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CERTIFICATE

This is to certify that the project work embodied in this report entitled **“BRTS E-Ticket Management System”** was carried out by **Arshil Hapani(206120316035), Sanket Sadadiya(206120316038)** and **Vaibhav Sanghani(206120316015)** at **Dr. S & S. S. Ghandhy College of Engineering & Technology, Surat.**

For partial successful completion of **Project-II (3361606)** of **Semester-6 Diploma Engineering in Information Technology** to be awarded by Gujarat Technological University. This project work has been carried out under my supervision and is to the satisfaction of the department.

**Date:** 20-05-2023

**Place:** Surat

**Guide H.O.D. Principal External**

**Examiner**

DECLARATION OF ORIGINALITY

We hereby certify that we are the sole author of this project and that neither any part of this work nor the whole work has been submitted for a degree to any other University or Institution.

We certify that, to the best of our knowledge, our work does not infringe upon anyone’s copyright nor violate any proprietary rights and that any ideas, techniques, quotations, or any other material from the work of other people included in our report or otherwise, are fully acknowledged in the accordance with the standard referencing practices.

We declare that this is a true copy of our report, including any final revisions, as approved by our supervisor.

**Date:** 20-05-2023

**Place:** Surat

**Yours Sincerely,**

Arshil Hapani (206120316035)

Sanket Sadadiya (206120316038)

Vaibhav Sanghani (206120316015)

ACKNOWLEDGEMENT

We are so glad to present our project report on **‘BRTS E-TICKET MANAGEMENT SYSTEM’**, which is prepared as a part of our final semester project in Diploma Engineering & Technology. This project work is the outcome of guidance provided by the dedicated Information Technology, Dr. S. & S. S. Ghandhy College of Engineering & Technology.

With a profound sense of indebtedness, we use this opportunity to express our sincere gratitude to Prof. Manish D Patel, H.O.D. of the Information Technology department for inspiring and permission to carry out our project.

We wish to extend our thanks to our project guide Prof. Manish D. Patel, department of Information Technology for their keen interest, valuable guidance, and support rendered throughout our project.

Last but not least, thanks to **Dr. S. & S. S. Ghandhy College of Engineering & Technology** for providing us the platform to represent the project.

**Yours Sincerely,**

Arshil Hapani (206120316035)

Sanket Sadadiya (206120316038)

Vaibhav Sanghani (206120316015)

**Abstract**

The **BRTS E-Ticket Management System** is a web based application that works within the centralized network the manual use of purchasing ticket is presently consume time by having to stay in queue and resolve the problem of change of many. For this reason an efficient system is to be proposed in this paper to ease the issue of purchasing ticket. The system allows passenger to purchase ticket from anywhere and anytime online, there is no need to go to BRTS station.

**PROJECT PROFILE**

**Project Title:** BRTS E-Ticket Management System

**Project Type:** Web Application

**Front-End:** JavaScript, TypeScript, React.js, Next.js, Tailwind CSS

**Back-side Language:** Node.js, Express.js, JWT, SHA128, Payment Gateway(Stripe)

**Project Guide:** Mr. Manish D. Patel

**Submitted By:** Arshil Hapani, Sanket Sadadiya, Vaibhav Sanghani

**Submitted To:** Dr. S. & S.S. Ghandhy College of Engineering & Technology, Surat

Table of Contents

**Certificate I**

**Declaration of Originality II**

**Acknowledgement III**

**Abstract IV**

**Project Profile V**

**Chapter-1 Introduction1**

1.1 Specification 1

1.2 Overview of language 1

1.3 Scope of project 2

**Chapter-2 Requirement Analysis3**

2.1 Requirement Analysis 3

2.2 Project Life Cycle Model 3

2.3 Software Requirement Specification 4

**Chapter-3 System Design6**

3.1 ER Diagram 6

3.2 Data Flow Diagram 6

3.3 Data Dictionary 7

**Chapter-4 UML 9**

4.1 Use case Diagram 9

4.2 Activity Diagram 10

**Chapter-5 GUI/Application Interface 11**

5.1 User Side 11

5.2 Conductor Side 15

5.1 Admin Side 18

**Chapter-6 Testing 23**

6.1 Admin Side 23

6.2 Conductor Side 38

6.3 User Side 40

**Chapter-7 Advantages, Limitations & Future Enhancement 46**

**Chapter-8 Conclusion 49**

**Bibliography 50**

**Chapter 1 : Introduction**

* 1. **Specification**

The name of the project is BRTS E-ticket management system. Which is web application used to generate the BRTS bus ticket online in user’s device. The user have to select two destination one is current location and another is the destination place and the fare of the ticket is generated and it is credited from the app balance. User have to recharge and that balance is used to generate ticket. User can also cancel the ticket within the time limit. This portal provides features like transaction history and ticket history which gives more functionality and flexibility. The system is build for managing and computerizing the traditional database ticket booking and maintenance all customer’s details and ticket details.

The purpose of this project is to generate BRTS ticket on user mobile where user have to select current location and the destination. It have three different view which handles, first is admin view which handles and manages the system. The admin is technical person. Second is user view in which user can purchase ticket. Third is intermediate view in which ticket scanning and recharge can be done.

* 1. **Overview of Language**

The MERN stack is a popular web development framework that consists of four key technologies: MySQL, Express.js, React, and Node.js. Here's a short overview of each component:

1.MySQL: MySQL is an open-source relational database management system (RDBMS) that has gained widespread popularity for its scalability, performance, and ease of use. With its support for SQL, MySQL enables efficient storage, retrieval, and manipulation of structured data in tables. MySQL's cross-platform compatibility, active community, and extensive documentation contribute to its status as a reliable and widely adopted database solution.

2. Express.js: Express.js is a fast and minimalist web application framework for Node.js. It provides a set of robust features and utilities for building web applications and APIs. Express.js simplifies the process of handling HTTP requests, routing, middleware implementation, and managing server-side logic.

3. React: React is a JavaScript library developed by Facebook for building user interfaces. It follows a component-based approach, where UI elements are broken down into reusable and self-contained components. React allows for efficient and dynamic rendering of components, making it popular for building single-page applications and interactive user interfaces.

4. Node.js: Node.js is a runtime environment that allows developers to run JavaScript on the server-side. It provides an event-driven, non-blocking I/O model, which makes it highly scalable and efficient for building server-side applications. Node.js enables developers to handle server-side logic, perform database operations, and manage API endpoints.

When combined, the MERN stack provides a full-stack JavaScript solution for developing modern web applications. MongoDB serves as the database, Express.js handles the server-side logic, React manages the client-side UI, and Node.js acts as the server runtime. This combination allows for a seamless development experience, code reusability, and efficient handling of both frontend and backend aspects of an application.

* 1. **Scope of Project**

This project is used to generate E-Ticket in mobile to overcome the maximum problems which are faces by the citizens who uses BRTS buses for daily travelling purpose. The online ticket is generated on user’s device and the history is saved. The system is build for managing and computerizing the traditional database ticket booking and to maintains all user’s details and ticket details. This portal provides transaction history and ticket history which gives more surety and authentication about processes. It also provides feature of ticket cancellation.

**Chapter 2 : Requirement Analysis**

**2.1 Requirement Analysis**

* **Simple and Minimal**

Our system contains minimal user interface which helps user to interact with portal and the good looking UI designing scheme attract user.

* **Wide Range Of City Station Supports**

It comes with many stations / BRTS stations which gains total advantage to user.

* **Top Up System**

Normally for payment user have to use secure transaction systems like UPI, Credit Card etc.. which cause security issues , to overcome that problem top up recharge systems is used , in which user have to recharge the app balance once and further used to generate ticket.

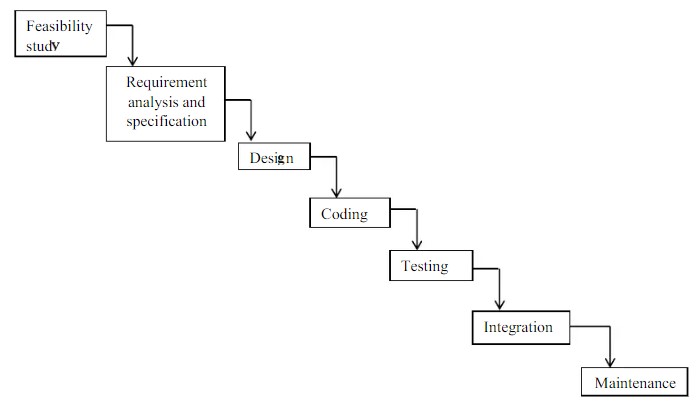
* **Custom Selection of Destination**

User have to select their current place and landing destination by themselves so there is no confusion or clash happen between user and conductor.

**2.2 Project Life Cycle Model**

This system underwent all the stages of system development lifecycle (SDLC). According to the nature of this system and the data collected, a waterfall methodology was used to develop this system. This methodology included the following stages: feasibility study, requirement analysis and specification design, coding, testing, integration then maintenance. Each phase required a different amount of effort and every phase had a well-defined starting and point.

Every phase had to be completed before beginning the next stage.



The waterfall methodology was worthwhile because this approach produced a complete qualitysystem and error-free system due to the fact that every phase had to be completed before the nextone began thus leaving no phase unattended.However, according to the data collected on the user requirements, there was a clearunderstanding of the user requirement hence no doubt on what was to be developed. Similarly,the approach was also less costly since there was no repeating of a process once completed andthus minimized wastage of resources as compared to other approaches such as the rapid prototyping methods.

* Data Collection Approaches

So as to collect data from Modern coast bus ticket booking system as well as its clients,appropriate methods of collecting data were needed. These techniques included the following:

Observation :

This involved the researcher going to the field of study, making direct watch on the way theorganization under study operates, identifying the possible drawbacks of the operating systemanalyzing the problems and developing a solution based on the observations made. Thistechnique was employed since it provides a first-hand information which is quite reliable andaccurate since the method provided a quick overview of the system. It is the most effectivetechnique.

Interviews :

This is a direct face to face conversation between the system analyst(interviewer) and the usersof the system. This was used where the respondents were few in order clarifying and verifyinggathered facts. This technique was important to use since some data could not be collected bydirect observation unless interviewed, hence it helped in enriching the data for quality processing.

Questionnaires :

A questionnaire refers to a set of questions prepared by the person collecting data in a paperwhich is issued to specific people who in turn respond to the questions privately without the presence of the interviewer. Once the respondent is through, he/she will issue the answers backto the person collecting the data. This technique was also important because some intervieweeswere not confident enough to respond to the question at the interview panel during the interviewand therefore a questionnaire best suited such people.

**2.3 Software Requirement Specification**

* **General Specifications**
* **User Characteristics**

Users have to log in if they have already registered themselves otherwise they have to create an account in order to use services provided by portal. They have to select destinations and generate ticket by themselves. They can check their balance and tickets history.

* **System Characteristics**

This system can generate ticket whenever users select their destination then it generate ticket and calculate the fare mathematically. It provides facilities like reset password , editing profile , transaction history and ticket history.

* **Software Requirements**
  + - * + Windows OS
        + Node.js
        + VS Code
        + My SQL
        + Apache Server
        + Web Browser
        + Git, Github Desktop
        + Postman
* **Hardware Requirements** 
  + - * + Personal Computer (minimum 4 GB RAM , 128 GB SSD , Intel HD

520 , I3/I5 3rd Gen)

* + - * + Smart Phone
        + Stable Internet Connection

* **Functional Requirements**
* **Registration**

Users have to register themselves by providing sign up details like Username , Phone number , E-Mail and have to set Password, in order to create new account.

* **Login**

Existing users have to login in the system by using their username and password , if they forget password then they can change the password by authorizing themselves.

* **Profile**

Users can see their profile information and they can modify their profile

* **Ticket Booking**

Users have to select their current location and destination in order to purchase ticket. The fare of ticket is depending on the distance of locations.

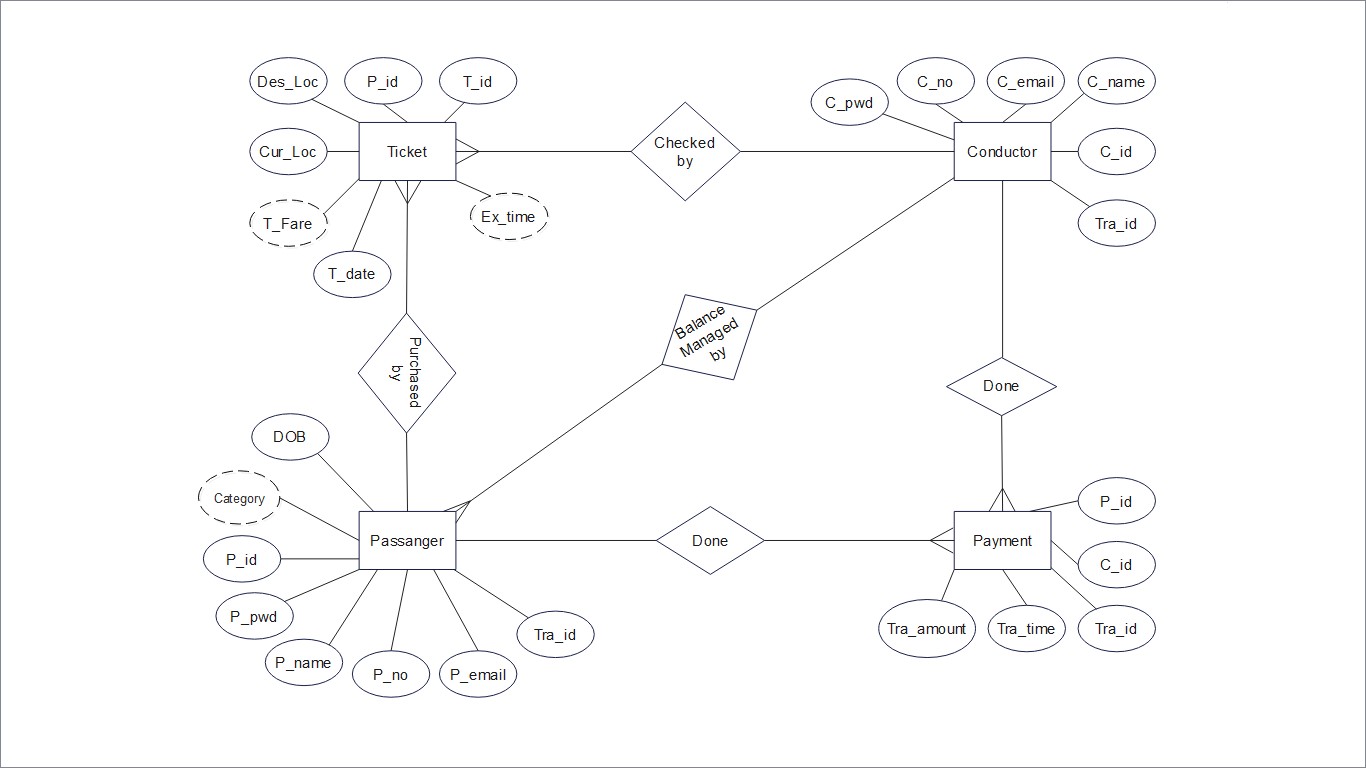
* **History**

User can see their transactions and ticket purchasing history.

