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.

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Yours Sincerely,
Arshil Hapani (206120316035)
Sanket Sadadiya (206120316038)
Vaibhav Sanghani (206120316015)

</div>

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

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Chapter 1 : Introduction

1.1   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.

1.2   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

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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.

1.3   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.
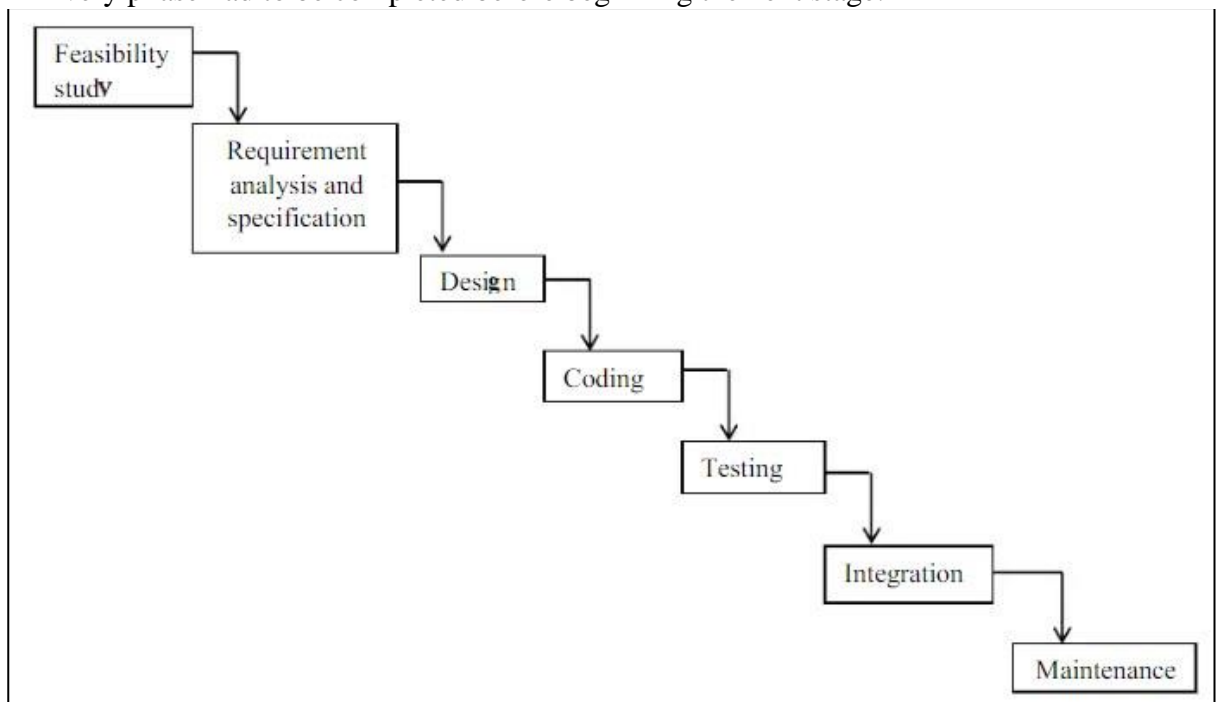
The waterfall methodology was worthwhile because this approach produced a complete qualitysystem and error-free system due to the fact that every phase had to be completed before the nextone began thus leaving no phase unattended.However,

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.
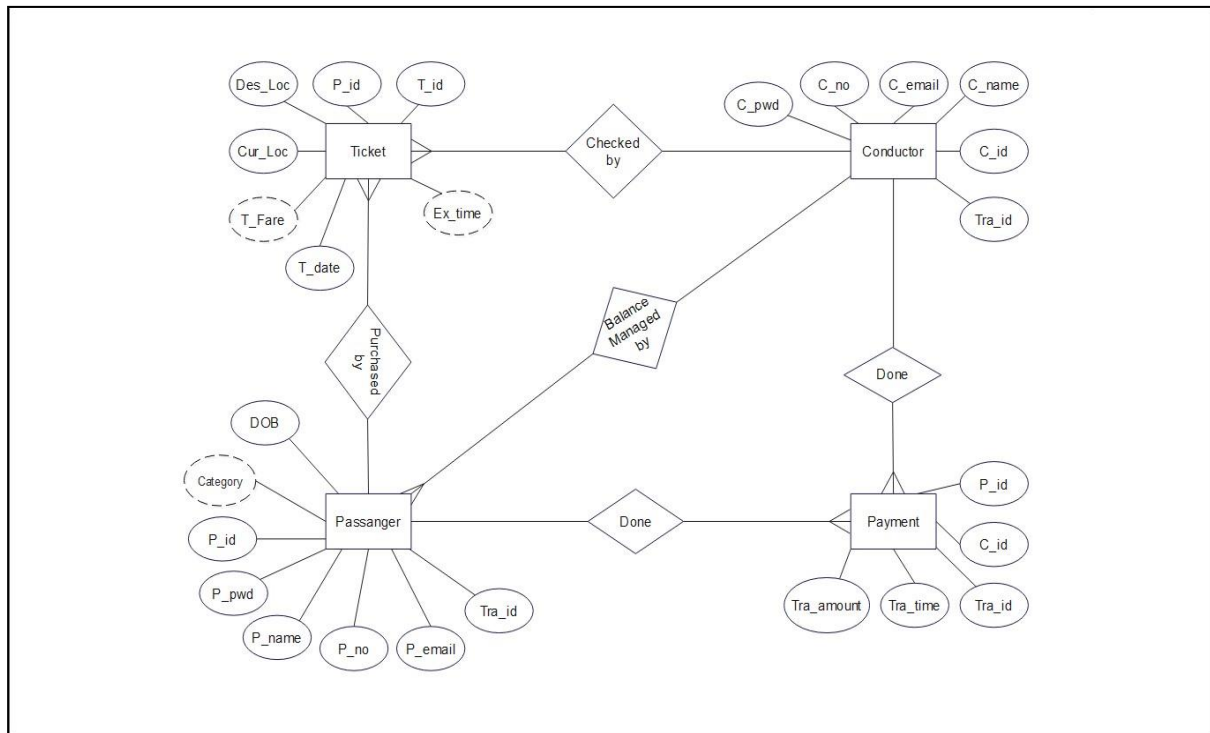- **History**
  User can see their transactions and ticket purchasing history.

❖ **Non Functional Requirements**

  - Attractive GUI
  - Accessible Environment
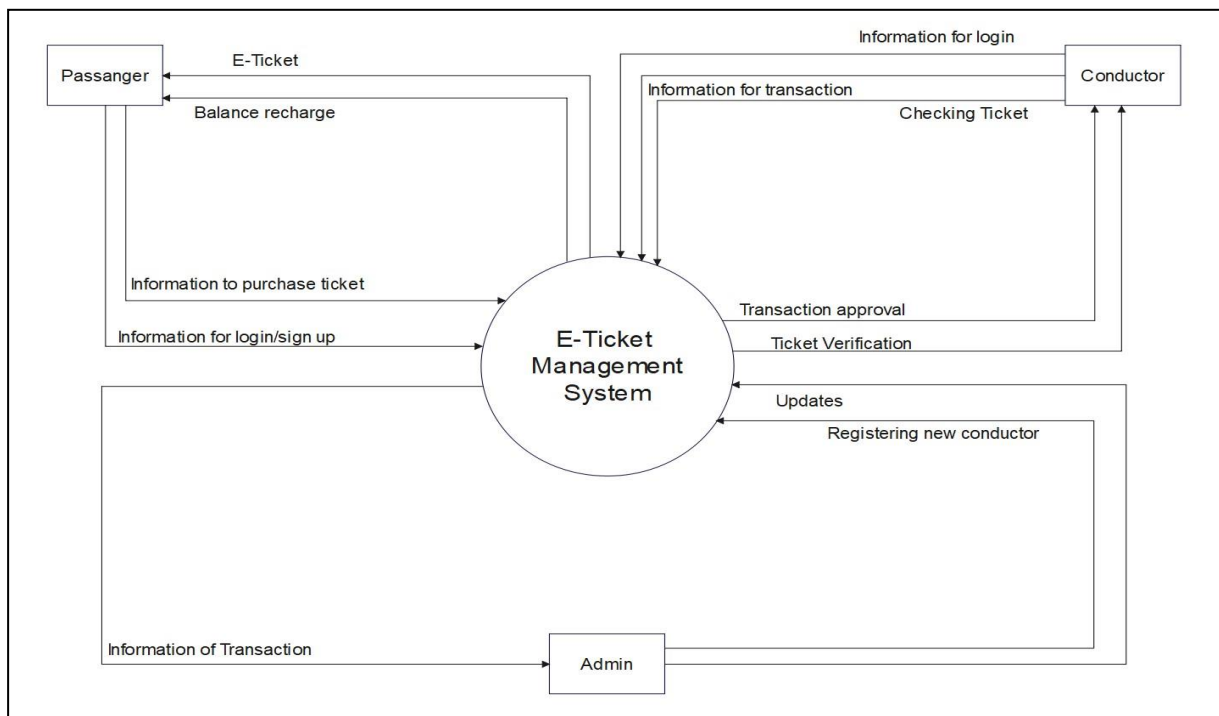 - Reliability
  - Availability
  - Security

