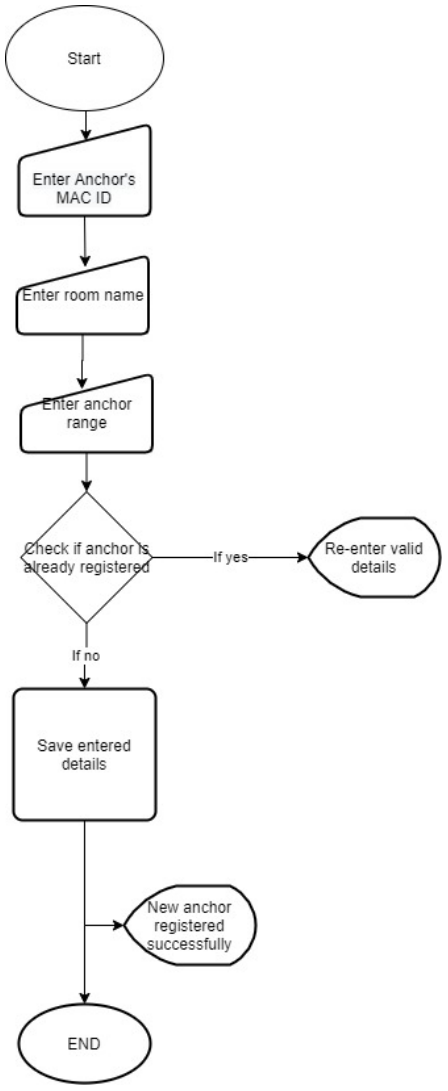

Figure 3.5: Anchor registration flow

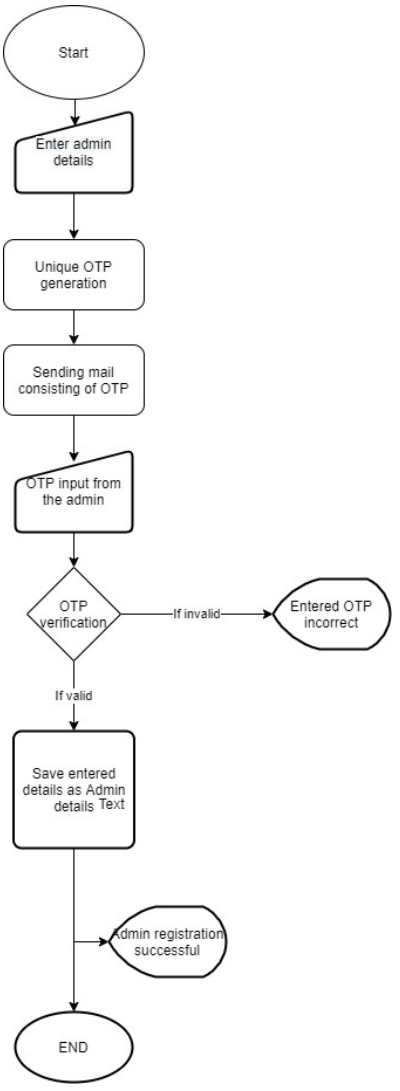

Figure 3.6: Admin registration flow

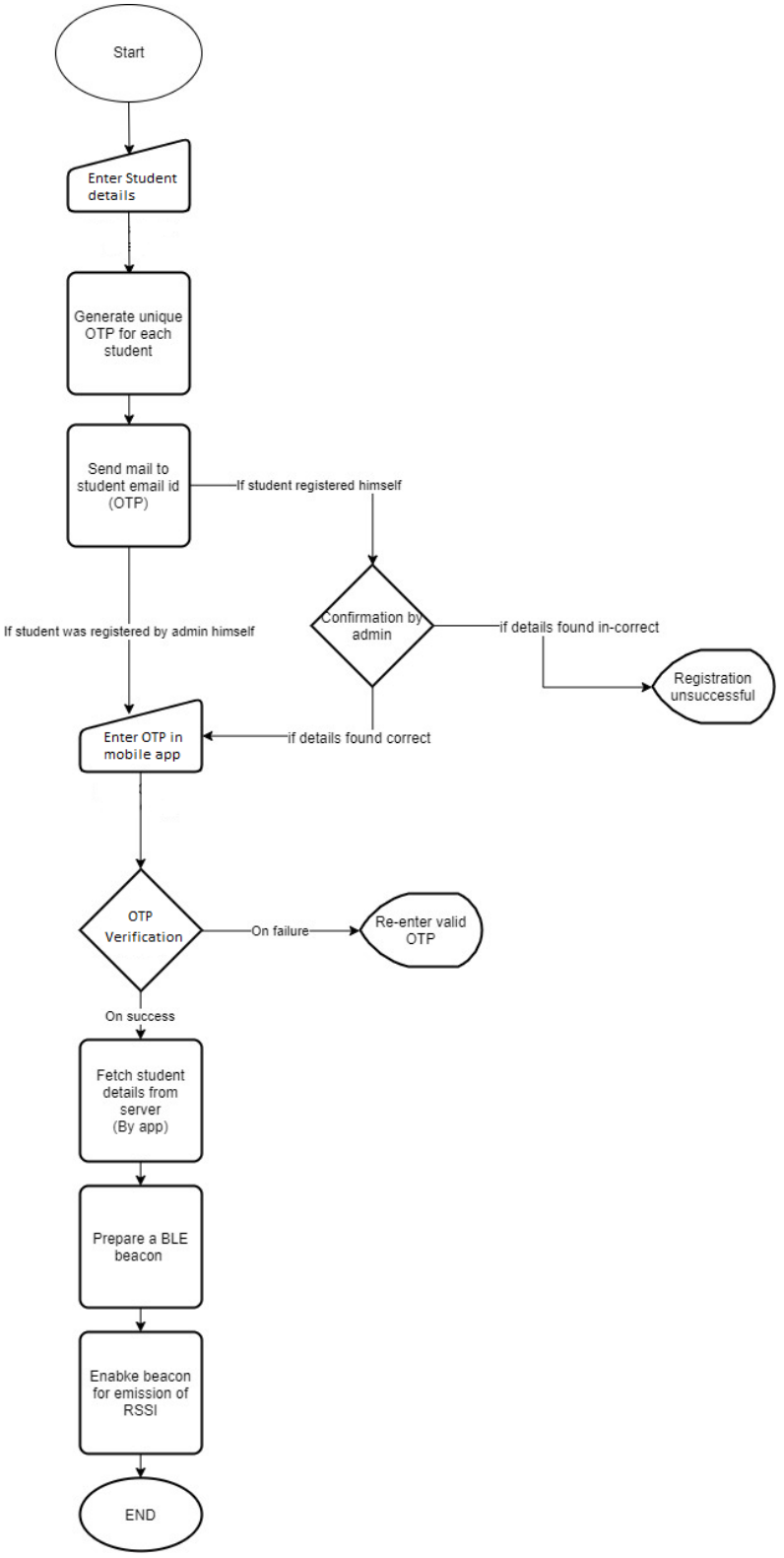

Figure 3.7: Student Registration flow

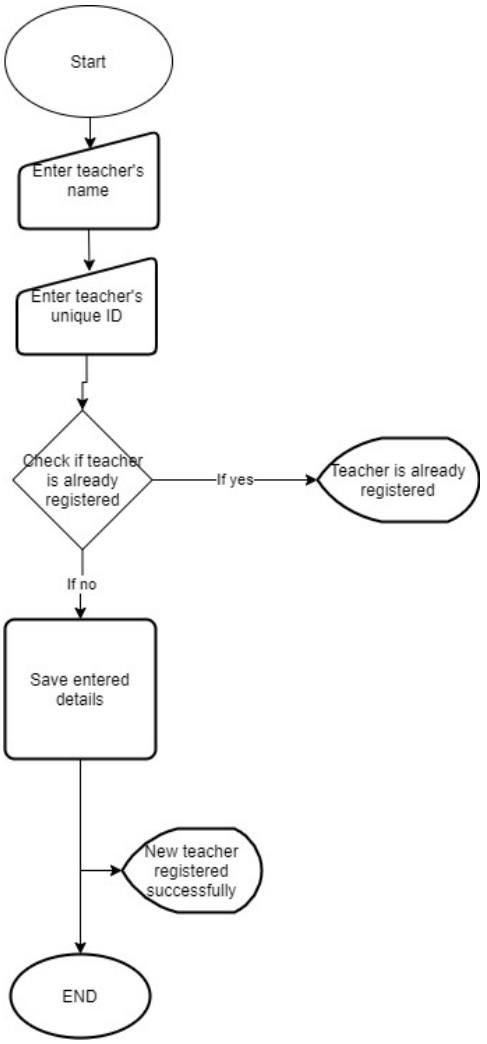

Figure 3.8: Teacher registration flow

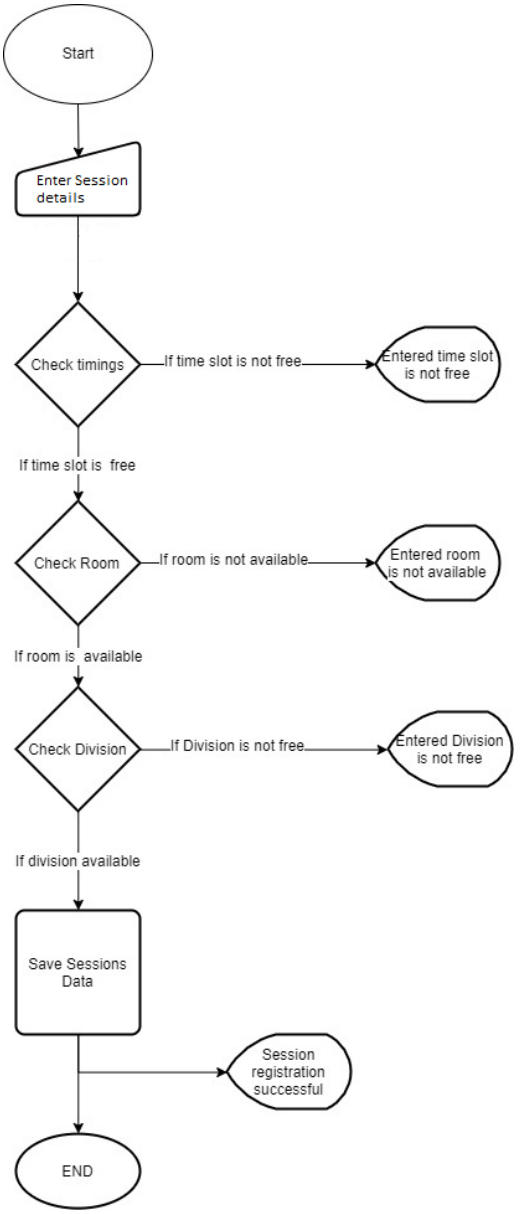

Figure 3.9: Session addition flow

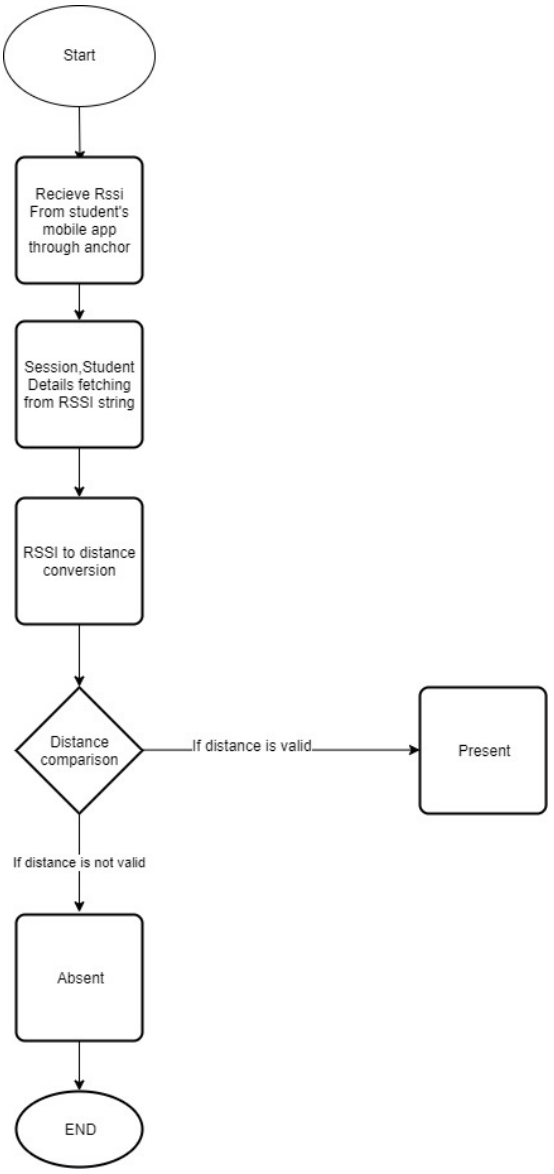

Figure 3.10: Back end flow: Node-Red

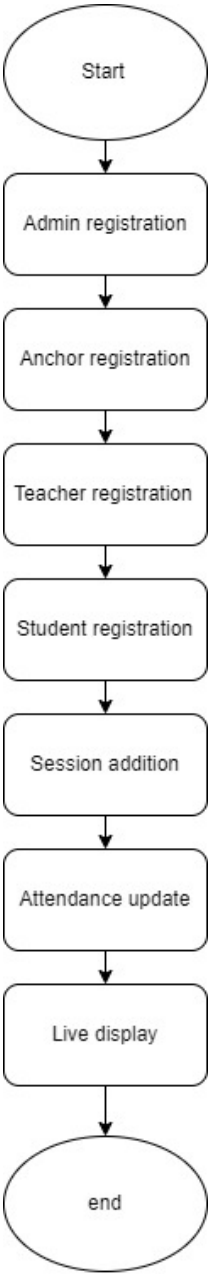

Figure 3.11: Sequential Registration steps of UI

Chapter 4

Results and discussions

4.1 Result Analysis

Requirement ID	Test ID	Input Description	Expected output	Actual output