* **Non Functional Requirements**
  + - * + Attractive GUI
        + Accessible Environment
        + Reliability
        + Availability
        + Security

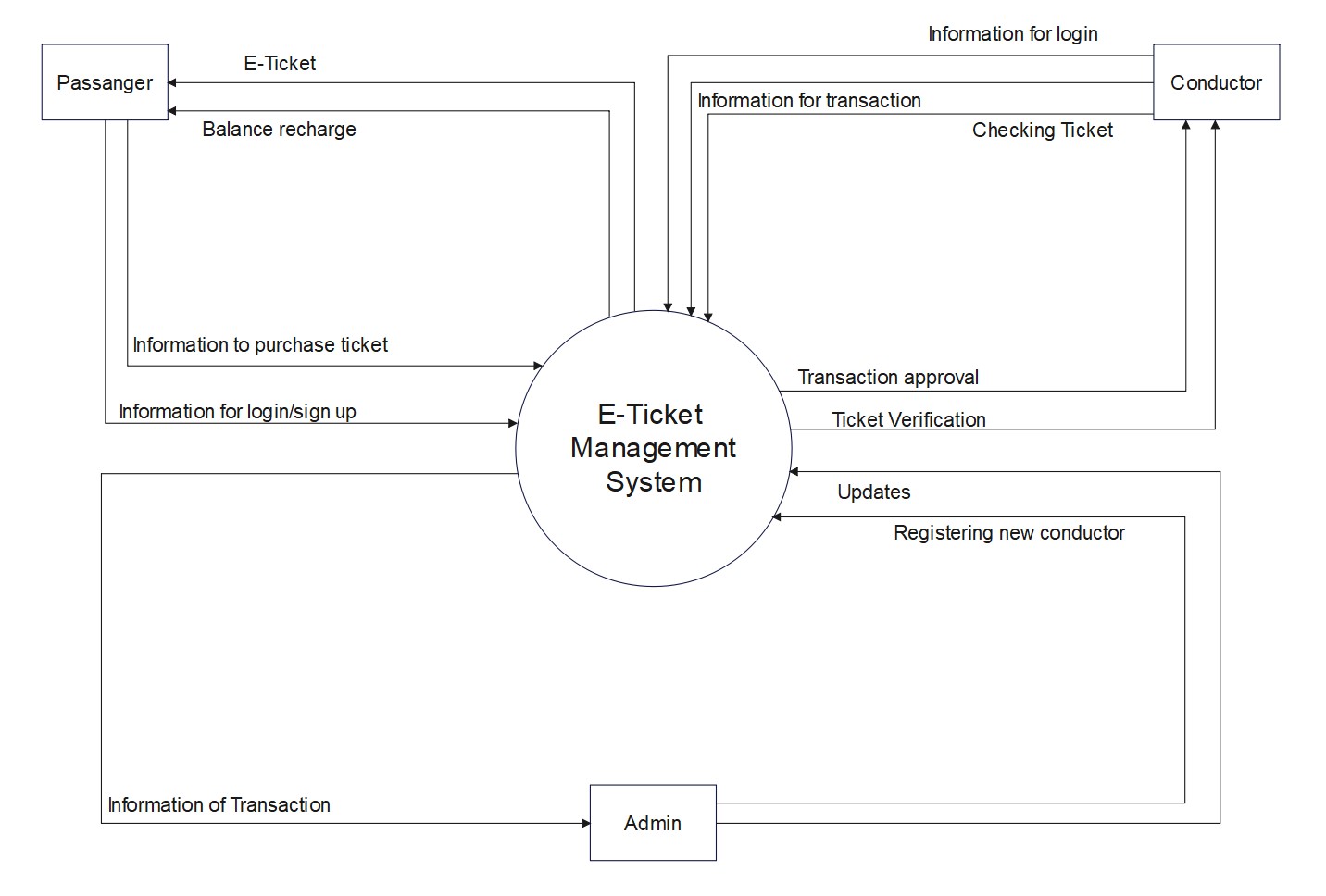
**Chapter 3 : System Design**

**3.1 ER Diagram**

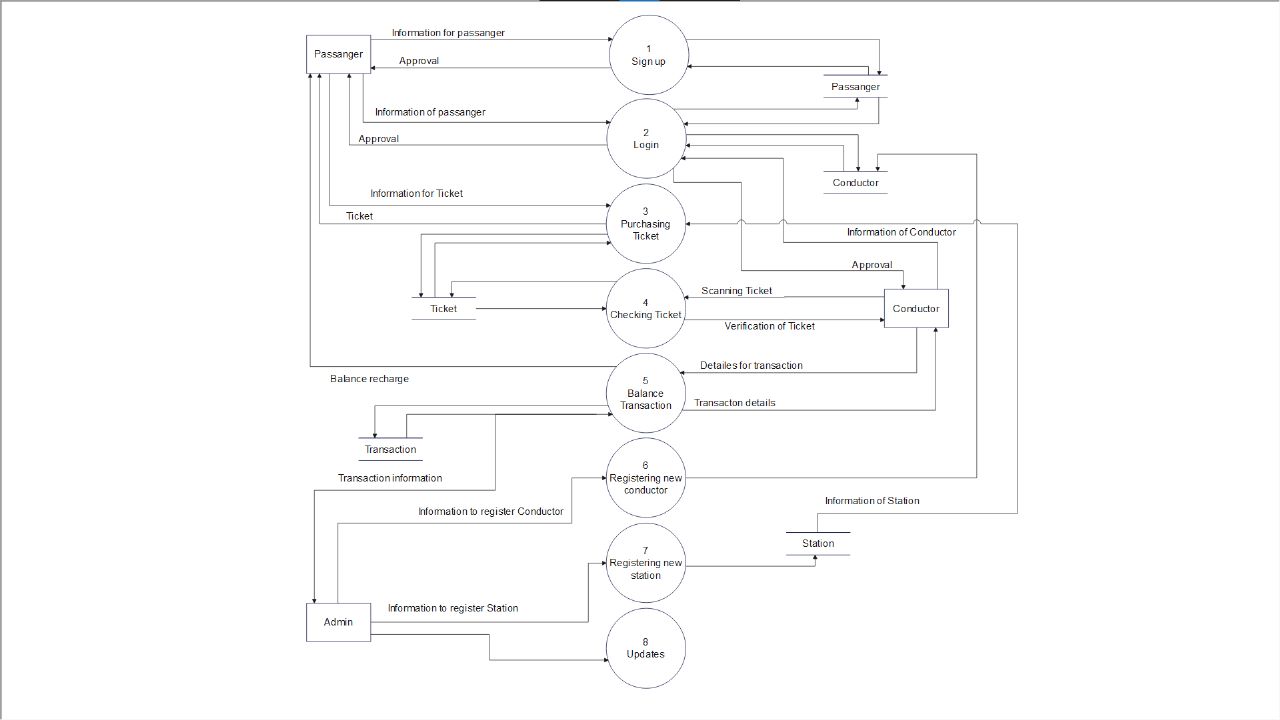


**3.2 Data Flow Diagram**

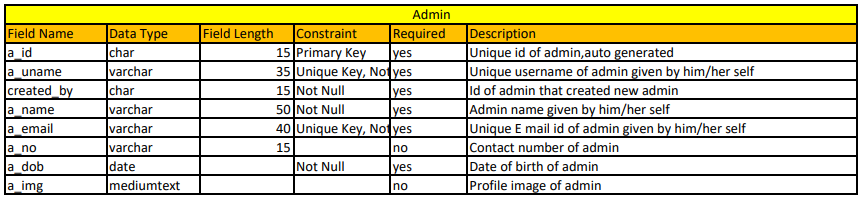
**Context Level Diagram**



**Level 1**

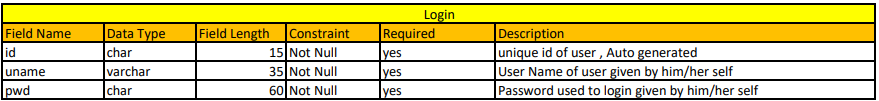


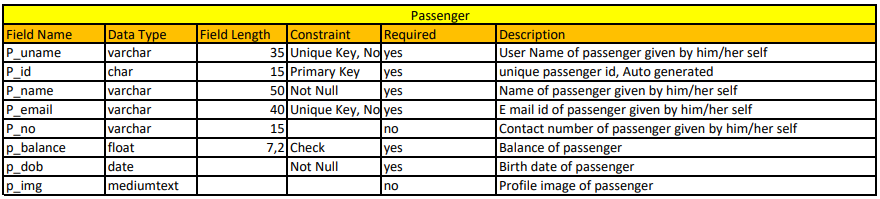
**3.3 Data Dictionary**



Table

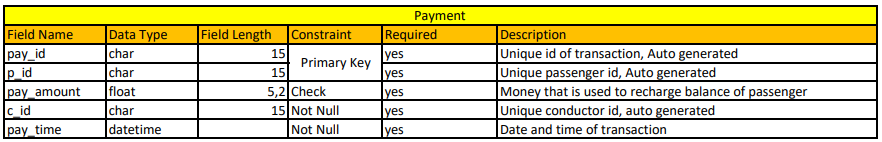
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**Table

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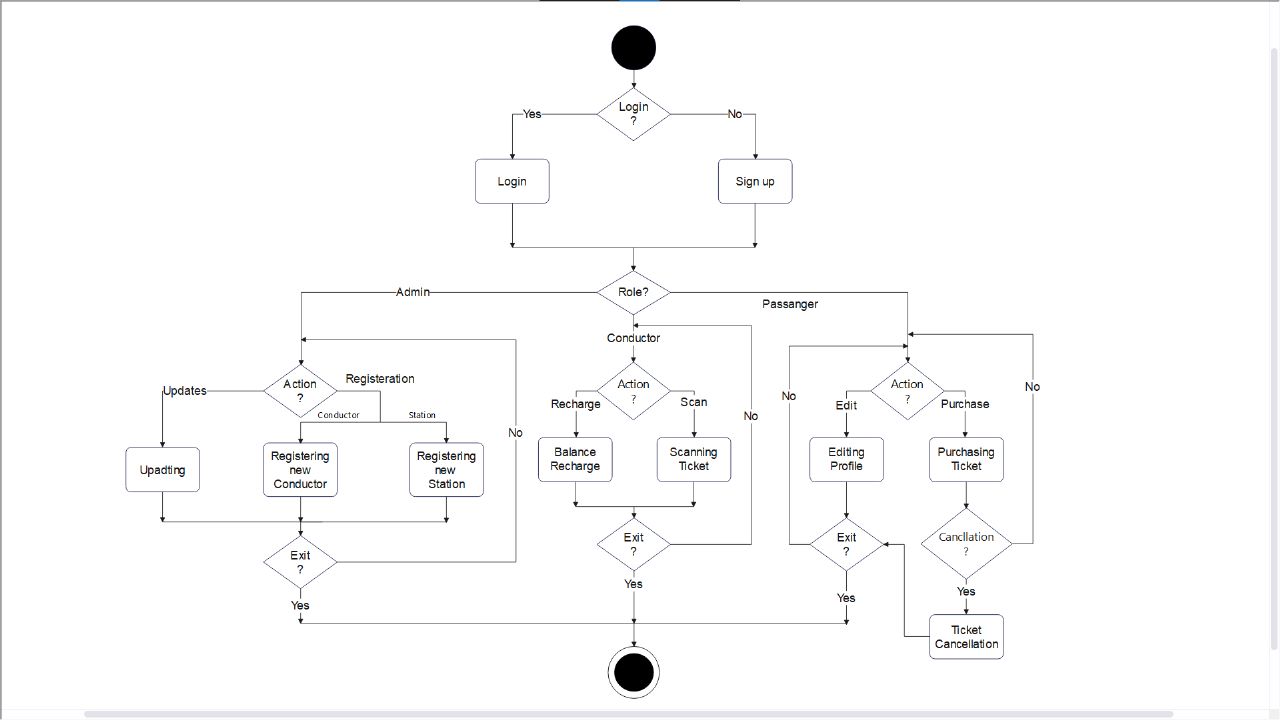
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**Chapter 4 : UML**

**4.1 Use Case Diagram**



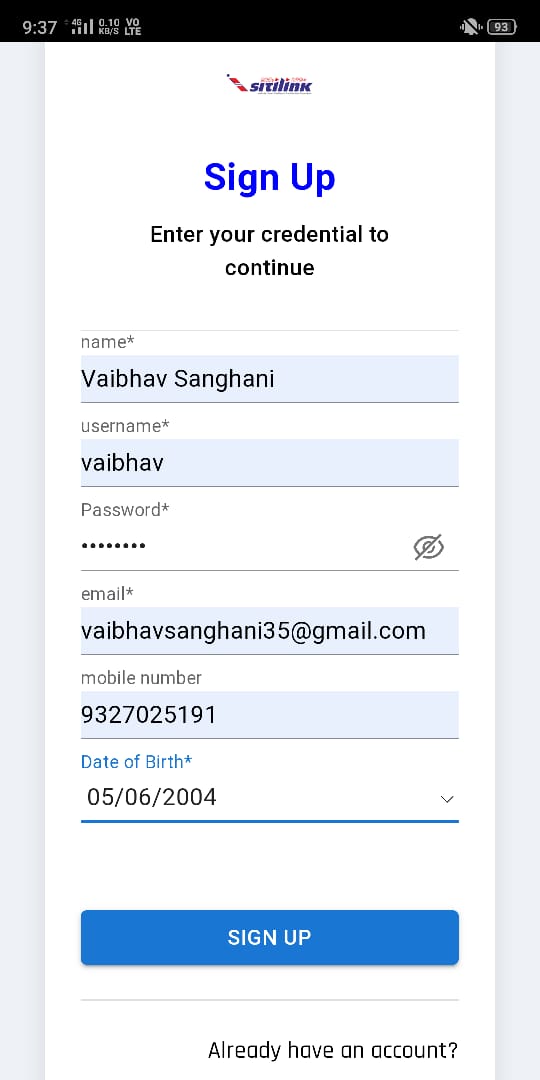
**4.2 Activity Diagram**



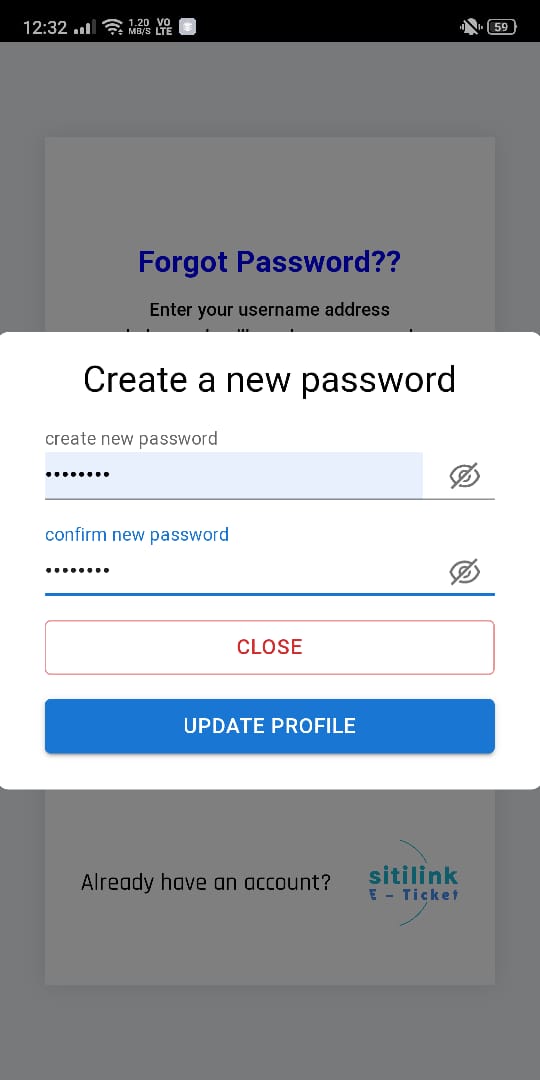
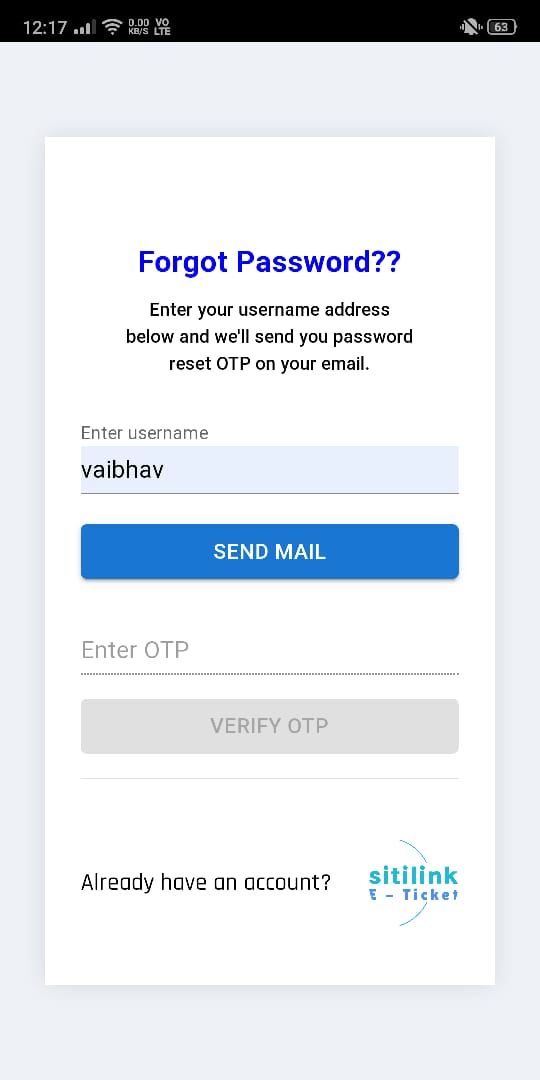
**Chapter 5 : GUI/Application Interface**

**5.1 User Side**

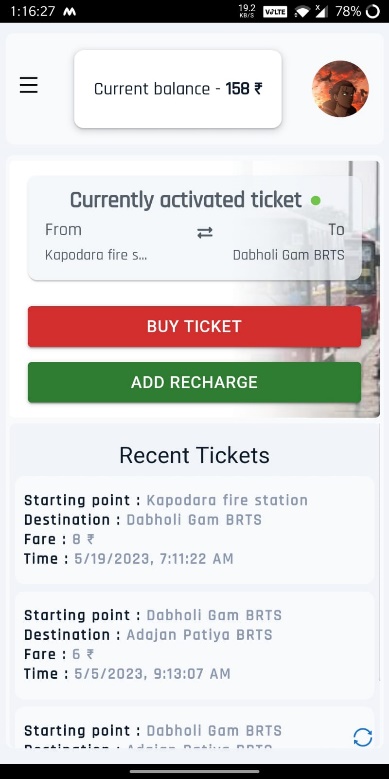
* **Sign-up/Login:** Users can create account with entering details, and they can log in if the account exist. Also they can reset the password if it is forgotten.