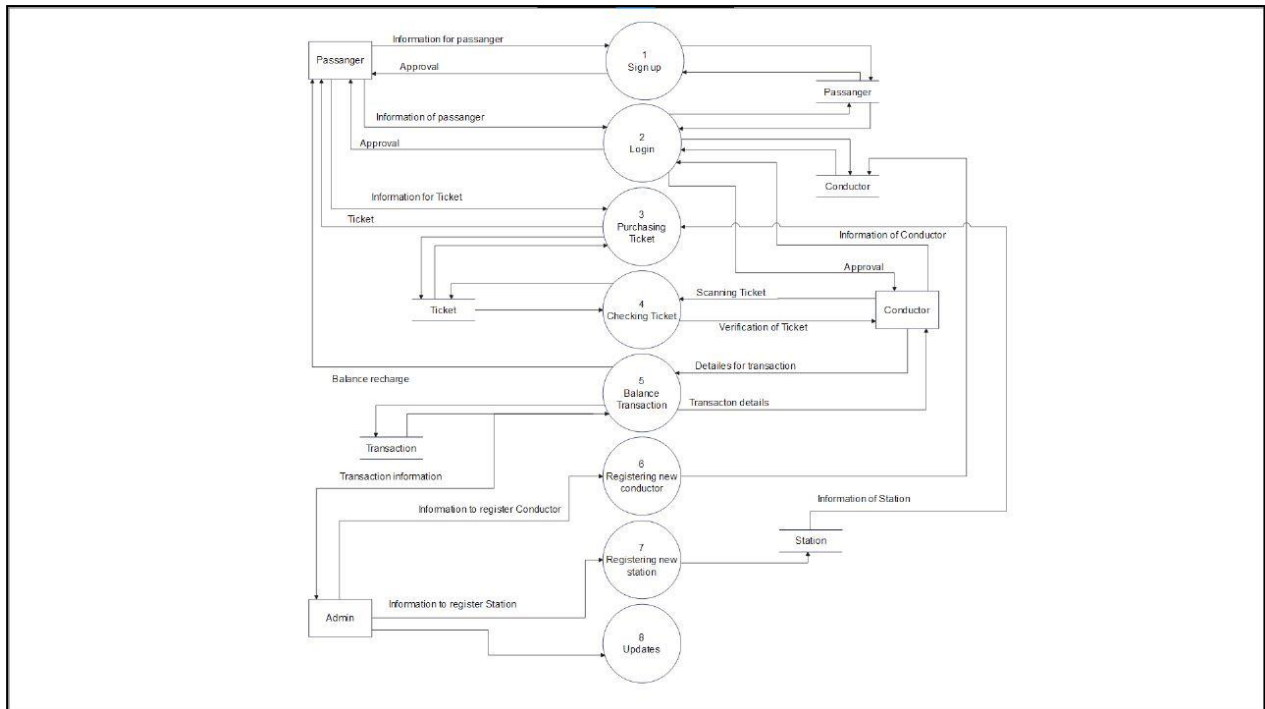# Chapter 3 : System Design

3.1 ER Diagram

3.2 Data Flow Diagram
Context Level Diagram

Level 1

3.3 Data Dictionary

Admin					
Field Name	Data Type	Field Length	Constraint	Required	Description
a_id	char	15	Primary Key	yes	Unique id of admin,auto generated
a_uname	varchar	35	Unique Key, Not	yes	Unique username of admin given by him/her self
created_by	char	15	Not Null	yes	Id of admin that created new admin
a_name	varchar	50	Not Null	yes	Admin name given by him/her self
a_email	varchar	40	Unique Key, Not	yes	Unique E mail id of admin given by him/her self
a_no	varchar	15		no	Contact number of admin
a_dob	date		Not Null	yes	Date of birth of admin
a_img	mediumtext			no	Profile image of admin

Conductor					
Field Name	Data Type	Field Length	Constraint	Required	Description
c_uname	varchar	35	Unique Key, No	yes	Name of conductor given by him/her self
c_id	char	15	Primary Key	yes	Unique conductor id, auto generated
c_name	varchar	50	Not Null	yes	Name of conductor given by him/her self
c_email	varchar	40	Unique Key, No	yes	E mail id of conductor given by him/her self
c_no	int	15		no	Contact number of conductor given by him/her self
c_dob	date		Not Null	yes	Birth date of conductor
c_img	mediumtext			no	Profile image of the cunductor

Login					
Field Name	Data Type	Field Length	Constraint	Required	Description
id	char	15	Not Null	yes	unique id of user , Auto generated
uname	varchar	35	Not Null	yes	User Name of user given by him/her self
pwd	char	60	Not Null	yes	Password used to login given by him/her self

Passenger					
Field Name	Data Type	Field Length	Constraint	Required	Description
P_uname	varchar	35	Unique Key, No	yes	User Name of passenger given by him/her self
P_id	char	15	Primary Key	yes	unique passenger id, Auto generated
P_name	varchar	50	Not Null	yes	Name of passenger given by him/her self
P_email	varchar	40	Unique Key, No	yes	E mail id of passenger given by him/her self
P_no	varchar	15		no	Contact number of passenger given by him/her self
p_balance	float	7,2	Check	yes	Balance of passenger
p_dob	date		Not Null	yes	Birth date of passenger
p_img	mediumtext			no	Profile image of passenger

Ticket					
Field Name	Data Type	Field Length	Constraint	Required	Description
t_id	char	15	Primary Key	yes	Unique id of ticket, Auto generated
p_id	char	15		yes	Unique passenger id, Auto generated
start_loc	varchar	50	Not Null	yes	Current location of passenger
dest_loc	varchar	50	Not Null	yes	Destination location set by passenger
t_expires	datetime		Not Null	yes	Ticket expire time, Auto generated
t_time	datetime		Not Null	yes	Date of purchasing ticket by passenger
T_fair	float	4,2	Check	yes	Price of ticket to be paid

Payment					
Field Name	Data Type	Field Length	Constraint	Required	Description
pay_id	char	15	Primary Key	yes	Unique id of transaction, Auto generated
p_id	char	15		yes	Unique passenger id, Auto generated
pay_amount	float	5,2	Check	yes	Money that is used to recharge balance of passenger
c_id	char	15	Not Null	yes	Unique conductor id, auto generated
pay_time	datetime		Not Null	yes	Date and time of transaction