4.1	4.1.1	Admin Registration.	When once the user clicks this field on the web page There will be 6 fields displayed here.	When once the user clicks this field on the web page There will be 6 fields displayed here.
	4.1.1	Notify Based on correct details entered.	If user enters all the details and follows the proper formatting with respect to email field and the password-He/she will get the alert message that the admin is registered successfully	If user enters all the details and follows the proper formatting with respect to email field and the password-He/she will get the alert message that the admin is registered successfully

	4.1.3	Notify based on incorrect details or same details.	* If user fails to fill details of the fields-He/she will get an alert message at the web-page end saying the field is required. *And if user enters the false email id in the respective field I.e. email without the proper format-He/she will get the alert message saying that to enter the proper mail id. *If OTP sent to mail id of the respective is different than that entered by the user-He/she will get the alert message saying admin hasn't registered and ask us to enter proper OTP.	*If user fails to fill details of the fields-He/she will get an alert message at the web-page end saying the field is required. *And if user enters the false email id in the respective field I.e. email without the proper format-He/she will get the alert message saying that to enter the proper mail id. *If OTP sent to mail id of the respective is different than that entered by the user-He/she will get the alert message saying admin hasn't registered and ask us to enter proper OTP.
4.2	4.2.1	Teacher Registration	Here the admin registered earlier is able to enter the details of the teacher in 2 fields.	Here the admin registered earlier is able to enter the details of the teacher in 2 fields.
	4.2.2	Notify Based on correct details.	If user enters the name and 12-digit unique id of the teacher. Then alert message will be popped that Teacher registration is successful.	If user enters the name and 12-digit unique id of the teacher. Then alert message will be popped that Teacher registration is successful.
	4.2.3	Notify based on incorrect details.	If user enters the 12-digit unique id that is already used. Then he/she will get an alert message saying that this ID is already used.	If user enters the 12-digit unique id that is already used. Then he/she will get an alert message saying that this ID is already used.