A screenshot of a login page

Description automatically generated with medium confidence

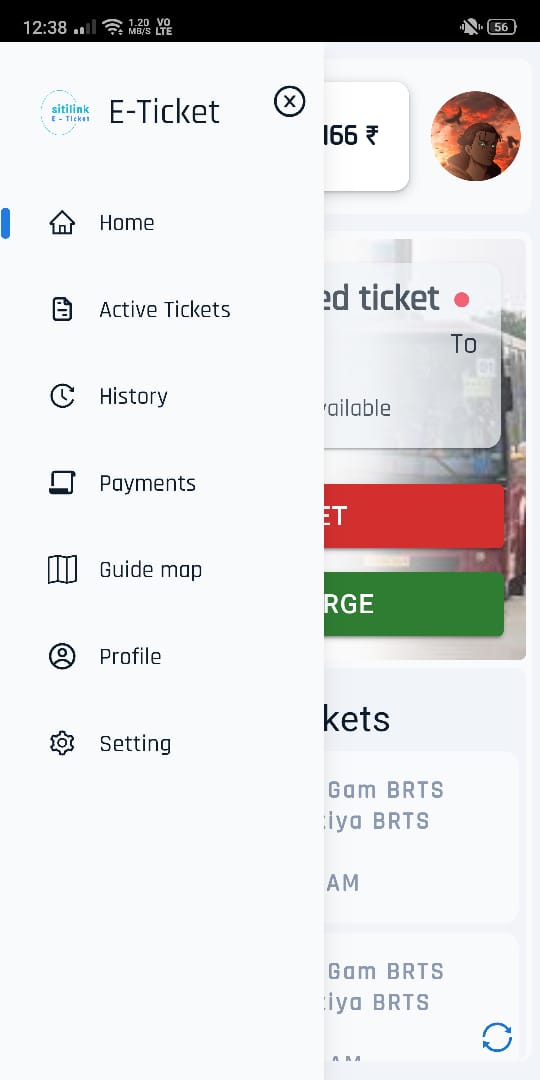


* **Home Page/Profile:** After login, User can see their balance, Recent tickets. User can buy ticket, add recharge with help of conductor. Profile can be accessed by clicking on the profile picture, Where they can edit their profile.

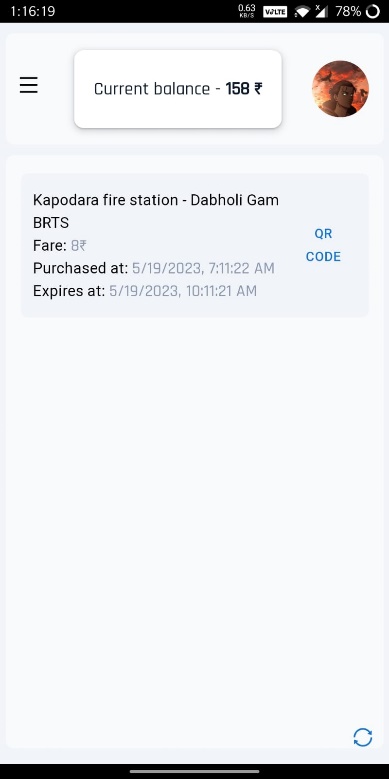
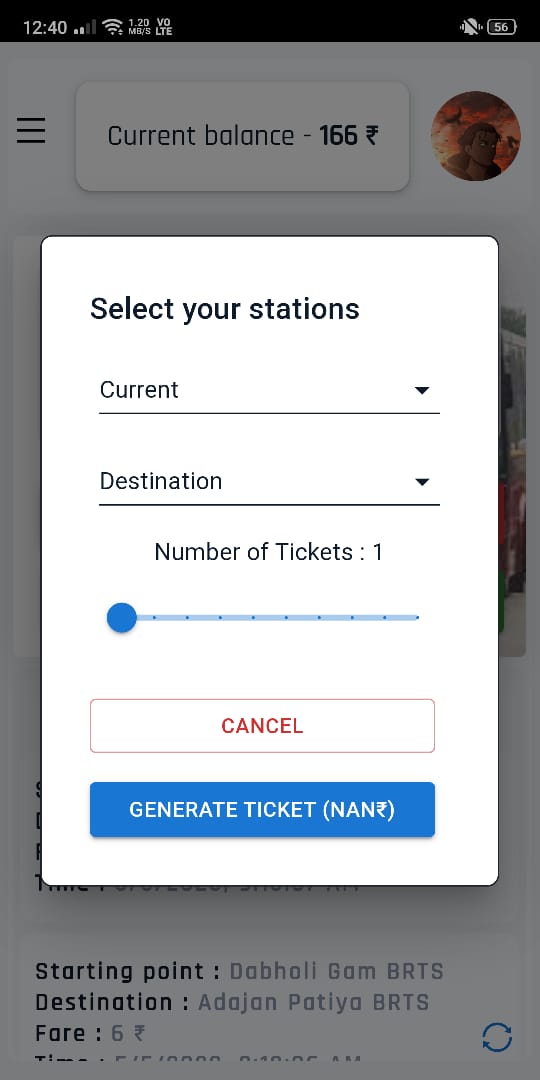
 A screenshot of a social media account

Description automatically generated with low confidence

* **Menu:** User can see menuby clicking on Menu icon. where they can access different menus.



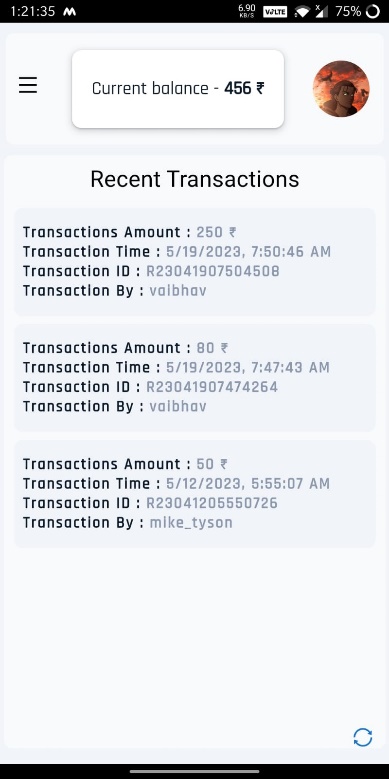
* **Buy Ticket:** User can buy ticket from home page by selecting Current location to Destination. Choose number of ticket want to generate and click on generate ticket. Then user can access their Active Ticketspage from sidebar menu. Conductor can check ticket by scanning QR Code of each ticket.

A qr code on a white background

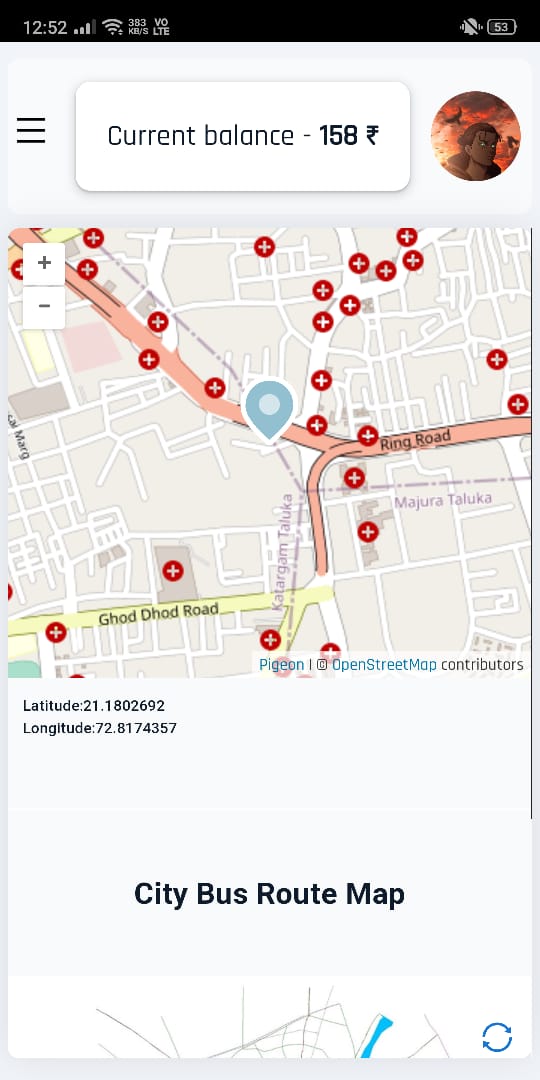
Description automatically generated with medium confidence

* **History/Payments:** User can see ticket history generated by him/her in History. Also recent payments of amount added by conductor in user’s account.

A screenshot of a phone

Description automatically generated with medium confidence

* **Map/Theme:** User can see map and their live location in map. User can change theme to System’s default theme, Dark theme or light theme.

A screenshot of a phone

Description automatically generated with low confidenceA screenshot of a phone

Description automatically generated with low confidence

* **Feedback:** User can give feedback, Complain or Report to the admin with description.

A screenshot of a computer

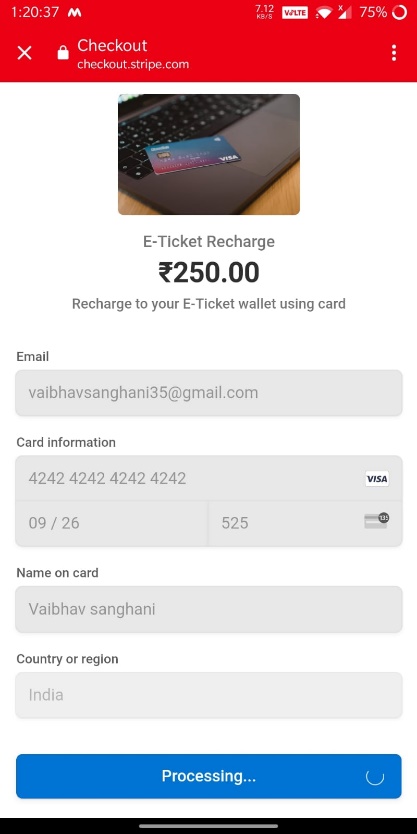
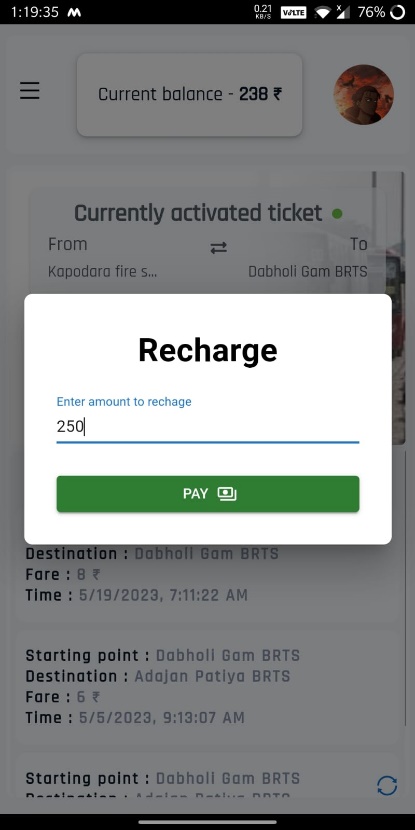
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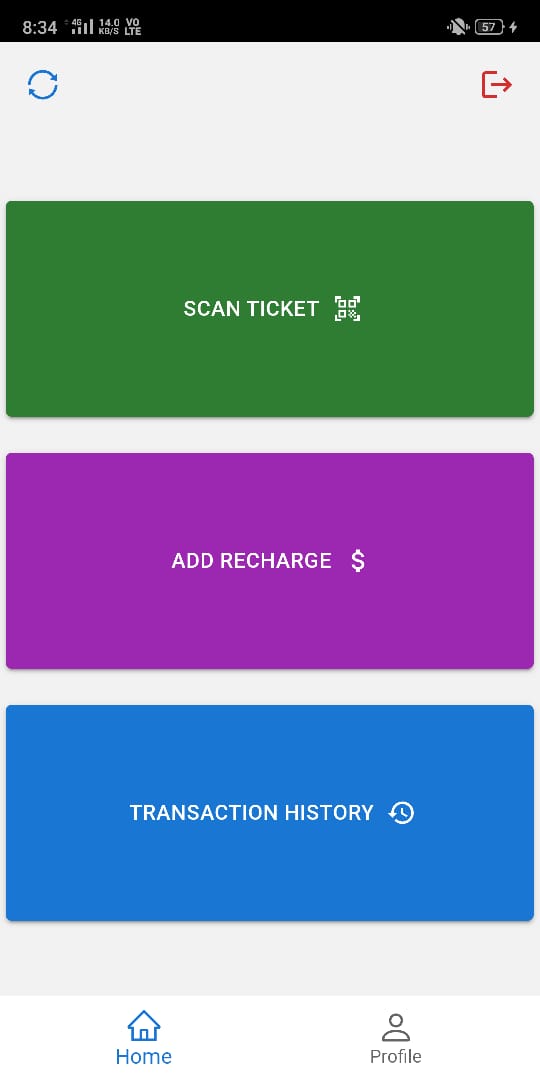
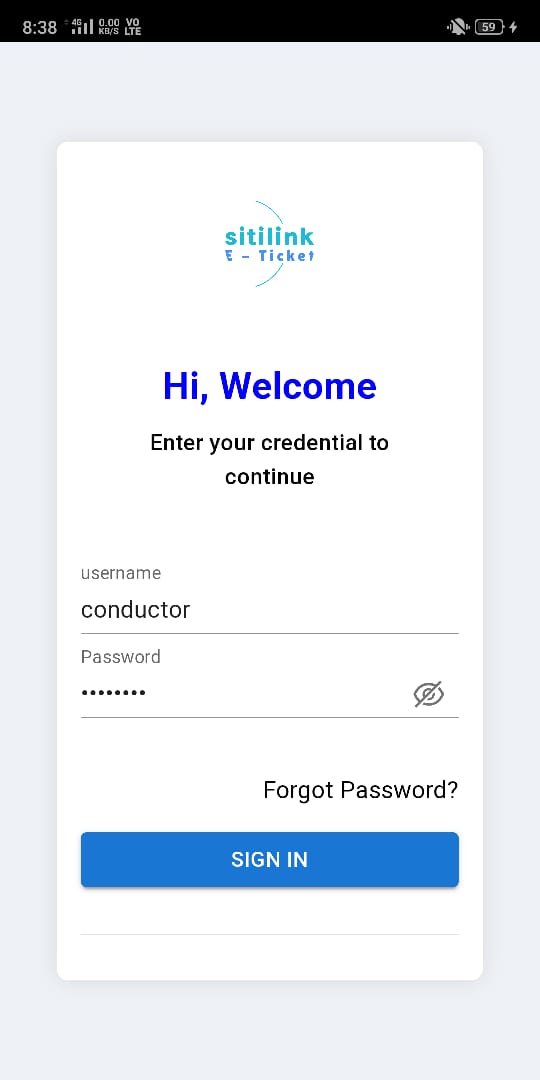
* **Recharge:** User can add balance to their wallet through debit card.

A qr code on a screen

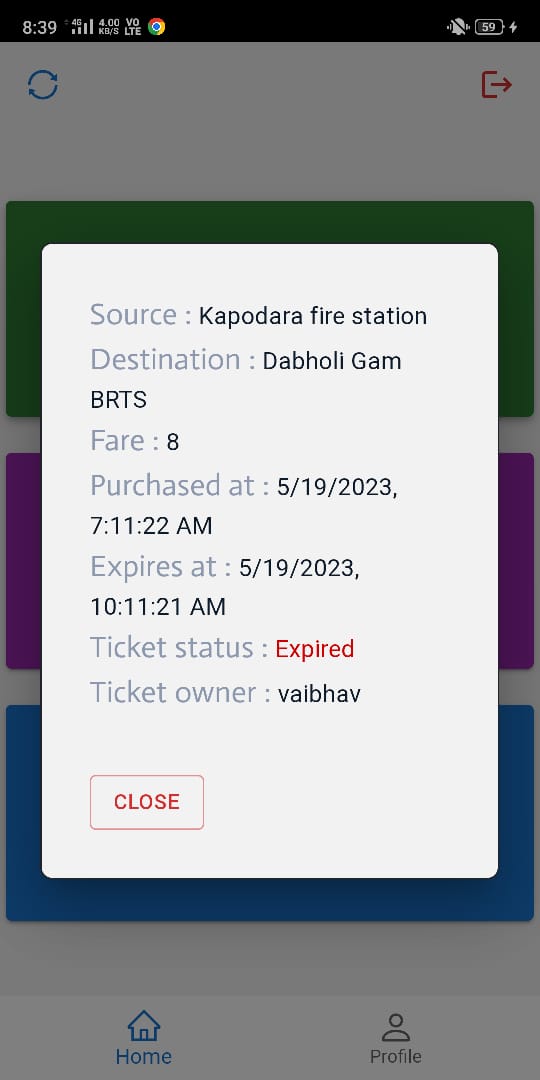
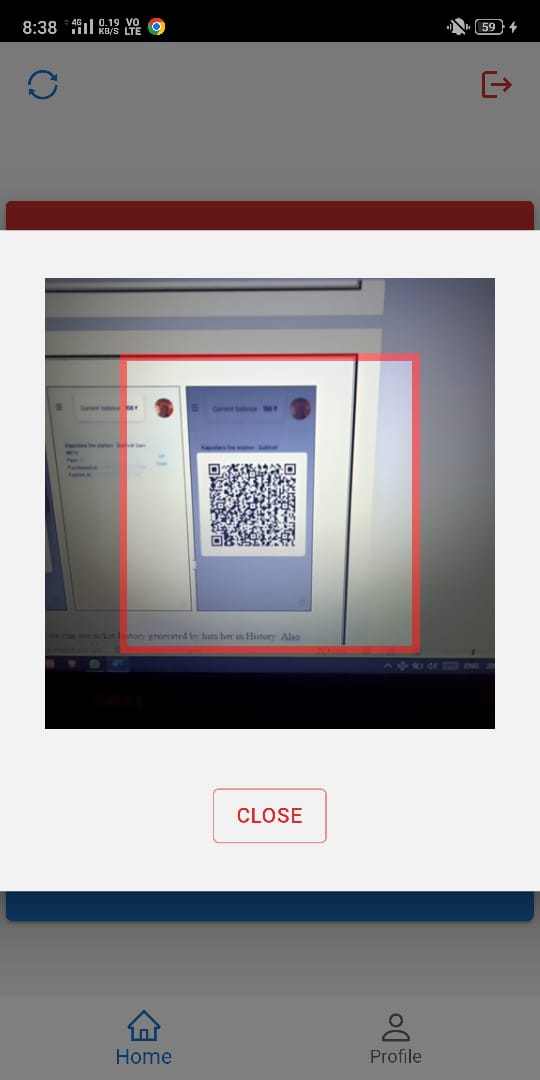
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**5.2 Conductor Side**