Stations					
Field Name	Data Type	Field Length	Constraint	Required	Description
st_lat	float	10,8	Not Null	yes	Latitude of station to find it's location
st_long	float	10,8	Not Null	yes	Longtitude of station to find it's location
st_name	varchar	50	Not Null	yes	Name of station
st_id	int	5	Primary Key	yes	Unique id of station, Manually assigned by admin

Feedback					
Field Name	Data Type	Field Length	Constraint	Required	Description
f_id	char	15	Primary Key	yes	Unique feedback id, Auto generated
p_id	char	15		yes	Unique passenger id, Auto generated
topic	varchar	50	Not Null	yes	Topic of the feedback, Selected by user
feedback	varchar	255	Not Null	yes	Description of the feedback
f_time	datetime		Not Null	yes	time of feedback submission
a_id	char	15		no	Unique id of admin, Auto generated
reply	varchar	255		no	Reply of feedback given by admin
r_time	datetime			no	Reply time of feedback
f_status	char	7	Not Null	yes	feedback status(pending,replied,etc)

Chapter 4 : UML
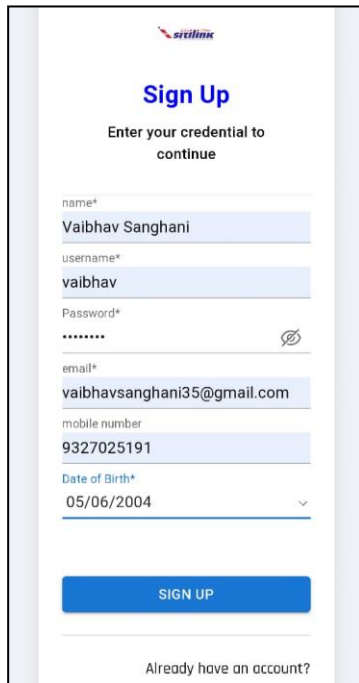
4.1 Use Case Diagram
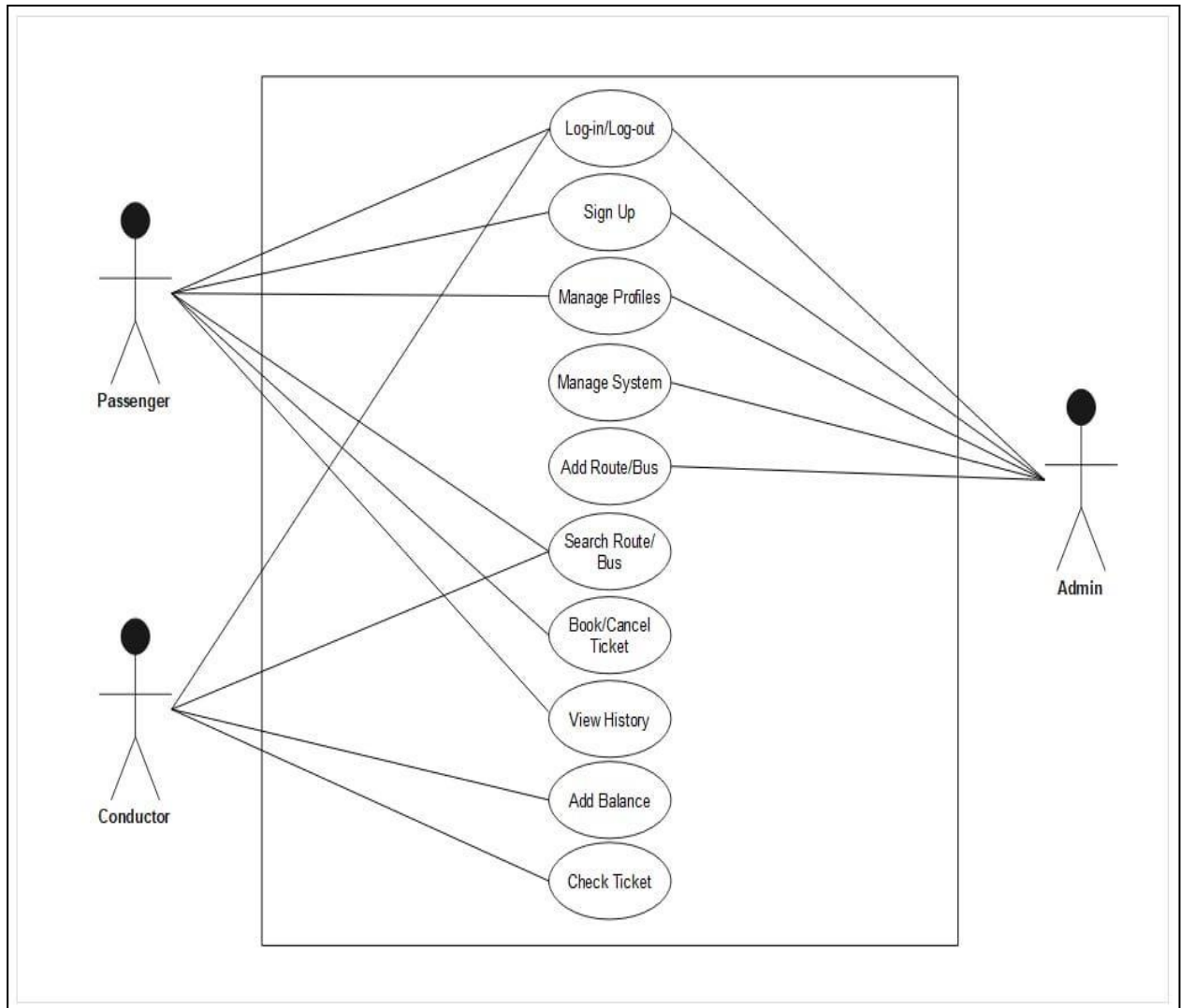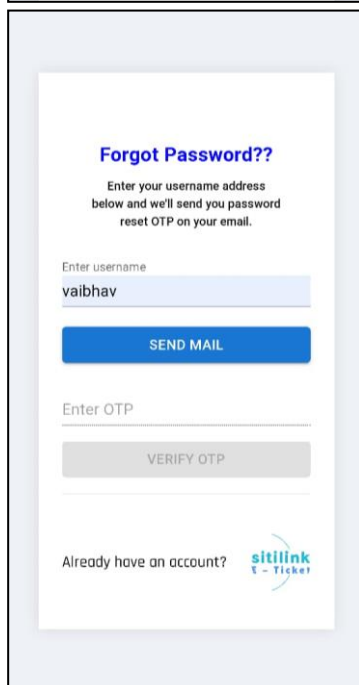
4.2 Activity Diagram
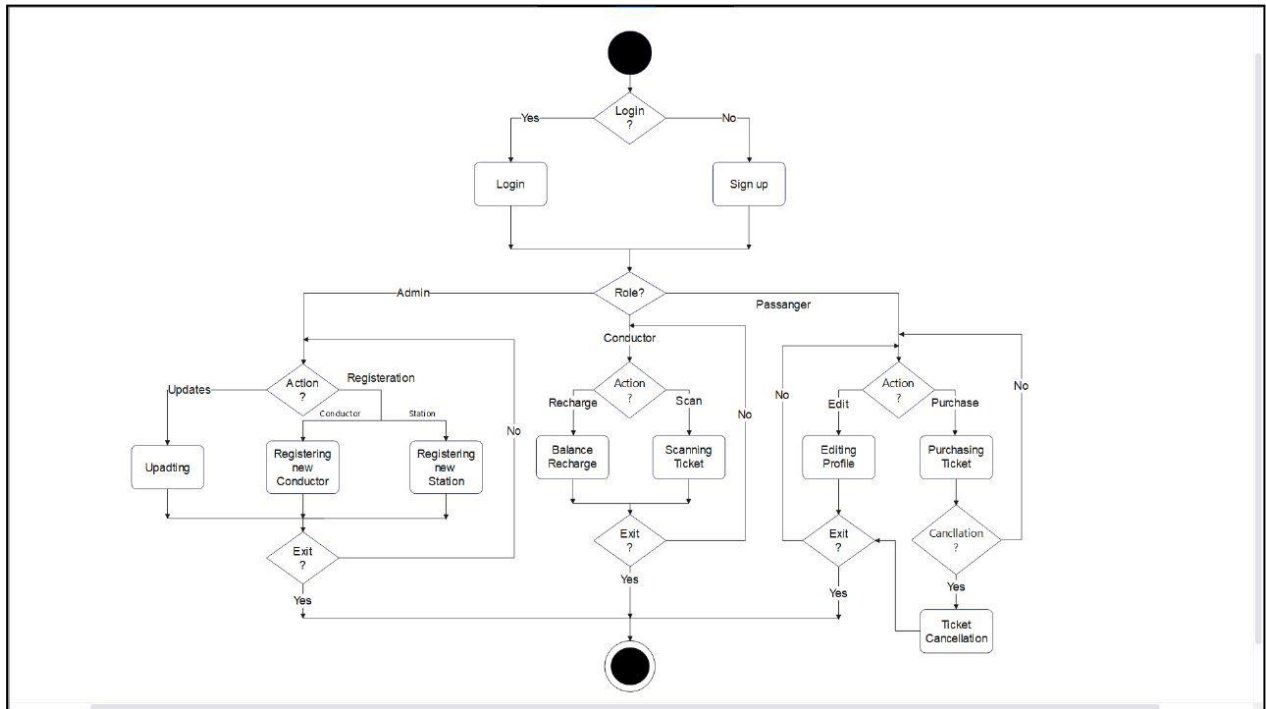
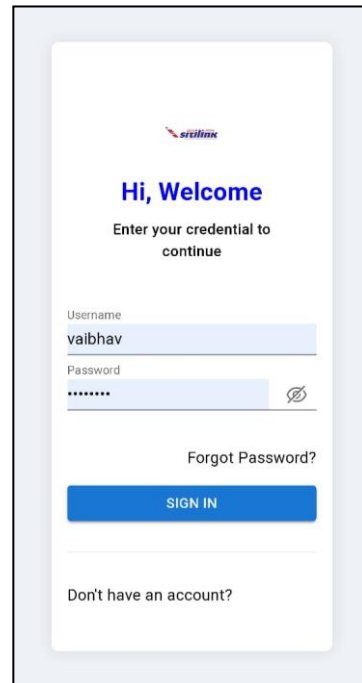# Chapter 5 : GUI/Application Interface