4.3	4.3.1	Student Registration.	Here the admin registered earlier is able to enter the details of the student in 7 fields and also, we have a webpage where each student can register individually without admin assistance.	Here the admin registered earlier is able to enter the details of the student in 7 fields and also, we have a webpage where each student can register individually without admin assistance.
	4.3.2	Notify based on correct details.	If proper information required in the field is given that is: Student name, semester, Division, Roll and the admin who has entered must confirm student registration with his password-Then alert message will be popped saying student registration is successful.	If proper information required in the field is given that is: Student name, semester, Division, Roll and the admin who has entered must confirm student registration with his password-Then alert message will be popped saying student registration is successful.
	4.3.3	Notify based on incorrect details.	If the details entered is wrong as in, in roll no field u enter a text and admin password is not correct-Then he/she will get a message as student registration is not successful.	If the details entered is wrong as in, in roll no field u enter a text and admin password is not correct-Then he/she will get a message as student registration is not successful.
	4.3.4	Confirm Student Registration.	In order to confirm student registration in the web-page we have an option containing 2 fields.	In order to confirm student registration in the web-page we have an option containing 2 fields.
	4.3.5	Notify based on correct details.	If user enters the USN and the Admin password correctly-He/she will be able to visualize the details of the student entered.	If user enters the USN and the Admin password correctly-He/she will be able to visualize the details of the student entered.
	4.3.6	Notify based on incorrect details.	If the USN or Admin password is in correct-Then he/she will get an alert message saying that the following student hasn't registered.	If the USN or Admin password is in correct-Then he/she will get an alert message saying that the following student hasn't registered.

4.4	4.4.1	Classroom Registration.	Here to conduct a session we need to specify the location that is done in 3 fields.	Here to conduct a session we need to specify the location that is done in 3 fields.
	4.4.2	Notify based on correct details.	If the valid Anchor id, classroom name and range up to which anchor must receive RSSI values is correct-Then he/she will get an alert message saying that classroom registration is successful.	If the valid Anchor id, classroom name and range up to which anchor must receive RSSI values is correct-Then he/she will get an alert message saying that classroom registration is successful.
	4.4.3	Notify based on incorrect details.	If the valid anchor id is not entered-Then he/she will get an alert message that classroom hasn't registered and also if required fields are missing.	If the valid anchor id is not entered-Then he/she will get an alert message that classroom hasn't registered and also if required fields are missing.
4.5	4.5.1	Deletion.	Here the user/admin is able to delete the Teacher registered, student registered and classroom registered. This is done when user specifies the unique id mentioned while registering the Teacher, Student and classroom correctly.	Here the user/admin is able to delete the Teacher registered, student registered and classroom registered. This is done when user specifies the unique id mentioned while registering the Teacher, Student and classroom correctly.
	4.5.2	Notify based on correct details.	If the entered details are said to be valid then following details respective gets deleted.	If the entered details are said to be valid then following details respective gets deleted.
	4.5.3	Notify based on incorrect details.	If the entered details are not valid then alert message gets popped saying that deletion wasn't successful.	If the entered details are not valid then alert message gets popped saying that deletion wasn't successful.

4.6	4.6.1	Session addition.	Here the Teacher is able to add session by mentioning the details like Teacher id, Start time, end time of session, classroom, semester, Date, as well as the subject.	Here the Teacher is able to add session by mentioning the details like Teacher id, Start time, end time of session, classroom, semester, Date, as well as the subject.
	4.6.2	Notify based on correct details.	If all the details are valid then session will be registered and said to be displayed on the live session board.	If all the details are valid then session will be registered and said to be displayed on the live session board.
	4.6.3	Notify based on incorrect details.	If details entered like Teacher id, is not valid then the alert message will pop-up saying the session is not registered.	If details entered like Teacher id, is not valid then the alert message will pop-up saying the session is not registered.
	4.6.4	Delete session.	Here the Teacher is able to delete a session registered by specifying the same details that were at the time of registering the session.	Here the Teacher is able to delete a session registered by specifying the same details that were at the time of registering the session.
	4.6.5	Notify based on correct details.	If the details specified like Teacher id is valid and there is a subject specified is valid-Then the session gets deleted and it will not appear on the live display board.	If the details specified like Teacher id is valid and there is a subject specified is valid-Then the session gets deleted and it will not appear on the live display board.
	4.6.6	Notify based on incorrect details.	If the details specified is not valid then the alert message will be popped saying that the session is unable to delete.	If the details specified is not valid then the alert message will be popped saying that the session is unable to delete.