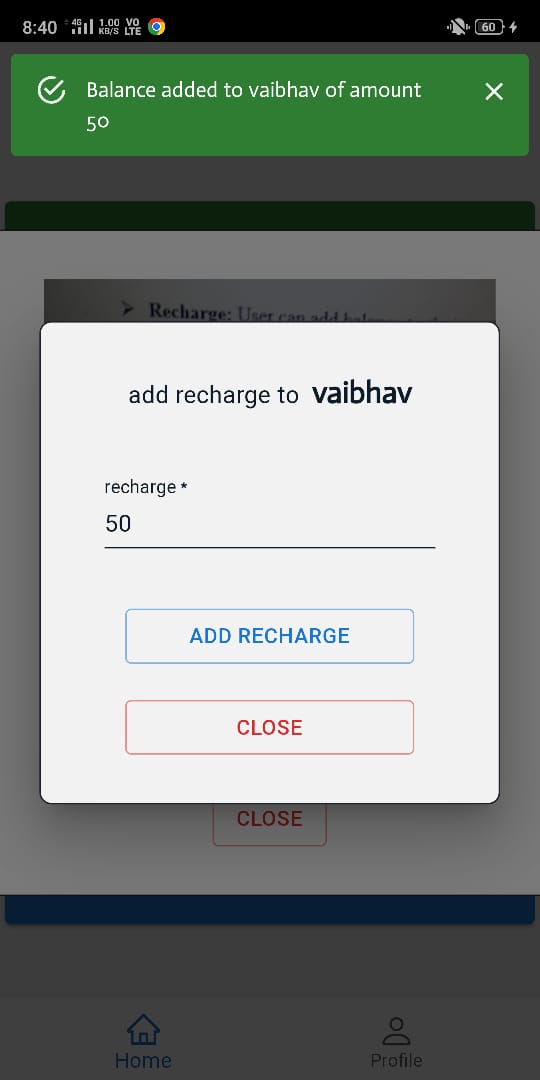
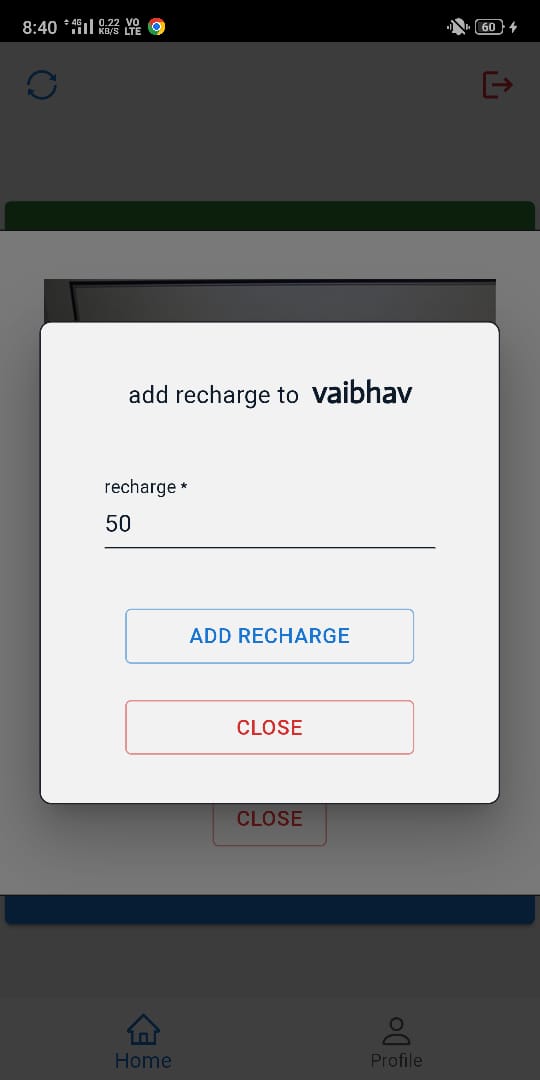
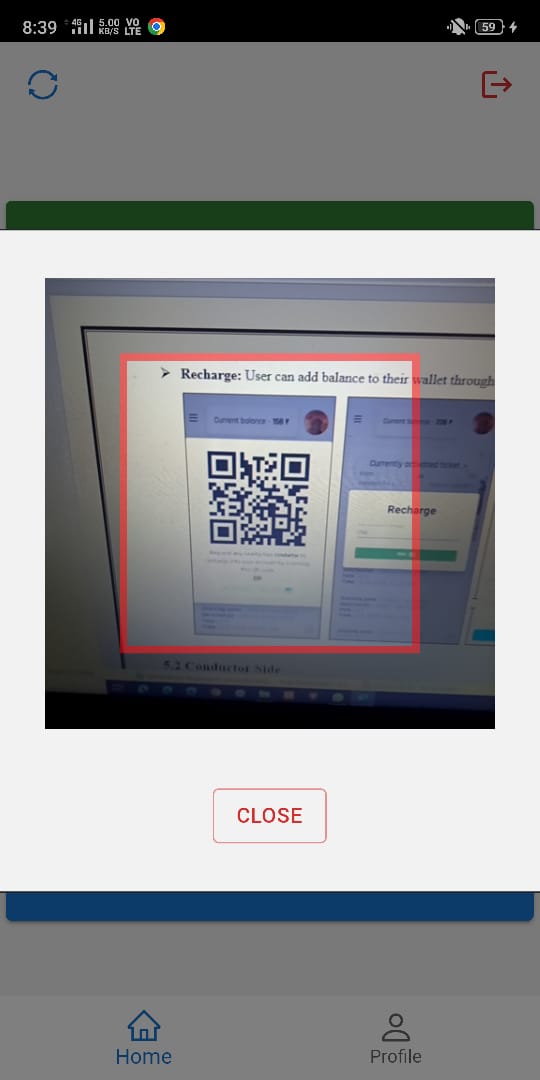
* **Login/Home Page:** Conductor can login using Id/Password provided by admin.



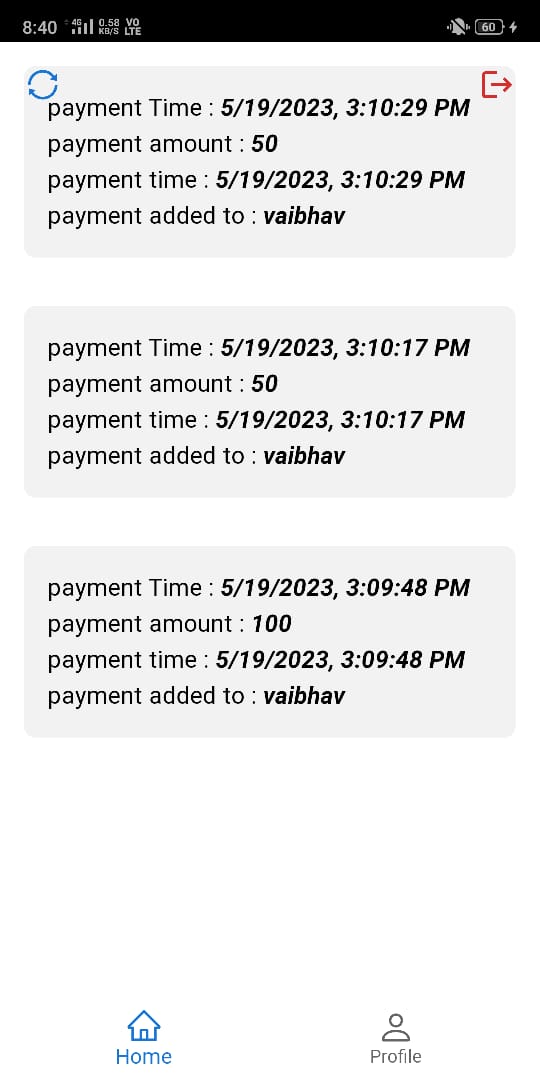
* **Scan Ticket:** Conductor can scan ticket of user using Scan Ticket feature.



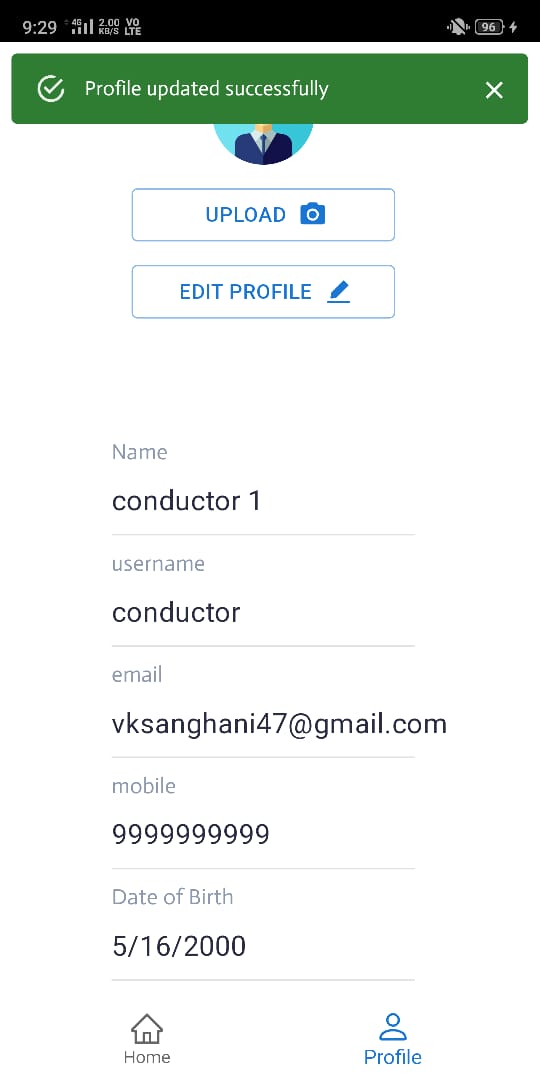
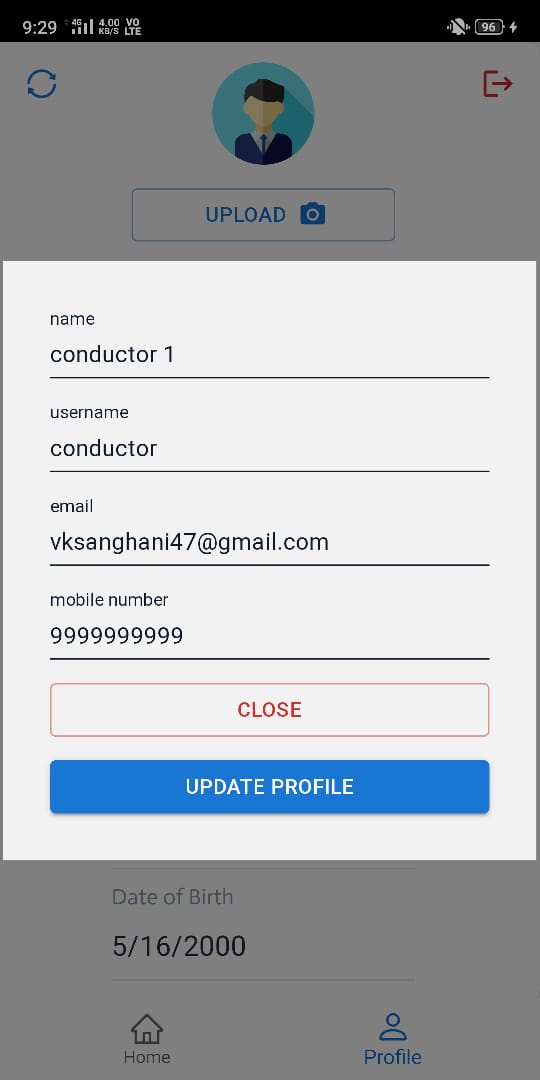
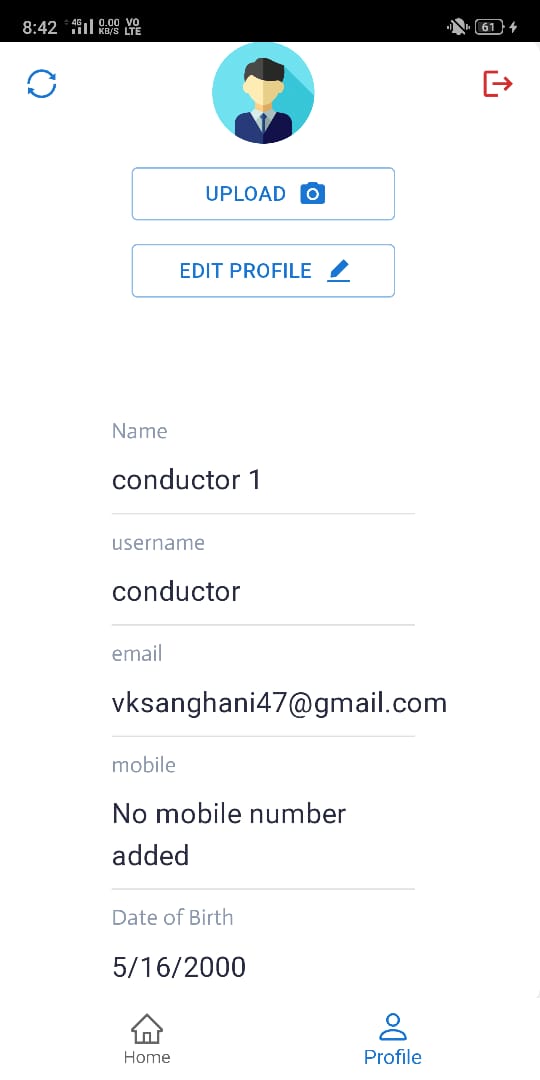
* **Recharge:** Conductor can add money into user’s wallet using Add Recharge feature.



* **Transaction History:** Conductor can see his/her transaction history.

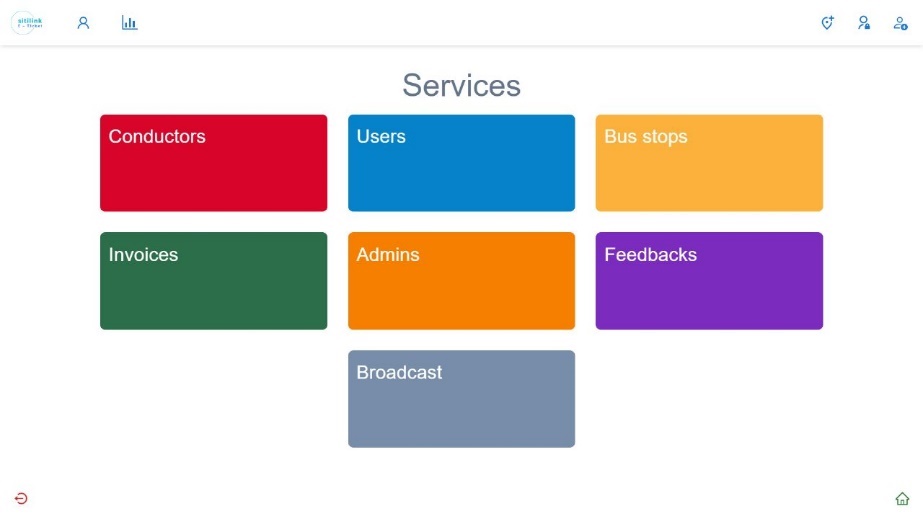
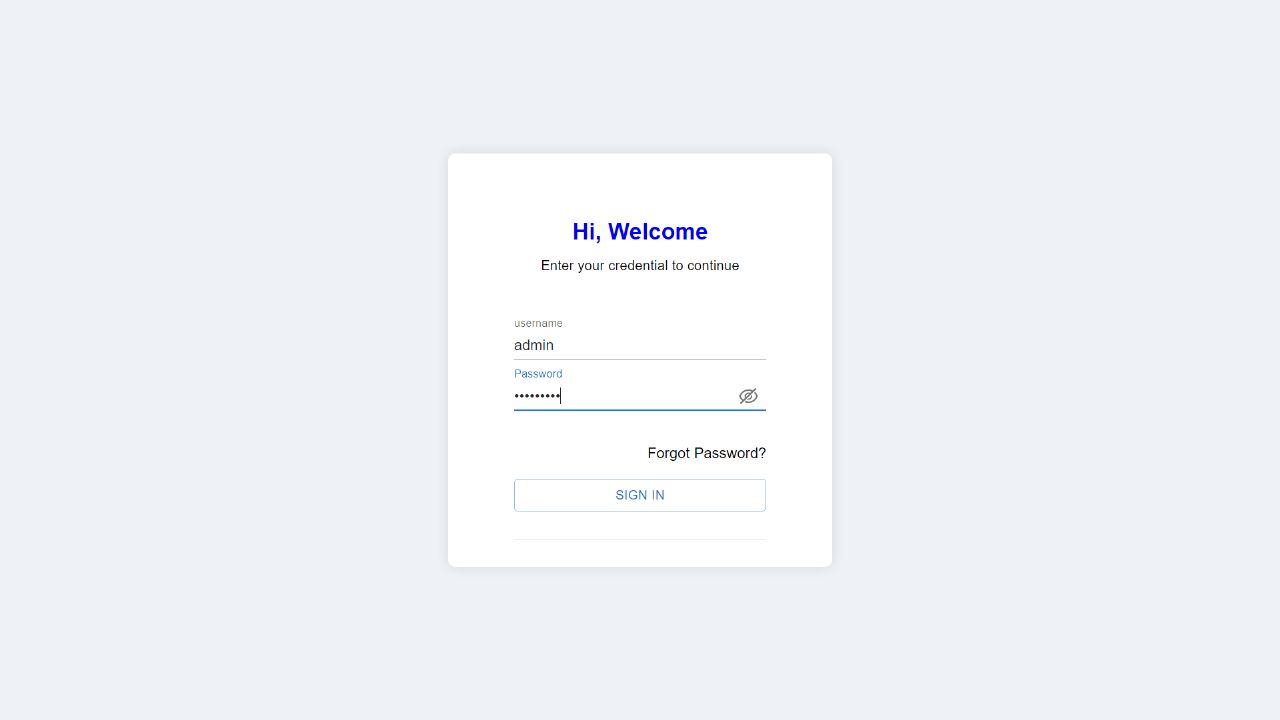


* **Profile:** Conductor can modify his/her profile from bottom navigation menu.