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.
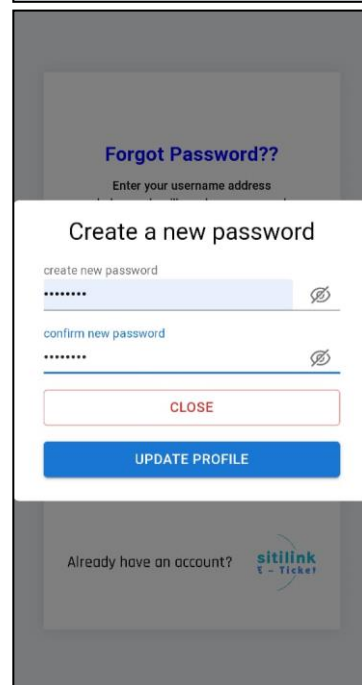
➢ **Home Page/Profile:** After login, User can see their balance, Recent tickets. User can buy ticket, add recharge with help of conductor. Profile can be accessed by clicking on the profile picture, Where they can edit their profile.
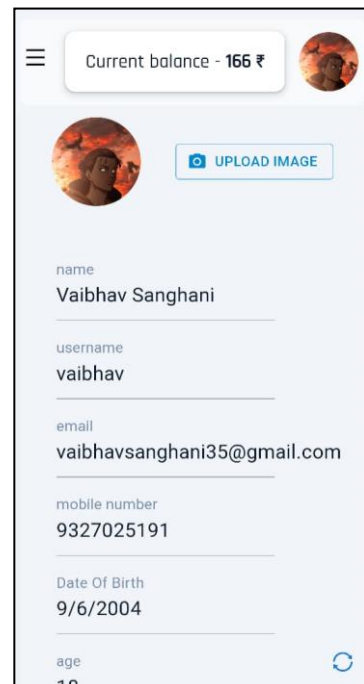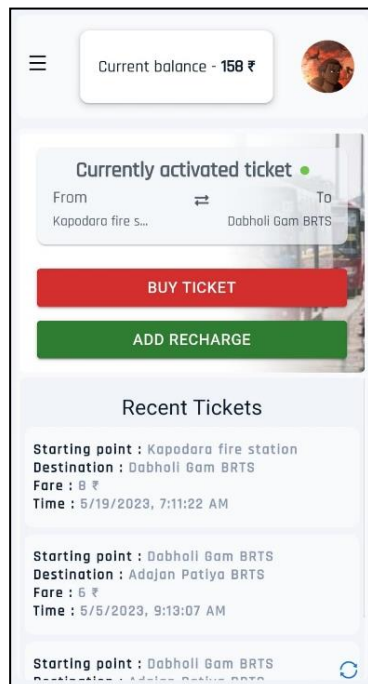
➢ **Menu:** User can see menu by clicking on Menu icon. where they can access different menus.
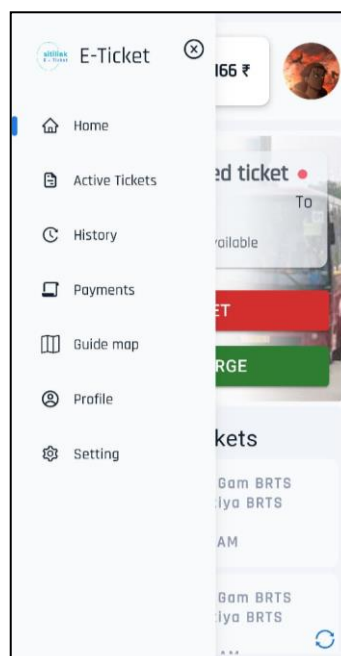
➤ **Buy Ticket:** User can buy ticket from home page by selecting Current location to Destination. Choose number of ticket want to generate and click on generate ticket. Then user can access their Active Tickets page from sidebar menu. Conductor can check ticket by scanning QR Code of each ticket.