4.7	4.7.1	Live Display.	*Here the user is able to get the view of sessions going on with their respective semesters and also the classroom. *Also, the user is able to view the upcoming sessions for next 1 hr. with their respective semester and the location where actually the sessions are going to be held.	*Here the user is able to get the view of sessions going on with their respective semesters and also the classroom. *Also, the user is able to view the upcoming sessions for next 1 hr. with their respective semester and the location where actually the sessions are going to be held.
4.8	4.8.1	Check attendance.	Here in this Teacher can check the no of students present for the class by specifying the details of 5 fields.	Here in this Teacher can check the no of students present for the class by specifying the details of 5 fields.
	4.8.2	Notify based on correct details.	If the Teacher id specified is valid and also the followings such as semester, subject as well as the date and time of session conducted-Then following students attended will be displayed.	If the Teacher id specified is valid and also the followings such as semester, subject as well as the date and time of session conducted-Then following students attended will be displayed.
	4.8.3	Notify based on incorrect details.	If the details specified are said to be invalid then the attendees of the session will not be displayed.	If the details specified are said to be invalid then the attendees of the session will not be displayed.

4.9	4.9.1	Add time table.	Here in this the faculty/User can add a regular time table rather than adding a session every day for a month or a year by specifying the details in the fields like start date, end date, Teacher id, semester classroom and division as well as start and end time of session.	Here in this the faculty/User can add a regular time table rather than adding a session every day for a month or a year by specifying the details in the fields like start date, end date, Teacher id, semester classroom and division as well as start and end time of session.
	4.9.2	Notify based on correct details.	If user enters the correct registered Teacher id, while adding a session and valid time as well-Then he/she will get an alert message saying that time table registration is successful.	If user enters the correct registered Teacher id, while adding a session and valid time as well-Then he/she will get an alert message saying that time table registration is successful.
	4.9.3	Notify based on incorrect details.	If user enters invalid details regarding the fields then he/she will get an alert message saying that time table registration is not successful.	If user enters invalid details regarding the fields then he/she will get an alert message saying that time table registration is not successful.

Chapter 5

Conclusions and future scope

5.1 Conclusion

A smart attendance system is designed which overcomes the problem of manual attendance system. The system designed saves time and makes the session management easier. Instead of carrying a separate tag, the user can use his smart phone itself as a BLE tag by installing an app and turning on the Bluetooth. Gateways installed in the rooms where sessions are held, receive the signals and send them to node-red server through WiFi where they are further processed to mark the presence of a particular person. It is also user friendly where the admin can register himself and also the students and the lectures. The sessions can be added with their timings and the room where it is held. There is also a provision for the students to register themselves and then get verified by the admin. There is a live display of ongoing sessions and the upcoming sessions within next one hour. Thus the smart attendance system designed helps overcome many problems which prevailed in conventional attendance system and some of the existing systems like RFID based, finger-print technology etc.

5.2 Future scope

5.2.1 Application in the societal context

The smart attendance system can be deployed in universities as every student now will have a smart phone. After the one time registration of the lecturers, students, and the sessions to be held at different times,the attendance of every class is taken and updated automatically without any human intervention. Its easy to check the attendance status of any particular session and also a mail is sent to every student at the end of the day about the status of their attendance.

- Since there is a possibility of getting proxies if we carry other's smart phones, a face recognition can be added to the designed smart attendance system app.
- Gateways used to capture the BLE signals and send to the server can be simulated by mobile apps by which we can avoid the use of extra hardware
- This system can also be used in work places to get the attendance of the employees and also schedule the meeting.

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