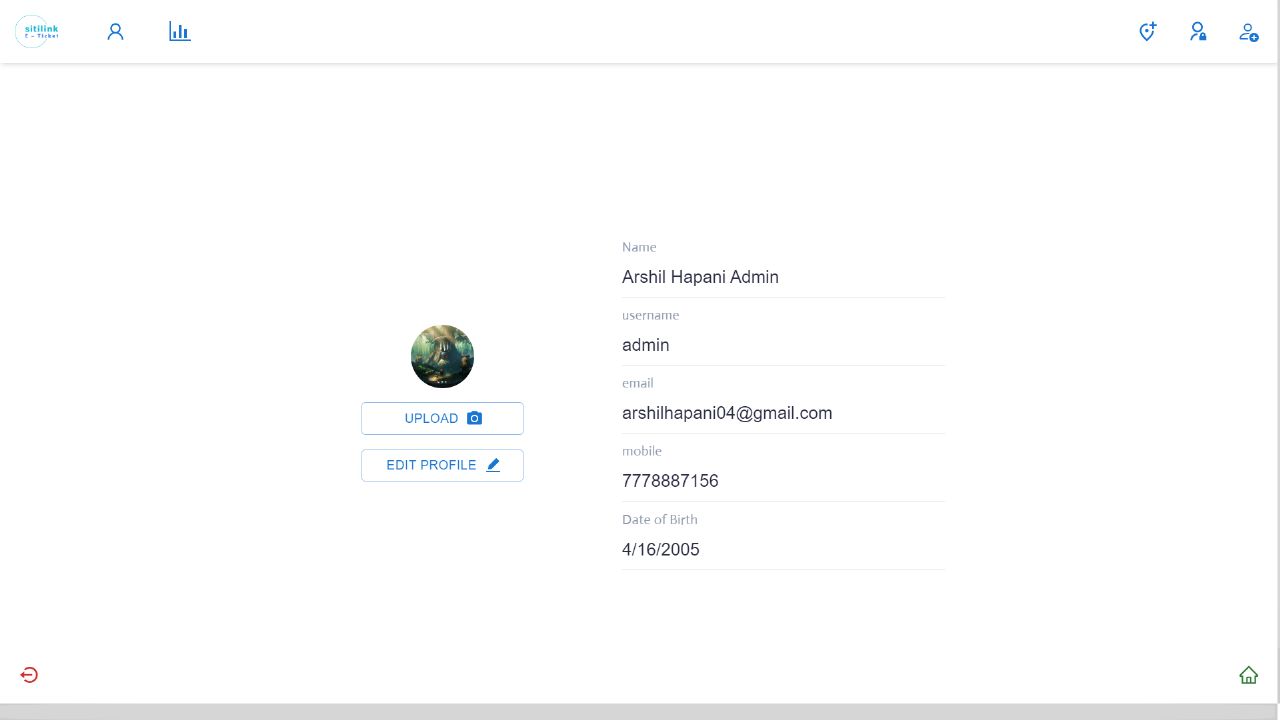


**5.3 Admin Side**

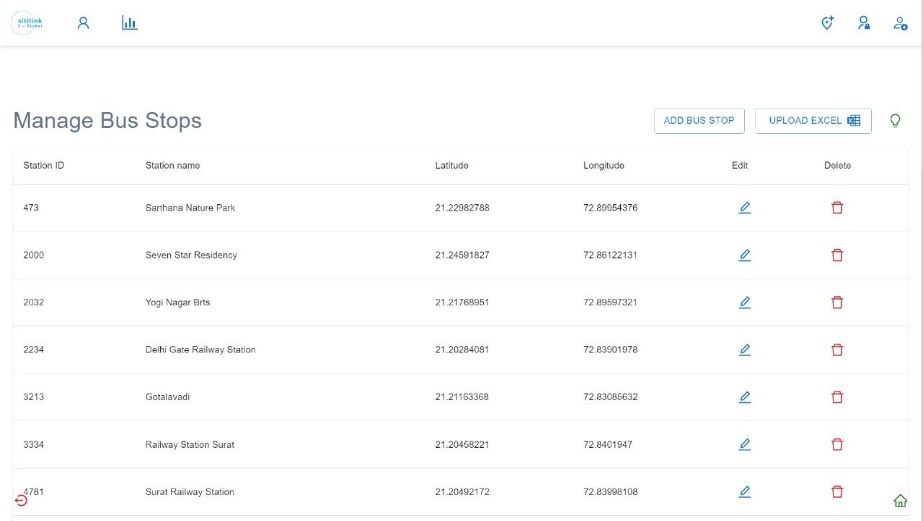
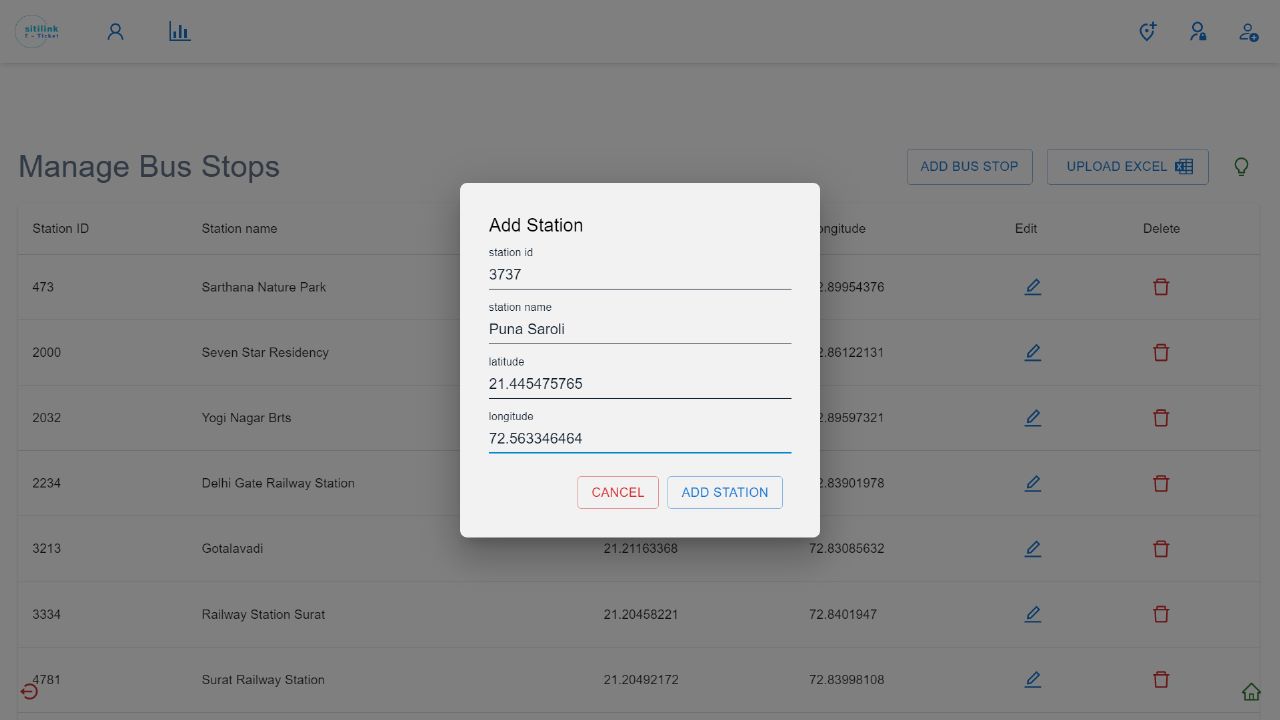
* **Login/Home Page:** Admin can login using his/her username and password.



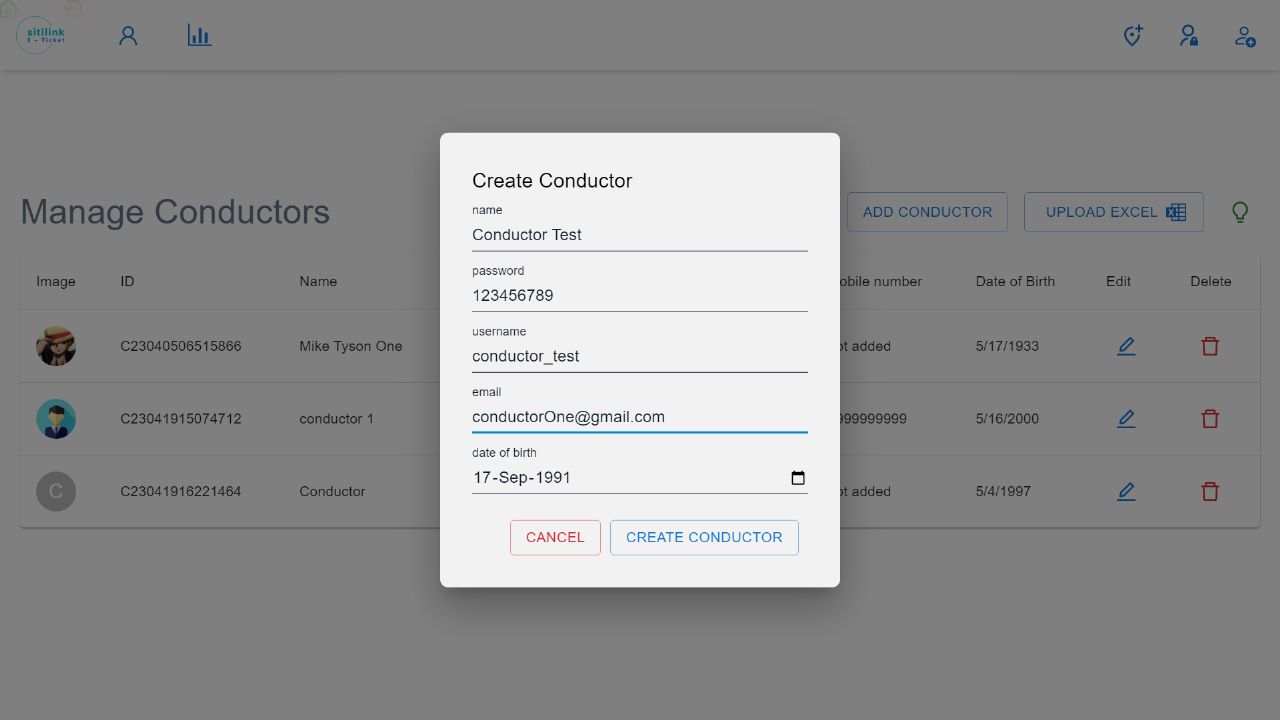
* **Profile:** Admin can modify profile by himself/herself.



* **Add/Manage Station:** Admin can add and modify BRTS station as per the requirements. Or admin can upload excel of bus stops with require fields and add all station at once.

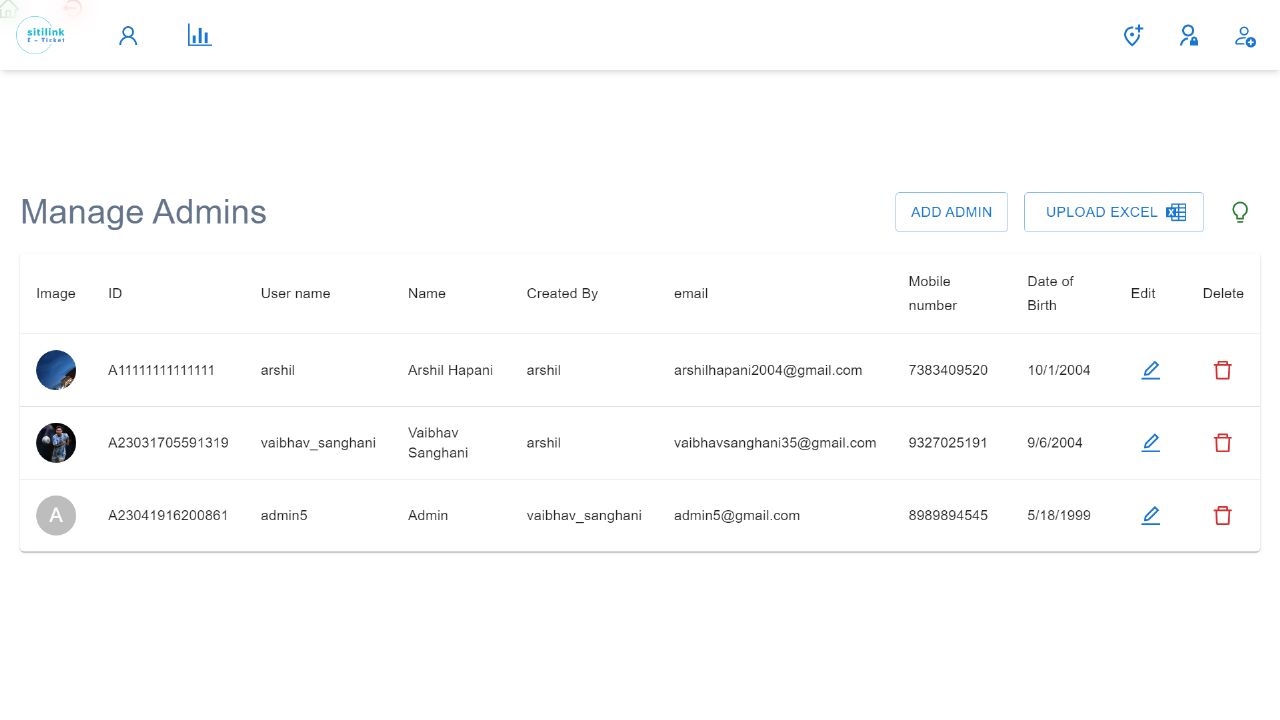
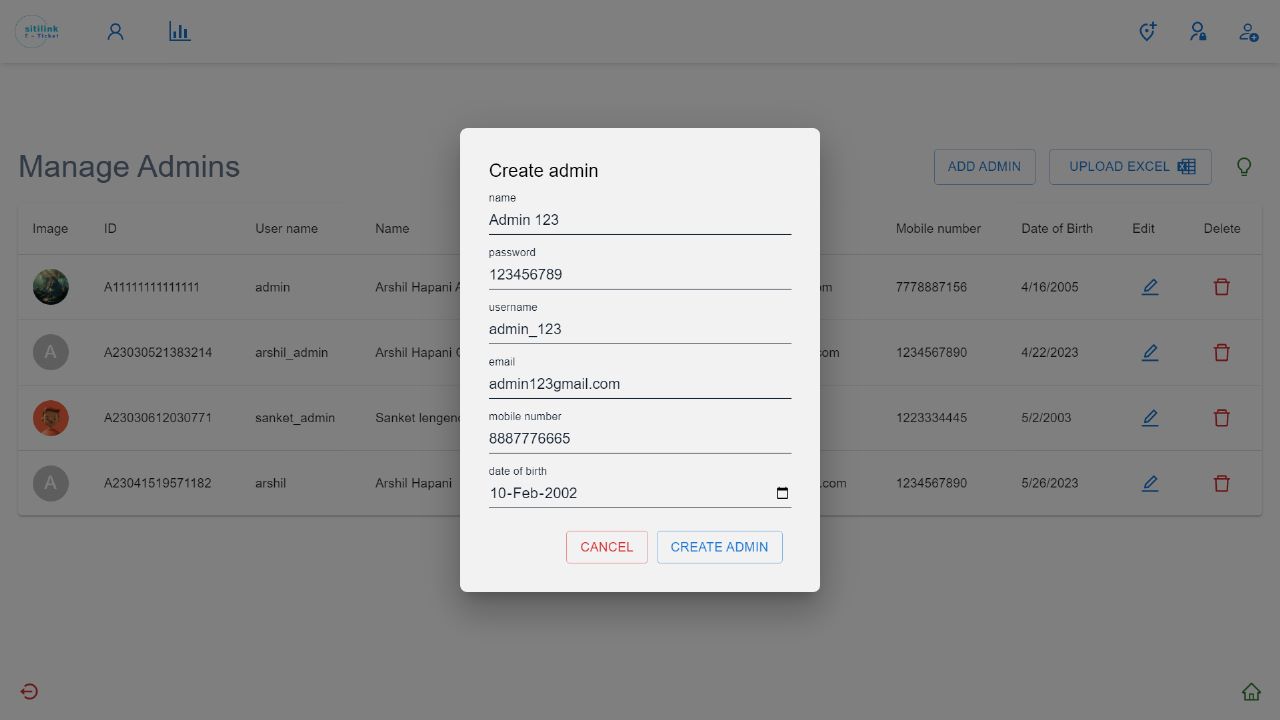


* **Add/Manage Conductor:** Admin can add and modify conductor as per the requirements. Or admin can upload excel of conductor with proper info and add all conductor at once.