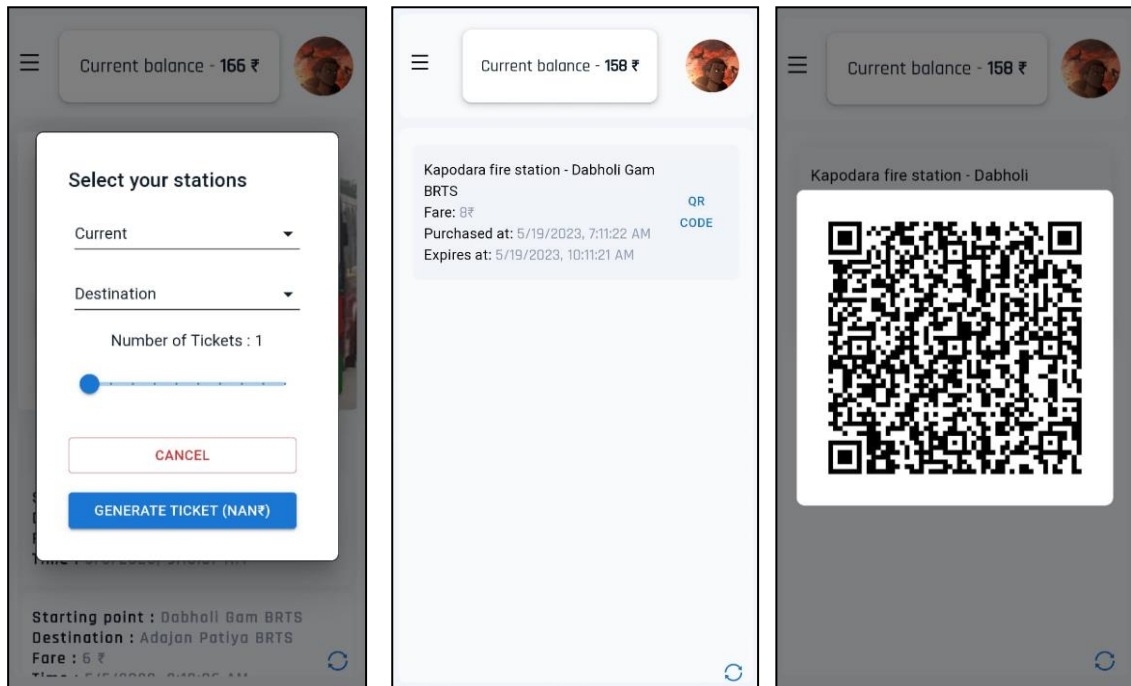
➤ **History/Payments:** User can see ticket history generated by him/her in History. Also recent payments of amount added by conductor in user's account.
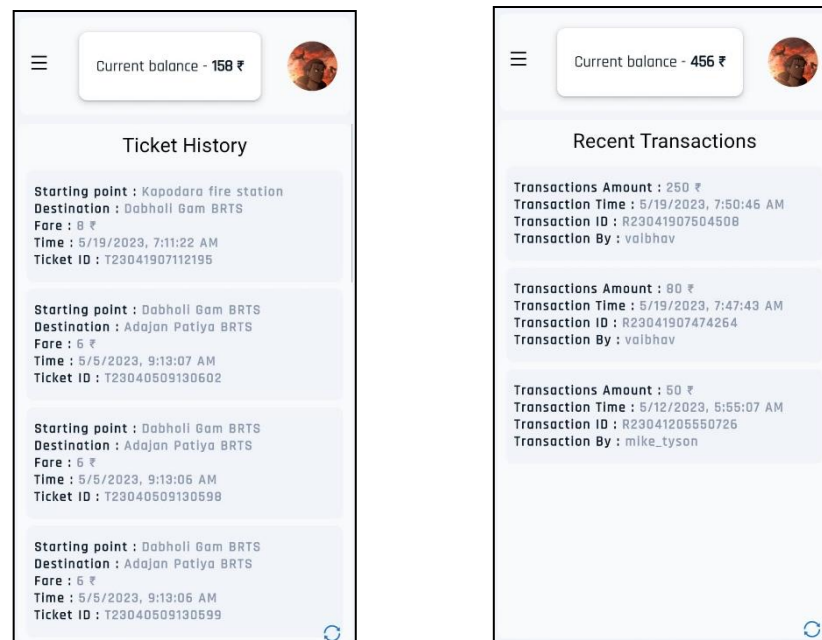
➤ **Map/Theme:** User can see map and their live location in map. User can change theme to System's default theme, Dark theme or light theme.
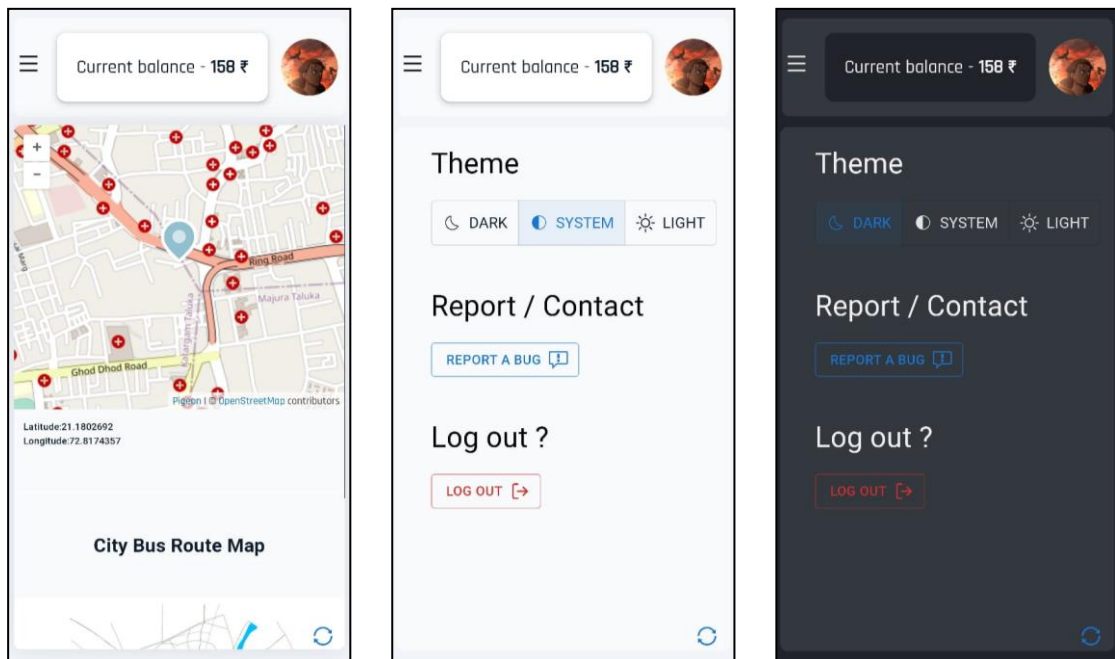
➤ **Feedback:** User can give feedback, Complain or Report to the admin with description.
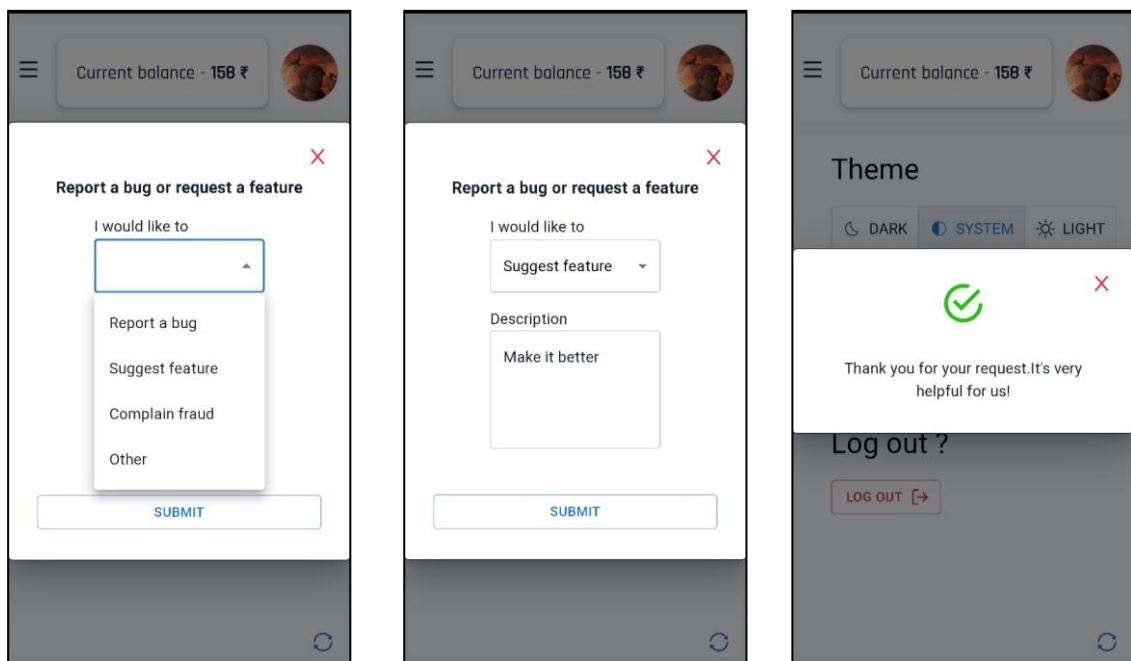
➢ **Recharge:** User can add balance to their wallet through debit card.
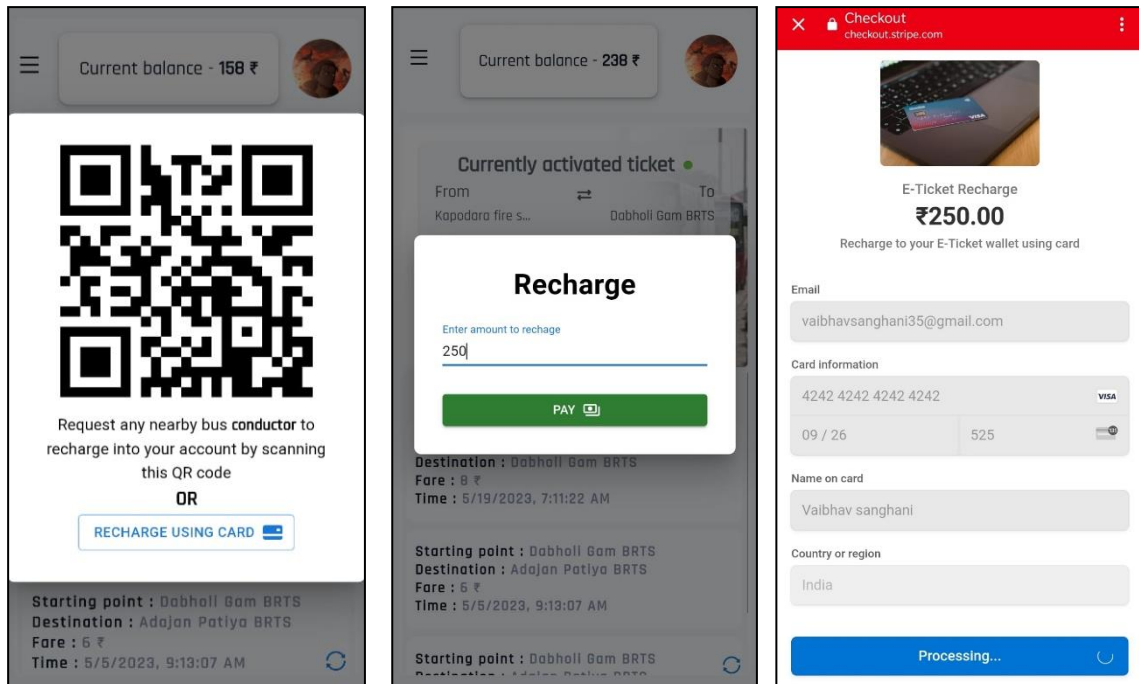
5.2 Conductor Side

➢ **Login/Home Page:** Conductor can login using Id/Password provided by admin.
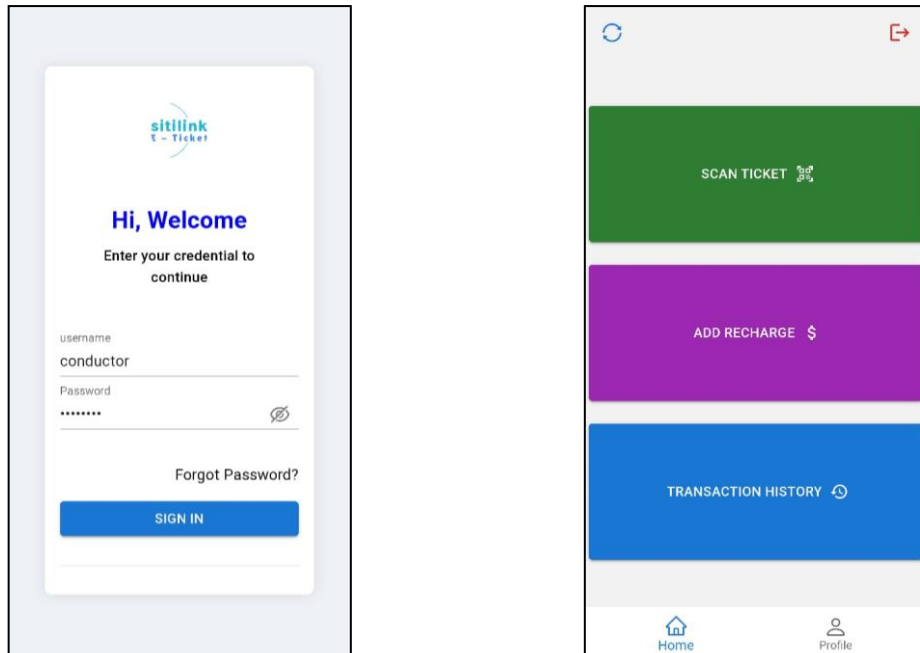
➢ **Scan Ticket:** Conductor can scan ticket of user using Scan Ticket feature.
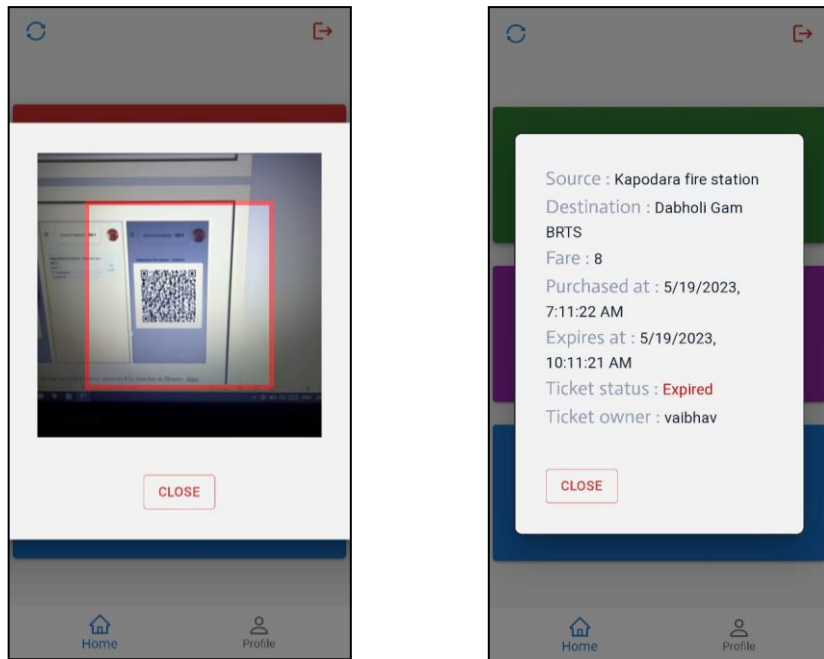
➢ **Recharge:** Conductor can add money into user's wallet using Add Recharge feature.
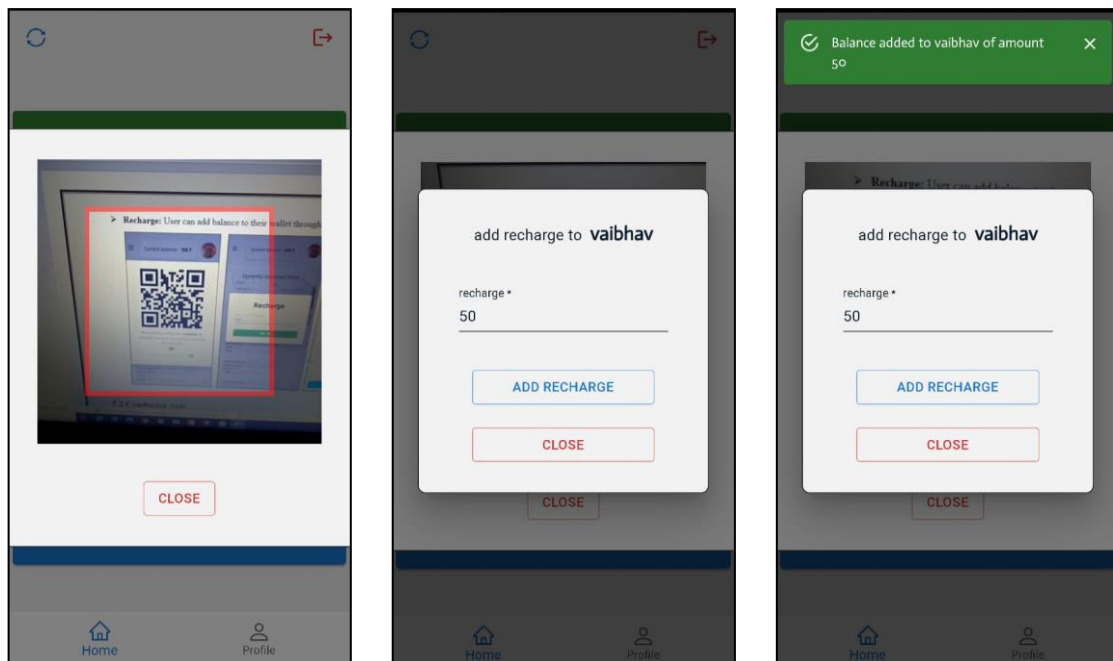
➢ **Transaction History:** Conductor can see his/her transaction history.
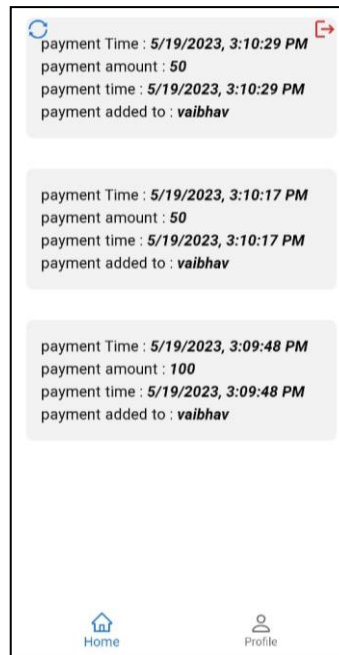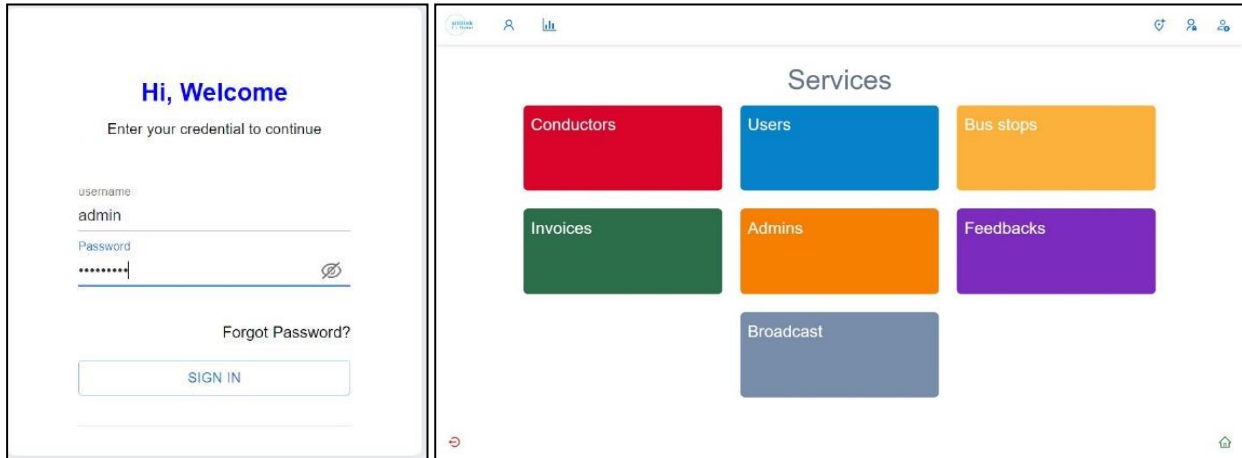
➢ **Profile:** Conductor can modify his/her profile from bottom navigation menu.
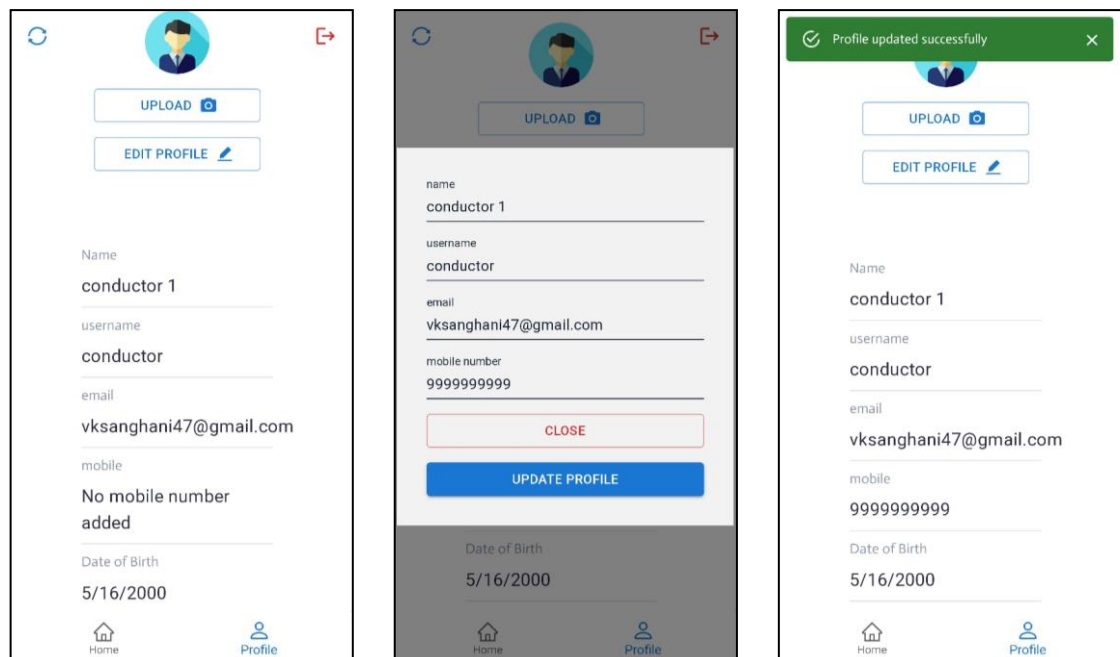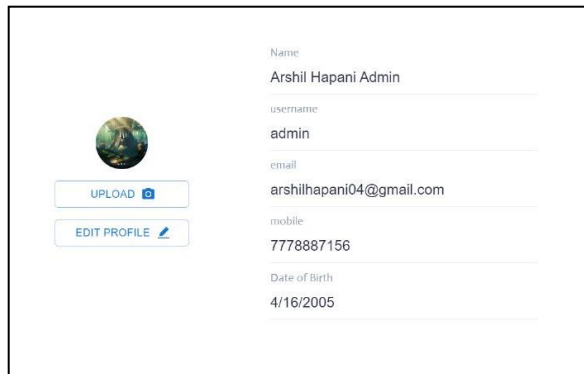
5.3 Admin Side