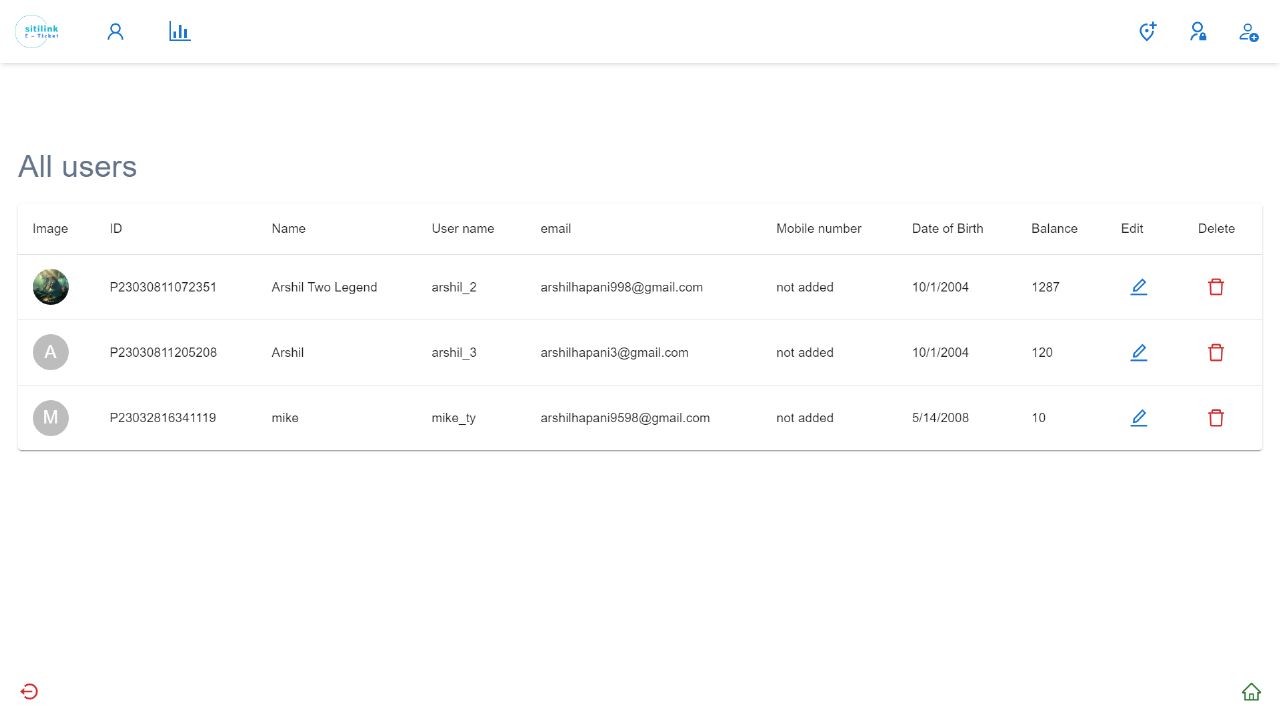
A screenshot of a computer

Description automatically generated with low confidence

* **Add/Manage Admin:** Main admin can add or manage other admin as per the requirements Or admin can upload excel of admin with proper info and add all admin at once.



* **Manage User:** Admin can modify users as per the requirements and He/she can delete particular user too.



* **Invoices:** Admin can see all the payments done by every conductor.

A screenshot of a computer

Description automatically generated with low confidence

* **Analysis:** Admin can access/analyse data of no of tickets generated, collection etc.

A picture containing text, screenshot, plot, diagram

Description automatically generated

A picture containing text, screenshot, number, diagram

Description automatically generated

A screenshot of a computer

Description automatically generated with low confidence

* **Manage Feedback:** Admin can see feedbacks given by users and can reply them directly to user via email.

A screenshot of a computer

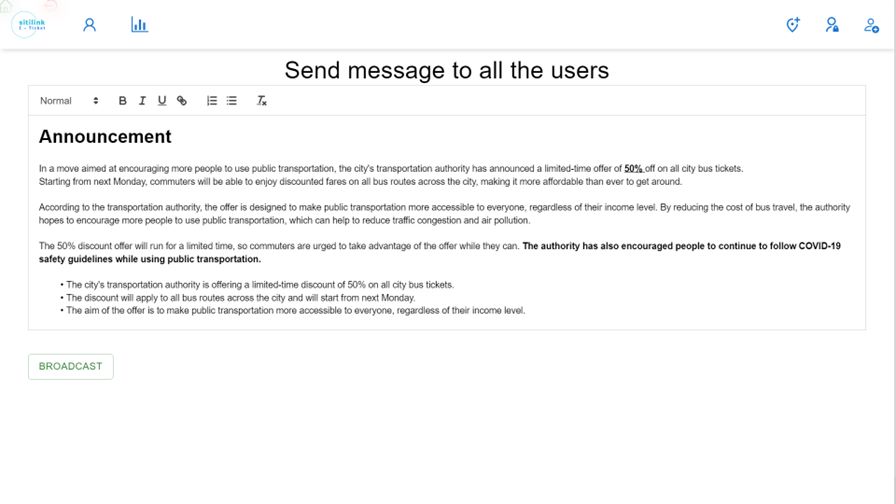
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Description automatically generated with low confidenceA screenshot of a computer

Description automatically generated with medium confidence

* **Broadcast:** Admin can send a broadcast message to users, conductors and admins for any announcements, Update etc.