> **Login/Home Page:** Admin can login using his/her username and password.
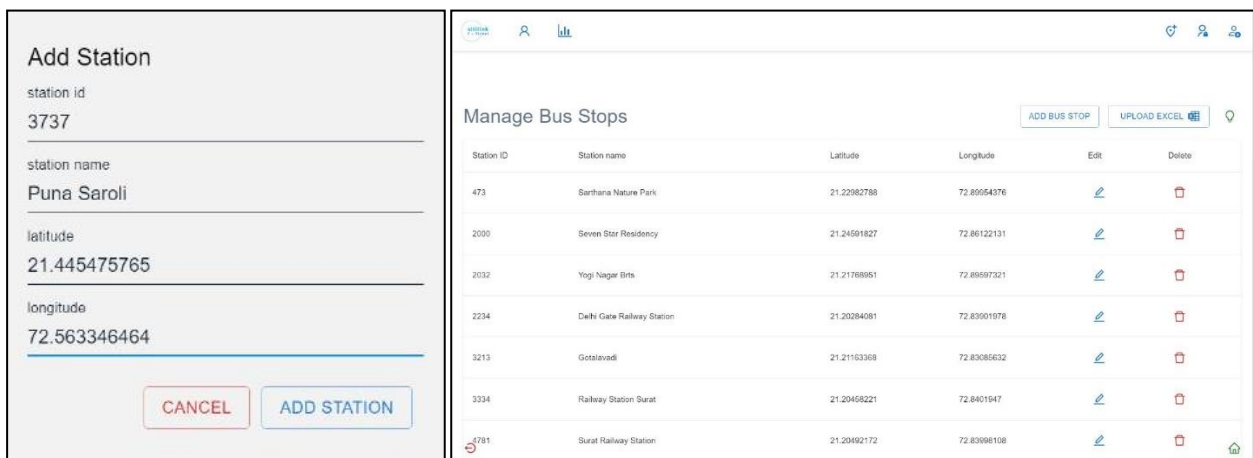
> **Profile:** Admin can modify profile by himself/herself.