**Chapter 6 : Testing**

* 1. **Test cases of Admin side:-**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Serial No.** | **Description** | **Test data** | **Expected data** | **Actual data** |
| 1 | Admin login, Verify if a user will be able to login with valid username and valid password. | Username:-  admin  Password:-  \*\*\*\*\*\*\*\*\* | Login successful & Home page displayed with Success toast message,Welcome to admin panel | Login successful & Home page displayed with Success toast message,Welcome to admin panel |
| 2 | Admin login,  Verify the login page for both when the field is blank and Login button is clicked. | Username :-  **BLANK**  Password:-  **BLANK** | Error Toast message display, Please enter your username and password | Error Toast message display, Please enter your username and password |
| 3 | Admin login,  Verify the message for invalid username. | Username:-  imAdmin  Password:-  \*\*\*\*\*\* | Error Toast message display, Invalid username | Error Toast message display, Invalid username |
| 4 | Admin login,  Verify the message for invalid password. | Username:-  admin  Password:-  admin | Error Toast message display, Invalid password | Error Toast message display, Invalid password |
| 5 | Admin forget password,  If admin click on the forget password, and admin enters valid email. | Email:  admin@gmail.com | Showing spinner with message ‘sending email to <username>’ and Success Toast with message ‘OTP send to <particular username’s email>’ | Showing spinner with message ‘sending email to <username>’ and Success Toast with message ‘OTP send to <particular username’s email>’ |
| 6 | Admin forget password,  If admin enter correct OTP | Click on Verify Button | Open up reset password modal | Open up reset password modal |
| 7 | Admin forget password,  If admin enter incorrect OTP | Click on Verify Button | Error Toast with message , Invalid OTP | Error Toast with message , Invalid OTP |
| 8 | Admin reset password,  If Admin enter same password and confirm password | Password:  dfghcvbnm@44  Confirm Password:  dfghcvbnm@44 | Closes the reset password modal and Success Toast with message ‘Password Updated Successfully’ | Closes the reset password modal and Success Toast with message ‘Password Updated Successfully’ |
| 9 | Admin reset password,  If Admin enter different password and confirm password | Password:  dfghcvbnm@4  Confirm Password:  dfghcvbnm@44 | Error Toast with message ‘Confirm password doesn’t match password | Error Toast with message ‘Confirm password doesn’t match password |
| 10 | Admin verify OTP page.  Click on already account page | Clicking on  **Already have an account hyperlink?** | User is redirected to the login form | User is redirected to the login form |
| 11 | Admin login, enters correct username and password | Click on sign in button with correct credentials | Shows verifying loading animation redirect to home screen with success message. | Shows verifying loading animation redirect to home screen with success message. |
| 12 | Admin home page, click on profile button in navbar | Click on button with profile icon | Redirected to profile page | Redirected to profile page |
| 13 | Admin profile page, admin click on edit profile page | Click on edit profile page | A pop up modal shows up with field included name, username, email, mobile number and date of birth | A pop up modal shows up with field included name, username, email, mobile number and date of birth |
| 14 | Admin Profile page, admin click on update profile without modifying any fields | Click on update profile page | Success toast is shows up with message ,Profile updated successfully | Success toast is shows up with message ,Profile updated successfully |
| 15 | Admin profile page, if admin click on update profile page with name field empty | Click on update profile page with empty name field | Error toast come with message,  Please enter all the required fields | Error toast come with message,  Please enter all the required fields |
| 16 | Admin profile page, if admin click on update profile page with username field empty | Click on update profile page with empty username field | Error toast come with message,  Please enter all the required fields | Error toast come with message,  Please enter all the required fields |
| 17 | Admin profile page, if admin click on update profile page with email field empty | Click on update profile page with empty email field | Error toast come with message,  Please enter all the required fields | Error toast come with message,  Please enter all the required fields |
| 18 | Admin profile page, if admin click on update profile page with email with invalid format | Click on update profile page with invalid email format | Field shows that enter the valid email address. | Field shows that enter the valid email address. |
| 19 | Admin profile page, if admin click on update date | Click on update profile with new date | Update the profile with new credentials | Update the profile with new credentials |
| 20 | Admin profile page, if admin changes username and click on update profile | Username:  admin\_new | Success toast with message profile updated successfully | Success toast with message profile updated successfully |
| 21 | Admin profile page, if admin changes name and click on update profile | name:  Admin Varachha | Success toast with message profile updated successfully | Success toast with message profile updated successfully |
| 22 | Admin profile page, if admin changes email with valid format and click on update profile | email:  eTicketAdmin22@gmail.com | Success toast with message profile updated successfully | Success toast with message profile updated successfully |
| 23 | Admin profile page, if admin changes mobile number without valid length and click on update profile button | Mobile number:  55677884 | Error toast with message, The length of mobile number must be equal to 10 | Error toast with message, The length of mobile number must be equal to 10 |
| 24 | Admin profile update modal if admin enter all the correct details and click on update button but authToken is not found in browser’s session Storage | Name:  Admin new  Username:  New\_admin  Email:  [newAdmin@gmail.com](mailto:newAdmin@gmail.com)  mobile number:  7778887156  DOB:  1/10/2004 | Success Toast with message , profile updated successfully | Error toast with message, Failed to authenticate user, please login again |
| 25 | Admin profile page, if admin click on upload button and upload an image with invalid format | Image:  Profile1.mp3 | Error toast with message, Please enter an image with valid format | Error toast with message, Please enter an image with valid format |
| 26 | Admin profile page, if admin click on upload button and upload an image with valid format | Image:  Profile1.jpg | Success toast with message, Profile updated successfully | Success toast with message, Profile updated successfully |
| 27 | Admin page, admin click on conductor service card | Click on conductor service card | Redirected to Manage conductor page and show all conductor data in tabular format | Redirected to Manage conductor page and show all conductor data in tabular format |
| 28 | Admin page, admin click on conductor service card but authToken was not found in browser’s sessionStorage | Click on conductor service card | Redirected to Manage conductor page and show all conductor data in tabular format | Error toast with message , Failed to authenticate user, please login again |
| 29 | Admin conductor service page, admin click on add conductor button | Click on add conductor button | A modal with form fields pop up | A modal with form fields pop up |
| 30 | Admin conductor service page, admin click on create conductor button on modal without entering any fields | Click on create conductor button | Error toast with message, please enter all the required fields. | Error toast with message, please enter all the required fields. |
| 31 | Admin conductor service page, admin click on create conductor button without entering name | Password  \*\*\*\*  Username  Conductor12  Email  [Conductor12@gmail.com](mailto:Conductor12@gmail.com)  DOB  1/12/1992 | Error toast with message, please enter all the required fields. | Error toast with message, please enter all the required fields. |
| 32 | Admin conductor service page, admin click on create conductor button without entering username | Password  \*\*\*\*  name  Conductor 12  Email  [Conductor12@gmail.com](mailto:Conductor12@gmail.com)  DOB  1/12/1992 | Error toast with message, please enter all the required fields. | Error toast with message, please enter all the required fields. |
| 33 | Admin conductor service page, admin click on create conductor button without entering email | Password  \*\*\*\*  Username  Conductor12  Name  Conductor 12  DOB  1/12/1992 | Error toast with message, please enter all the required fields. | Error toast with message, please enter all the required fields. |
| 34 | Admin conductor service page, admin click on create conductor button without entering dob | Password  \*\*\*\*  Username  Conductor12  Email  [Conductor12@gmail.com](mailto:Conductor12@gmail.com)  Name  Conductor 12 | Error toast with message, please enter all the required fields. | Error toast with message, please enter all the required fields. |
| 35 | Admin conductor service page, admin click on create conductor button without entering password | Name  Conductor 12  Username  Conductor12  Email  [Conductor12@gmail.com](mailto:Conductor12@gmail.com)  DOB  1/12/1992 | Error toast with message, please enter all the required fields. | Error toast with message, please enter all the required fields. |
| 36 | Admin conductor service page, admin click on create conductor button with all the required fields | Name  Conductor 12  Username  Conductor12  Email  [Conductor12@gmail.com](mailto:Conductor12@gmail.com)  DOB  1/12/1992  Password  \*\*\*\*\*\*\*\*\*\*\* | Success toast with message ,  Successfully created a new conductor | Success toast with message ,  Successfully created a new conductor |
| 37 | Admin conductor service page, admin click on create conductor button with all the required fields in modal , but due to some reason authToken is not found in browser’s sessionStorage | Name  Conductor 12  Username  Conductor12  Email  [Conductor12@gmail.com](mailto:Conductor12@gmail.com)  DOB  1/12/1992  Password  \*\*\*\*\*\*\*\*\*\*\* | Success toast with message ,  Successfully created a new conductor | Error toast with message, Authentication did not happen |
| 38 | Admin conductor service page, admin click on edit conductor button. | Click on edit conductor button corresponds to particular table row | Open the modal with all the information about conductor in fields and rights to edit them | Open the modal with all the information about conductor in fields and rights to edit them |
| 39 | Admin conductor service page edit conductor modal. Admin click on edit conductor without modifying any fields | Click on edit conductor fields with all existing data on textfields  Name:  Conductor1  Username:  Conductor\_1  Email:  [Conductor1@gmail.com](mailto:Conductor1@gmail.com) | Success toast with message , conductor edited successfully | Success toast with message , conductor edited successfully |
| 40 | Admin conductor service page edit conductor modal. Admin click on edit conductor without entering name | Username:  Conductor\_1  Email:  [Conductor1@gmail.com](mailto:Conductor1@gmail.com) | Error Toast with message, Please enter all the required fields | Error Toast with message, Please enter all the required fields |
| 41 | Admin conductor service page edit conductor modal. Admin click on edit conductor without entering username | name:  Conductor 1  Email:  [Conductor1@gmail.com](mailto:Conductor1@gmail.com) | Error Toast with message, Please enter all the required fields | Error Toast with message, Please enter all the required fields |
| 42 | Admin conductor service page edit conductor modal. Admin click on edit conductor without entering email | Name:  Conductor1  Username:  Conductor\_1 | Error Toast with message, Please enter all the required fields | Error Toast with message, Please enter all the required fields |
| 43 | Admin conductor service page edit conductor modal. Admin click on edit conductor with wrong username format | Name:  Conductor1  Username:  Conductor 1  Email:  [Conductor1@gmail.com](mailto:Conductor1@gmail.com) | Error toast with message, Please enter valid username format | Error toast with message, Please enter valid username format |
| 44 | Admin conductor service page edit conductor modal. Admin click on edit conductor with wrong email format | Name:  Conductor1  Username:  Conductor 1  Email:  [Conductor1@gmail](mailto:Conductor1@gmail.com) | Error toast with message, please enter the valid email format | Error toast with message, please enter the valid email format |
| 45 | Admin conductor service page edit conductor modal. Admin click on edit conductor with all the valid data | Name:  Conductor1  Username:  Conductor 1  Email:  Conductor1@gmail.com | Success toast with message, Conductor edited successfully | Success toast with message, Conductor edited successfully |
| 46 | Admin conductor service page edit conductor modal. Admin click on edit conductor with all the valid data but authToken is not found in browser’s sessionStorage | Name:  Conductor1  Username:  Conductor 1  Email:  Conductor1@gmail.com | Success toast with message, Conductor edited successfully | Error toast with message, authentication not happened |
| 47 | Admin home page, admin click on user service card | Click on user service card | Navigated to the manage user page | Navigated to the manage user page |
| 48 | Admin user service page, admin click on edit user button corresponds to the particular user | Click on edit user button corresponds to the particular user | Open up an edit user modal with various form fields filled with existing details of particular user | Open up an edit user modal with various form fields filled with existing details of particular user |
| 49 | Admin user service page edit user modal, admin click on edit user button without modifying any fields | Click on edit user button without modifying any fields | Success toast comes with message user edited successfully and edit user modal closes | Success toast comes with message user edited successfully and edit user modal closes |
| 50 | Admin user service page edit user modal, admin click on edit user button without modifying any fields and authtoken is not present in browser’s session storage | Click on edit user button without modifying any fields | Success toast comes with message user edited successfully and edit user modal closes | Error toast with message, Failed to authenticate user, please login again |
| 51 | Admin user service page edit user modal, admin click on edit user button, with modifying name field | Name:  User 2 | Success toast comes with message user edited successfully and edit user modal closes | Success toast comes with message user edited successfully and edit user modal closes |
| 52 | Admin user service page edit user modal, admin click on edit user button, with empty name field | Name:  “ “ | Error toast with message, please enter all the required fields | Error toast with message, please enter all the required fields |
| 52 | Admin user service page edit user modal, admin click on edit user button, with modifying unique user name | Username:  User\_2 | Success toast comes with message user edited successfully and edit user modal closes | Success toast comes with message user edited successfully and edit user modal closes |
| 53 | Admin user service page edit user modal, admin click on edit user button, with empty user name field | Username:  “ ” | Error toast with message, please enter all the required fields | Error toast with message, please enter all the required fields |
| 54 | Admin user service page edit user modal, admin click on edit user button, with modifying unique user name with invalid username format | Username:  User 2 | Error toast with message, please enter valid username | Error toast with message, please enter valid username |
| 55 | Admin user service page edit user modal, admin click on edit user button, with modifying existing user name | Username  User\_3 | Error toast with message, a user with this name already exist | Error toast with message, a user with this name already exist |
| 56 | Admin user service page edit conductor modal, admin click on edit user button, with modifying existing user name | Username  Conductor\_3 | Error toast with message, a user with this name already exist | Error toast with message, a user with this name already exist |
| 57 | Admin user service page edit user modal, admin click on edit user button, with modifying existing email | Email  modifiedUsernameEmail@gmail.com | Success toast comes with message user edited successfully and edit user modal closes | Success toast comes with message user edited successfully and edit user modal closes |
| 58 | Admin user service page edit user modal, admin click on edit user button, with empty email field | Email:  “ ” | Error toast with message, please enter all the required fields | Error toast with message, please enter all the required fields |
| 59 | Admin user service page edit user modal, admin click on edit user button, with invalid email format | Email:  user@gmail . com test @123 | Error toast with message, please enter valid email format | Error toast with message, please enter valid email format |
| 60 | Admin user service page edit user modal, admin click on edit user button, with modifying existing email | Email:  [aleradyExistedUserEmail@gmail.com](mailto:aleradyExistedUserEmail@gmail.com) | Error toast with message, The email is already registered | Error toast with message, The email is already registered |
| 61 | Admin user service page edit conductor modal, admin click on edit user button, with modifying existing email | Email:  [aleradyExistedConductorEmail@gmail.com](mailto:aleradyExistedConductorEmail@gmail.com) | Error toast with message, The email is already registered | Error toast with message, The email is already registered |
| 62 | Admin user service page edit user modal, admin click on edit user button, without modifying existing balance | Balance:  300 | Success toast comes with message user edited successfully and edit user modal closes | Success toast comes with message user edited successfully and edit user modal closes |
| 63 | Admin user service page edit user modal, admin click on edit user button, with modifying existing balance | Balance:  350 | Success toast comes with message user edited successfully and edit user modal closes | Success toast comes with message user edited successfully and edit user modal closes |
| 64 | Admin user service page edit user modal, admin click on edit user button, with empty balance field | Balance:  “ ” | System automatically consider 0 balance and updates the user balance to 0 and edit modal closes | System automatically consider 0 balance and updates the user balance to 0 and edit modal closes |
| 65 | Admin user service page edit user modal, admin click on edit user button by modifying fields and authtoken is not present is browser’s sessionStorage | Username:  New\_user  Name:  New user  Email:  [newUser@gmail.com](mailto:newUser@gmail.com)  balance:  120 | Success toast comes with message user edited successfully and edit user modal closes | Error toast with message, Failed to authenticate user, please login again |
| 66 | Admin user service page, admin click on delete user button corresponds to particular user | Click on delete button corresponds to the particular user | A confirmation modal open up with message, Are you sure you want to delete <username> | A confirmation modal open up with message, Are you sure you want to delete <username> |
| 67 | Admin user service page delete confirmation modal opens, admin click on disagree button | Admin click on disagree button | Confirmation modal closes | Confirmation modal closes |
| 68 | Admin user service page delete confirmation modal opens, admin click on agree button | Admin click on agree button | Success Toast with message, user deleted successfully | Success Toast with message, user deleted successfully |
| 69 | Admin conductor service page, admin click on delete conductor button corresponds to conductor | Click on delete button corresponds to the conductor | A confirmation modal opens up with message, are you sure you want to delete <username> | A confirmation modal opens up with message, are you sure you want to delete <username> |
| 70 | Admin conductor service page delete confirmation modal opens, admin click on disagree button | Admin click on disagree button | Confirmation modal closes | Confirmation modal closes |
| 71 | Admin conductor service page delete confirmation modal opens, admin click on agree button | Admin click on agree button | Success Toast with message, conductor deleted successfully | Success Toast with message, conductor deleted successfully |
| 73 | Admin user service page delete confirmation modal opens, admin click on agree button but authtoken is not available in browser’s sessionStorage | Admin click on agree button | Success Toast with message, user deleted successfully | Error toast with message, failed to authenticate user, please login again. |
| 74 | Admin conductor service page delete confirmation modal opens, admin click on agree button but authtoken is not available in browser’s sessionStorage | Admin click on agree button | Success Toast with message, conductor deleted successfully | Error toast with message, failed to authenticate user, please login again. |
| 75 | Admin home page, admin click on bus stops service card | Click on bus stops service card | Redirected to manage bus stops page and all bus stops data are fetched in table | Redirected to manage bus stops page and all bus stops data are fetched in table |
| 76 | Admin home page, admin click on bus stops service card but authtoken is not present in browser’s sessionStorage | Click on bus stops service card | Redirected to manage bus stops page and all bus stops data are fetched in table | Error toast with message, Failed to authenticate user, please login again  . |
| 77 | Admin bus stops manage page, admin click on add bus stop button | Admin clicks on add bus stop button | Add station modal pop ups with form fields | Add station modal pop ups with form fields |
| 78 | Admin bus stops manage page add station modal, admin clicks on add station button without adding any data | Admin click add station button inside add station modal | Error toast with message please enter all the required fields. | Error toast with message please enter all the required fields. |
| 79 | Admin bus stops manage page add station modal, admin clicks on add station button with adding all the valid fields | Station id:  4553  Station name:  Kapodara fire station  Latitude:  21.22063446  Longitude:  72.87518311 | Success toast with message, station added successfully, and all the forms fields is rosetted | Success toast with message, station added successfully, and all the forms fields is rosetted |
| 80 | Admin home page, admin click on invoice service card | Admin click on invoice service card | Admin is redirected to invoice service page and shows all the invoices in tabular format | Admin is redirected to invoice service page and shows all the invoices in tabular format |
| 81 | Admin home page, admin click on invoice service card, authtoken is not present in browser’s sessionStorate | Admin click on invoice service card | Admin is redirected to invoice service page and shows all the invoices in tabular format | Error toast with message, Failed to authenticate user, please login again |
| 82 | Admin home page, admin click on admin service card | Admin click on manage service card | Admin is redirected to admin service page | Admin is redirected to admin service page |
| 83 | Admin service page, admin click on add Admin button | Admin click on add admin button | A modal open up with various form fields | A modal open up with various form fields |
| 84 | Admin service page, admin click on create admin button without adding any fields | Username:””  Password:””  Name: “”  Email:””  Mobile number:””  DOB:”” | Error toast open up with message,  please enter all the required fields. | Error toast open up with message,  please enter all the required fields. |
| 85 | Admin service page, admin click on create admin button with any single empty field | Username:””  Password:””  Name: Admin  Email [admin@gmail.com](mailto:admin@gmail.com) | Error toast open up with message,  please enter all the required fields. | Error toast open up with message,  please enter all the required fields. |
| 86 | Admin service page, admin click on create admin button with invalid username format | Username:  Admin of varachha | Error toast open up with message,  please enter valid username. | Error toast open up with message,  please enter valid username. |
| 87 | Admin service page, admin click on create admin button with invalid email format | Email:  admin@gmail varachha | Error toast open up with message,  please enter valid email. | Error toast open up with message,  please enter valid email. |
| 88 | Admin service page, admin click on create admin button with mobile number length not equal to 10 | Mobile number:  383838383838 | Error toast with message, Please enter valid mobile number with length 10 | Error toast with message, Please enter valid mobile number with length 10 |
| 89 | Admin service page, admin create a new admin with existing username. | Username:  Admin | Error toast with message, A user with this username already exist | Error toast with message, A user with this username already exist |
| 90 | Admin service page, admin create a new admin with existing username. | Email:  [adminMain@gmail.com](mailto:adminMain@gmail.com) | Error toast with message, This email is already registered | Error toast with message, This email is already registered |
| 91 | Admin service page, admin create a new admin with all the valid fields followed by rules | Username: admin2  Password:  \*\*\*\*\*\*\*\*  Name:  Admin 2  Email:  [adminEmail@gmail.com](mailto:adminEmail@gmail.com)  mobile number:  884848284  DOB:  26-may-1992 | Success toast with message, successfully created a new admin and create admin modal closes | Success toast with message, successfully created a new admin and create admin modal closes |
| 92 | Admin service page, admin create a new admin with all the valid fields followed by rules , authtoken is not present in browser’s session storage | Username: admin2  Password:  \*\*\*\*\*\*\*\*  Name:  Admin 2  Email:  [adminEmail@gmail.com](mailto:adminEmail@gmail.com)  mobile number:  884848284  DOB:  26-may-1992 | Success toast with message, successfully created a new admin and create admin modal closes | Error toast with message, Failed to authenticate user, please login again |
| 93 | Admin service page, admin click on edit admin corresponds to particular admin. | Admin click on edit admin button corresponds to particular admin | update admin modal pop ups with all existing details in form fields | update admin modal pop ups with all existing details in form fields |
| 94 | Update admin modal, admin click on edit admin button without modifying any form fields | Admin click on edit admin button. | Success toast with message, admin edited successfully | Success toast with message, admin edited successfully |
| 95 | Edit admin modal, admin click on update admin button with invalid username format | Username:  Admin of varachha | Error toast open up with message,  please enter valid username. | Error toast open up with message,  please enter valid username. |
| 96 | Edit admin modal, admin click on updateadmin button with invalid email format | Email:  admin@gmail varachha | Error toast open up with message,  please enter valid email. | Error toast open up with message,  please enter valid email. |
| 97 | Update admin modal, admin click on update admin button with mobile number length not equal to 10 | Mobile number:  383838383838 | Error toast with message, Please enter valid mobile number with length 10 | Error toast with message, Please enter valid mobile number with length 10 |
| 98 | Admin service page, admin update admin with all the valid fields followed by rules , authtoken is not present in browser’s session storage | Username: admin2  Name:  Admin 2  Email:  [adminEmail@gmail.com](mailto:adminEmail@gmail.com)  mobile number:  884848284  DOB:  26-may-1992 | Success toast with message, successfully created a new admin and create admin modal closes | Error toast with message, Failed to authenticate user, please login again |
| 99 | Admin service page, admin click on delete user button corresponds to particular user | Click on delete button corresponds to the particular user | A confirmation modal open up with message, Are you sure you want to delete <username> | A confirmation modal open up with message, Are you sure you want to delete <username> |
| 100 | Admin service page delete confirmation modal opens, admin click on disagree button | Admin click on disagree button | Confirmation modal closes | Confirmation modal closes |
| 101 | Admin service page delete confirmation modal opens, admin click on agree button | Admin click on agree button | Success Toast with message, admin deleted successfully | Success Toast with message, admin deleted successfully |
| 102 | Admin service page delete confirmation modal opens, admin click on agree button but authtoken is not available in browser’s sessionStorage | Admin click on agree button | Success Toast with message, user deleted successfully | Error toast with message, failed to authenticate user, please login again. |
| 103 | Admin home page, admin click on feedback service card | Admin click on feedback service card | Admin is redirected to feedback service page, and all the feedbacks are shown in tabular format | Admin is redirected to feedback service page, and all the feedbacks are shown in tabular format |
| 104 | Feedback service page, admin click on reply button corresponds to particular feedback | Admin click on reply icon button. | A reply <username> modal pop ups with message textarea. | A modal pop ups with message textarea. |
| 105 | Admin click on send message with empty field | Message:  “” | Error toast with message, Please enter reply | Error toast with message, Please enter reply |
| 106 | Admin add reply and click on send message button | Message:  Thanks for your concern | Success toast with message, <message>… is send to <username> | Success toast with message, <message>… is send to <username> |
| 107 | Admin add reply and click on send message button , authtoken is not present in browser’s session storage | Message:  Thanks for your concern | Success toast with message, <message>… is send to <username> | Error toast with message, failed to authenticate user, please login again. |
| 108 | Admin add reply and click on dropdown and select pending menu | Admin select pending menu from sorting dropdown | All reply with pending status is shown in table | All reply with pending status is shown in table |
| 109 | Admin add reply and click on dropdown and select replied menu | Admin select replied menu from sorting dropdown | All reply with replied status is shown in table with replied message | All reply with replied status is shown in table with replied message |
| 110 | Admin add reply and click on dropdown and select ‘all’ menu | Admin select ‘all’ menu from sorting dropdown | All reply with all status is shown in table with replied message | All reply with all status is shown in table with replied message |
| 111 | Admin home page, admin click on broadcast service card | Admin click on broadcast service card | Admin is redirected to broadcast message page | Admin is redirected to broadcast message page |
| 112 | Broadcast service page, admin click on broadcast button without entering any broadcast message | Message:  “” | Error toast with message, please enter message | Error toast with message, please enter message |
| 113 | Broadcast service page, admin click on broadcast button with entering broadcast message, authtoken is not present in browser’s session | Message:  The special news from E-Ticket … | Success toast with message,  Message broadcasted to all the user | Error toast with message, failed to authenticate user, please login again. |
| 114 | Broadcast service page, admin click on broadcast button with entering broadcast message. | Message:  The special news from E-Ticket … | Success toast with message,  Message broadcasted to all the user | Success toast with message,  Message broadcasted to all the user |
| 115 | Admin click on statistics button on navbar | Admin is redirected to statistics page. | All the states related data is shown to the users in graphical format  (data like number of ticket generated, daily collections, and users count) | All the states related data is shown to the users in graphical format  (data like number of ticket generated, daily collections, and users count) |
| 116 | Admin click on statistics button on navbar, authtoken is not present in browser’s session storage | Admin is redirected to statistics page. | All the states related data is shown to the users in graphical format  (data like number of ticket generated, daily collections, and users count) | No data is shown to user and error toast with message, failed to authenticate user, please login again. |
| 117 | Conductor service page, admin upload an excel with valid format | File:  conductorList.xlxs | Success toast with message, conductor added successfully <username> | Success toast with message, conductor added successfully <username> |
| 118 | Conductor service page, admin upload an excel with invalid format | File:  conductorList.xlxs | Error toast with detailed message about error in which field at which row and about which element (eg invalid email or username format, or empty fields) | Error toast with detailed message about error in which field at which row and about which element (eg invalid email or username format, or empty fields) |
| 119 | Admin service page, admin upload an excel with valid format | File:  adminList.xlxs | Success toast with message, admins added successfully <username> | Success toast with message, admins added successfully <username> |
| 120 | Admin service page, admin upload an excel with invalid format | File:  adminList.xlxs | Error toast with detailed message about error in which field at which row and about which element (eg invalid email or username format, or empty fields) | Error toast with detailed message about error in which field at which row and about which element (eg invalid email or username format, or empty fields) |
| 121 | Bus stop service page, admin upload an excel with valid format | File:  stationsList.xlxs | Success toast with message, station added successfully <stationname> | Success toast with message, station added successfully <stationname> |
| 122 | Bus stop service page, admin upload an excel with invalid format | File:  stationsList.xlxs | Error toast with detailed message about error in which field at which row and about which element (eg invalid stationID or station name format, or empty fields) | Error toast with detailed message about error in which field at which row and about which element (eg invalid stationID or station name format, or empty fields) |
| 123 | Admin click on logout button which is present in every page bottom left corner | Admin click on logout button | Admin is redirected to the login page and all the browser cookies and session is cleared from cache and memory | Admin is redirected to the login page and all the browser cookies and session is cleared from cache and memory |

* 1. **Test cases of Conductor side:-**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SerialNo.** | **Description** | **Test data** | **Expected data** | **Actual data** |
| 1 | Conductor home page, clicks on Scan Ticket button, scan valid ticket’s QR code. | Valid Ticket QR Code | A modal open up with ticket details, with valid status. | A modal open up with ticket details, with valid status. |
| 2 | Conductor home page, clicks on Scan Ticket button, scan expired ticket’s QR code. | Expired Ticket QR Code | A modal open up with ticket details, with expired status. | A modal open up with ticket details, with expired status. |
| 3 | Conductor home page, clicks on Scan Ticket button, scan QR code of ticket that does not exist. | QR code of ticket that does not exist | A modal open up that displays Ticket does not exist. | A modal open up that displays Ticket does not exist. |
| 4 | Conductor home page, clicks on Add Recharge button, scan QR code of passenger that exist. | QR code of passenger that exist  Amount:  Less than 500 | Success Toast message displays, Recharge added successfully | Success Toast message displays, Recharge added successfully |
| 5 | Conductor home page, clicks on Add Recharge button, scan QR code of passenger that exist. | QR code of passenger that exist  Amount:  Greater than 500 | Success Toast message displays, Amount should be less than 500 | Success Toast message displays, Amount should be less than 500 |
| 6 | Conductor home page, clicks on Add Recharge button, scan QR code of passenger that doesn’t exist. | QR code of passenger that does not exist  Amount:  Less than 500 | Success Toast message displays, Username doesn’t exist | Success Toast message displays, Username doesn’t exist |
| 7 | Conductor home page, clicks on Transaction history button, scan QR code of passenger that exist. |  | Displays transaction details of all transactions. | Displays transaction details of all transactions. |
| 8 | Conductor Profile page, clicks on Edit Profile button. |  | Displays Modal for conductor to change information about conductor. | Displays Modal for conductor to change information about conductor. |
| 9 | Conductor tries to change the username that already used by someone else. | Username:  Username used by someone else | Error Toast message, username already exist. | Error Toast message, username already exist. |
| 10 | Conductor tries to change username that is invalid. | Username:  Conductor123 | Error Toast message, Please enter valid username. | Error Toast message, Please enter valid username. |
| 11 | Conductor tries to change the email that already used by someone else. | Email:  Email used by someone else | Error Toast message, email is already registered. | Error Toast message, email is already registered. |
| 12 | Conductor tries to change the email that is invalid. | Email:  conductor@ | Error Toast message, email is already registered. | Error Toast message, email is already registered. |
| 13 | Conductor tries to change profile with empty field. |  | Error Toast message, Please fill the required feilds | Error Toast message, Please fill the required feilds |
| 14 | Conductor tries to change profile with valid data. | Name:  Conductor  Username:  Conductor123  Email:  [conductor@gmail.com](mailto:conductor@gmail.com)  Mobile Number:  9874321565 | Success Toast message, Profile updated successfully. | Success Toast message, Profile updated successfully. |
| 15 | Conductor tries to change profile picture. | Picture from conductor’s device | Success Toast message, Image updated successfully. | Success Toast message, Image updated successfully. |
| 16 | Conductor clicks on log out button. |  | Redirect to login page. | Redirect to login page. |

* 1. **Test cases of User side:-**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Serial No.** | **Description** | **Test data** | **Expected data** | **Actual data** |
| 1 | User Signup,  If user enter correct email and click on send mail button | Email:  user@gmail.com | Success toast message, Otp sent to <user’s email> | Success toast message, Otp sent to <user’s email> |
| 2 | User signup,  If user enter incorrect email and click on send mail button | Email:  User.com | Error toast message, please enter valid email format | Error toast message, please enter valid email format |
| 3 | User Signup,  If user enter incorrect otp | Click on Verify OTP | Error toast message, Invalid OTP | Error toast message, Invalid OTP |
| 4 | User signup,  If user enter correct otp | Click on Verify OTP | Success toast message, Welcome to E-Ticket Enter your credentials to continue and user redirects to signup form | Success toast message, Welcome to E-Ticket Enter your credentials to continue and user redirects to signup form |
| 5 | User signup,  User click on sign up button with all empty fields | Name:””  Username:””  Password:””  Email:””  Mobile number:””  DOB:”” | Error toast message, Please enter all required fields | Error toast message, Please enter all required fields |
| 6 | User signup,  user click on signup button with invalid username format | Username:  User 1 2 3 | Error toast  message,  Enter a valid username | Error toast  message,  Enter a valid username |
| 7 | User signup, User click on signup button with invalid password format | Password:  \*\*\* | Error toast message,  The length of password must be greater than or equal to 8 | Error toast message,  The length of password must be greater than or equal to 8 |
| 8 | User signup, User click on signup button with invalid email format | Email:  User.com | Error toast message,  Please enter valid email format | Error toast message,  Please enter valid email format |
| 9 | User signup, User click on signup button with mobile number length not equal to10 | Mobile number:  9293283 | Error toast with message, Please enter valid mobile number with length 10 | Error toast with message, Please enter valid mobile number with length 10 |
| 10 | User signup,  User click on signup button with age less than 14 as per DOB | DOB:  17/05/2023 | Error toast message, Your age must be between 14 to 100 | Error toast message, Your age must be between 14 to 100 |
| 11 | User signup, user click on signup button with existing username. | Username:  user | Error toast message, user with this username already exist | Error toast with message, A user with this username already exist |
| 12 | User signup, user click on signup button with all the valid fields followed by rules | Username: user1  Password:  \*\*\*\*\*\*\*\*  Name:  User  Email:  User123@gmail.com  mobile number:  9999988888  DOB:  19-05-2005 | Success toast message, Successfully created a new account please sign in to continue and login model opens | Success toast message, Successfully created a new account please sign in to continue and login model opens |
| 13 | User home page, click on buy ticket modal. | Click on buy ticket modal | Buy ticket modal open up with current, destination, and number of ticket fields | Buy ticket modal open up with current, destination, and number of ticket fields |
| 14 | Buy ticket modal, user click on generate ticket button without selecting source and destination | Source:  “”  Destination:  “”  Number of tickets:1 | Error Snackbar with message,  Please select source and/or destination. | Error Snackbar with message,  Please select source and/or destination. |
| 15 | Buy ticket modal, user enter source or destination that does not exist on stations list. | source:  IT Department  Destination:  Mechanical department | Error Snackbar with message,  Please select source and/or destination. | Error Snackbar with message,  Please select source and/or destination. |
| 16 | Buy ticket modal, user select source and destination. | Source: Gandhy college  Destination: Kapodara fire station | On generate ticket button the fare updates depending on the source and destination | On generate ticket button the fare updates depending on the source and destination |
| 17 | Buy ticket modal, user select source and destination and click on generate ticket button with enough balance in user’s account | Source: Gandhy college  Destination: Kapodara fire station | Success Snackbar with message, ticket purchased successfully and user is redirected to active ticket page, and on home page latest ticket is shown | Success Snackbar with message, ticket purchased successfully and user is redirected to active ticket page and on home page latest ticket is shown |
| 18 | Buy ticket modal, user select source and destination and click on generate ticket button with not enough balance in user’s account | Source: Gandhy college  Destination: Kapodara fire station | Error Snackbar with message, Insufficient balance, please add recharge to your wallet. and user is redirected to active ticket page | Error Snackbar with message, Insufficient balance, please add recharge to your wallet. and user is redirected to active ticket page |
| 19 | Home page, user click on add recharge button | Click on add recharge button | A modal pop ups with qr code and pay using debit card button option | A modal pop ups with qr code and pay using debit card button option |
| 20 | Add recharge modal, user click on recharge using card button. | Click on recharge using card button | A modal pop up with amount text field and pay button | A modal pop up with amount text field and pay button |
| 21 | Add amount modal, user click on button without entering any amount | Amount:  “ ” | Error Snackbar with message, please enter amount | Error Snackbar with message, please enter amount |
| 22 | Add amount modal, user click on button enter amount which is not between 50-500 | Amount:  20 | Error Snackbar with message, Recharge amount should be between 50-500 | Error Snackbar with message, Recharge amount should be between 50-500 |
| 23 | Add amount modal, user click on button with entering valid amount | Amount:  50 | User is redirected to stripe checkout page and further validation is handled by stripe | User is redirected to stripe checkout page and further validation is handled by stripe |
| 24 | Stripe checkout page, user enter all the required fields and process payment steps, click on pay button with valid details and payment success. | Email:  [user@gmail.com](mailto:user@gmail.com)  card number:  8378 4848 8584 8584  Card expire time:  12/29  CVV:  748  Name on card:  User 249  Country or region:  India | Stripe validates all the card related details and further process payment and then redirected to the home page and success Snackbar appears with message, Recharged of <entered amount> is successfully debited to your account. | Stripe validates all the card related details and further process payment and then redirected to the home page and success Snackbar appears with message, Recharged of <entered amount> is successfully debited to your account. |
| 25 | Stripe checkout page, user enter all the required fields and process payment steps, click on pay button with valid details but user click on cancel button. | User click on cancel button | Error Snackbar with message, Payment is cancelled | Error Snackbar with message, Payment is cancelled |
| 26 | User navigates to active ticket page with the help of sidebar. | User click on active tickets menu | All the currently active tickets is shown to the user. | All the currently active tickets is shown to the user. |
| 27 | Active ticket page, user click on QR code button corresponds to particular ticket | Click on show QR code button | A modal pop ups with corresponds ticket QR code | A modal pop ups with corresponds ticket QR code |
| 28 | User navigates to history page with the help of sidebar. | Click on history menu in sidebar | User is redirected to history page and all the ticket history is shown to the user. | User is redirected to history page and all the ticket history is shown to the user. |
| 29 | User navigates to payments page with the help of sidebar. | Click on payment menu in sidebar | User is redirected to payments page and all the transaction history is shown to the user. | User is redirected to payments page and all the transaction history is shown to the user. |
| 30 | User navigates to maps page with the help of sidebar. | Click on maps menu in sidebar | User is redirected to map page, where user’s live location is shown in the map and a city map image is shown | User is redirected to map page, where user’s live location is shown in the map and a city map image is shown |
| 31 | User navigates to profile page with the help of sidebar. | Click on profile menu in sidebar | User is redirected to profile page and all the data about user’s profile is shown. | User is redirected to profile page and all the data about user’s profile is shown. |
| 32 | User profile page, user click on edit profile button | Click on edit profile button | A edit profile modal open up with predefined data filled in text fields | A edit profile modal open up with predefined data filled in text fields |
| 33 | Edit profile modal, user modifies profile and click on update profile button | Name:  User one  Username:  user\_one  email:  [userOne@gmail.com](mailto:userOne@gmail.com)  mobile number:  7778887156 | Success Snackbar with message, profile updated successfully | Success Snackbar with message, profile updated successfully |
| 34 | Edit profile page, user tries to edit profile with any single field empty except mobile number | Username:  “”  Mobile:  “” | Error Snackbar with message, please fill all the required fields | Error Snackbar with message, please fill all the required fields |
| 35 | Edit profile page, user tries to edit profile with existed username | Username:  user\_existed | Error Snackbar with message, a user with this username already exist | Error Snackbar with message, a user with this username already exist |
| 36 | Edit profile page, user tries to edit profile with existed email | Email:  existedUserEmail@gmail.com | Error Snackbar with message, this email is already registered | Error Snackbar with message, this email is already registered |
| 37 | When user click on upload image button | Image:  Image.jpg | Success toast with message, image uploaded successfully | Success toast with message, image uploaded successfully |
| 38 | Profile page, user click on logout button. | User click on logout button | User is redirected to sign in page. | User is redirected to sign in page. |
| 39 | User navigates to setting page with the help of sidebar. | Click on setting menu in sidebar | User is redirected to setting page. | User is redirected to setting page. |
| 40 | User modifies theme | User click on either dark or light or system theme button | Whole application theme changes as per user’s selection | Whole application theme changes as per user’s selection |
| 41 | Setting page user click on report a bug button | Click on report a bug button | A report modal open up with two fields | A report modal open up with two fields |
| 42 | Report modal user click on submit button without selecting either of fields | Topic: “”  Message:  “” | Error Snackbar with message, please enter all the required fields | Error Snackbar with message, please enter all the required fields |
| 43 | Report modal user click on submit button with filling required fields | Topic:  Suggest a feature.  Description:  Overall application is great try to add map which shows live bus routes | Another modal pop up with message, Thank you feedback. We will contact with you soon! | Another modal pop up with message, Thank you feedback. We will contact with you soon! |

**Chapter 7 : Advantages, Limitations & Future Enhancement**

**Advantages:**

The BRTS E-Ticket Management System offers several advantages over traditional paper-based ticketing systems. Here are some key benefits:

**1. Convenience:** E-Ticketing eliminates the need for physical tickets, allowing passengers to conveniently purchase and carry tickets on their smartphones or smart cards. It reduces the hassle of standing in long queues to buy tickets and provides a faster boarding process.

**2. Efficiency:** With an electronic system in place, the ticketing process becomes more efficient and streamlined. It reduces the chances of errors in ticketing, such as issuing incorrect fares or duplicate tickets. The system can also handle a larger volume of transactions, enabling quicker ticket sales during peak hours.

**3. Cost savings:** Implementing an E-Ticket Management System can lead to cost savings in various ways. It eliminates the printing and distribution costs associated with paper tickets, as well as the need for ticket vending machines. Additionally, it reduces the manpower required for manual ticket handling and verification.

**4. Enhanced revenue management:** The electronic system provides accurate data on passenger flow, ticket sales, and revenue collection. This data can be used to analyze travel patterns, optimize bus routes, and adjust fares accordingly. It enables transit authorities to make informed decisions for better revenue management and resource allocation.

**5. Improved security:** E-Ticketing systems offer enhanced security features. Electronic tickets can be encrypted and protected from forgery or duplication. The system can also integrate with various payment gateways, ensuring secure and cashless transactions.

**6. Integration with other systems:** BRTS E-Ticket Management Systems can be integrated with other transportation systems and technologies. For example, they can be linked to GPS systems to provide real-time bus tracking and arrival information to passengers. Integration with passenger information systems or mobile apps further enhances the overall travel experience.

**7. Data analysis and reporting:** The electronic ticketing system generates comprehensive data that can be used for analysis and reporting. This information can help authorities monitor passenger trends, optimize operational efficiency, identify revenue leakages, and plan for future enhancements in the transportation system.

In summary, the BRTS E-Ticket Management System offers convenience, efficiency, cost savings, improved security, integration capabilities, and valuable data analysis, making it a beneficial solution for modern public transportation systems.

**Limitations:**

While the BRTS E-Ticket Management System offers several advantages, it also has some limitations that should be considered. Here are a few limitations of such a system:

**1. Digital divide:** The system relies on passengers having access to smartphones or smart cards to purchase and use e-tickets. However, not all passengers may have access to these devices or be familiar with using them. This could exclude certain segments of the population, such as the elderly or individuals with limited access to technology, from utilizing the system.

**2. Technical infrastructure requirements:** Implementing an E-Ticket Management System requires a robust technical infrastructure, including ticketing machines, servers, and reliable internet connectivity. In areas with inadequate infrastructure or limited internet access, the system may face challenges in operation and reliability.

**3. Ticketing system failures:** Like any digital system, there is a possibility of technical glitches or system failures. If the E-Ticket Management System experiences downtime or malfunctions, it can disrupt the ticketing process and inconvenience passengers. Contingency plans should be in place to address such situations and ensure seamless ticketing operations.

**4. Privacy and data security concerns:** E-Ticketing systems involve the collection and storage of passenger data, including personal information and travel patterns. It is crucial to have strong data protection measures in place to safeguard passenger privacy and prevent unauthorized access or misuse of sensitive information.

**5. Dependence on power supply:** Electronic ticketing systems require a continuous power supply to operate. In areas with frequent power outages or unreliable electricity infrastructure, the system may face disruptions and impact ticketing services. Backup power solutions should be in place to mitigate such issues.

**6. User adoption and acceptance:** Introducing a new ticketing system may face resistance or reluctance from passengers who are accustomed to traditional paper tickets. Some passengers may prefer the tangible nature of paper tickets or may find it challenging to adapt to the new technology. User education and awareness campaigns are essential to promote the benefits and encourage user adoption.

**7. Initial setup and maintenance costs:** Implementing and maintaining an E-Ticket Management System involves initial setup costs, including hardware, software, and infrastructure investments. Additionally, ongoing maintenance and system updates require financial resources. Transit authorities need to evaluate the cost-effectiveness and long-term sustainability of the system.

While these limitations exist, many of them can be mitigated with proper planning, infrastructure development, user education, and continuous monitoring and improvement of the E-Ticket Management System.

**Future Enhancement:**

The Additional features for future can be following:

* + - * Bus Route Tracking:

System gives feature for users to see the live location of bus and the route of bus in the map.

* + - * Collaboration with other users:

User can collaborate and communicate with each other.

* + - * Customer Feedback:

The system provide feedback feature to users for purpose of making system better.

* + - * Ticket Cancellation:

The system provide ticket cancellation to users.

**Chapter 8 : Conclusion**

**Conclusion:**

The BRTS E-Ticket Management System offers numerous advantages such as convenience, efficiency, cost savings, enhanced revenue management, improved security, integration capabilities, and data analysis. However, it also has certain limitations including the digital divide, technical infrastructure requirements, ticketing system failures, privacy and data security concerns, dependence on power supply, user adoption challenges, and initial setup and maintenance costs.

Despite these limitations, the overall benefits of the system make it a valuable addition to modern public transportation systems. It simplifies ticket purchasing and boarding processes, improves revenue management through data analysis, reduces costs associated with paper ticketing, and enhances the overall travel experience for passengers. Proper planning, infrastructure development, user education, and ongoing monitoring can help address the limitations and ensure the successful implementation and operation of the BRTS E-Ticket Management System.

Check our GitHub profile for more reference:

<https://github.com/ArshilHapani/E-Ticket_Diploma_Sem-6_V2>

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