> **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.

➢ **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.

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

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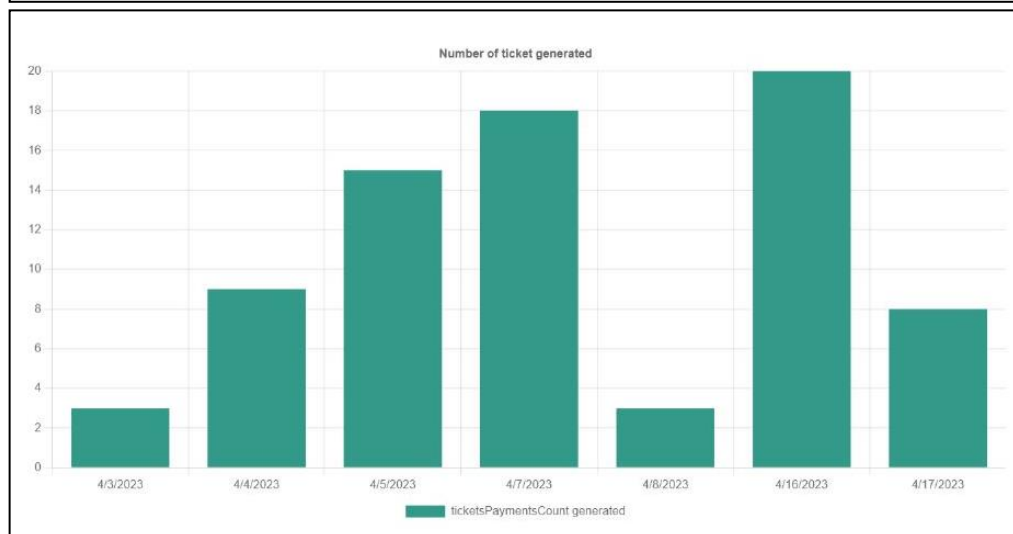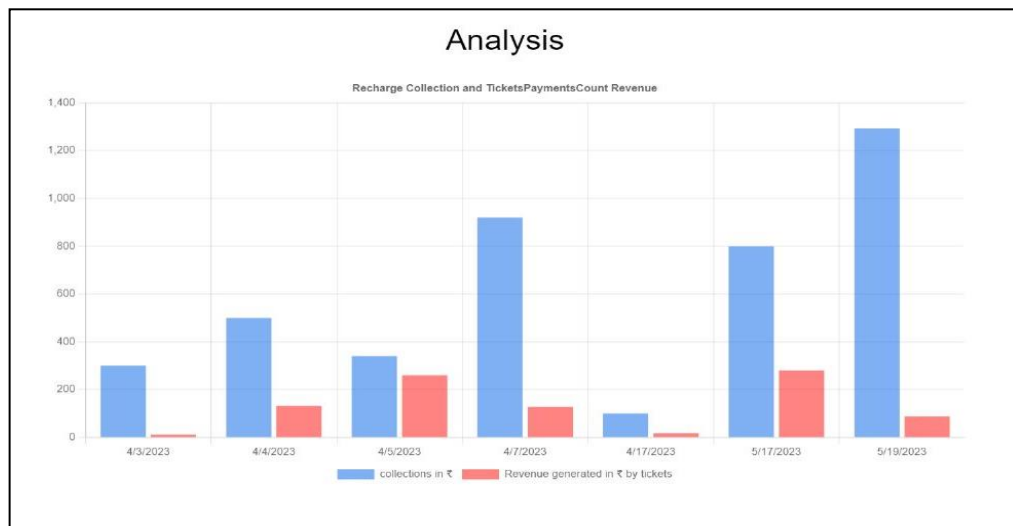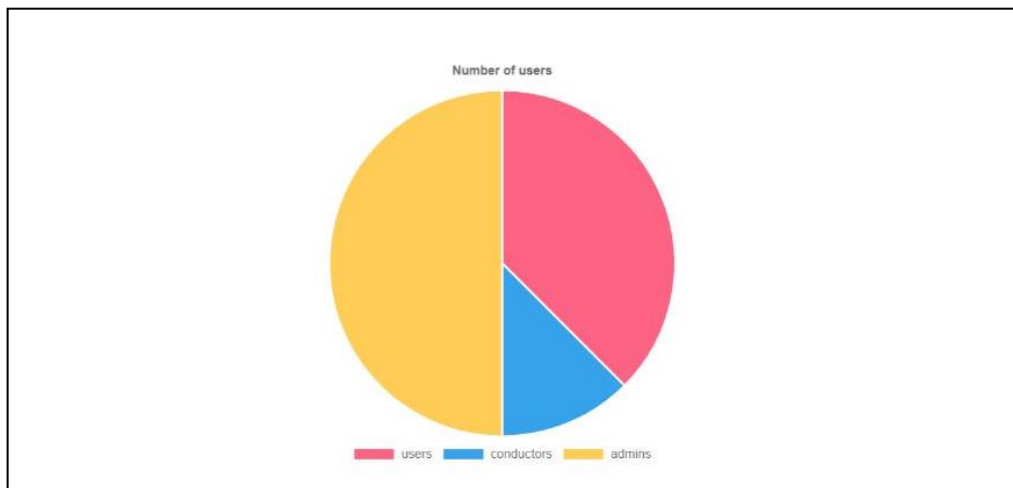
- **Manage Feedback:** Admin can see feedbacks given by users and can reply them directly to user via email.

Time	Status	username	Feedback	Reply At	Reply Message	Reply to user
5/4/2023, 3:31:21 PM	Pending	arshil_hapani	Hello	not replied	not replied	↰
5/4/2023, 3:34:32 PM	Pending	arshil_hapani	Aa kevo bug che la oversized message send kru to ni chaltu feedback system	not replied	not replied	↰
5/15/2023, 5:20:10 AM	Pending	arshil_hapani	Test one two three	not replied	not replied	↰
5/19/2023, 7:26:20 AM	Pending	vaibhav	Make it better	not replied	not replied	↰
5/19/2023, 7:48:01 AM	Pending	vaibhav	Noice	not replied	not replied	↰
5/19/2023, 8:03:11 AM	Pending	arshil_hapani	Nice features and greate app...	not replied	not replied	↰
4/29/2023,				4/29/2023,		

Reply **arshil_hapani**

message
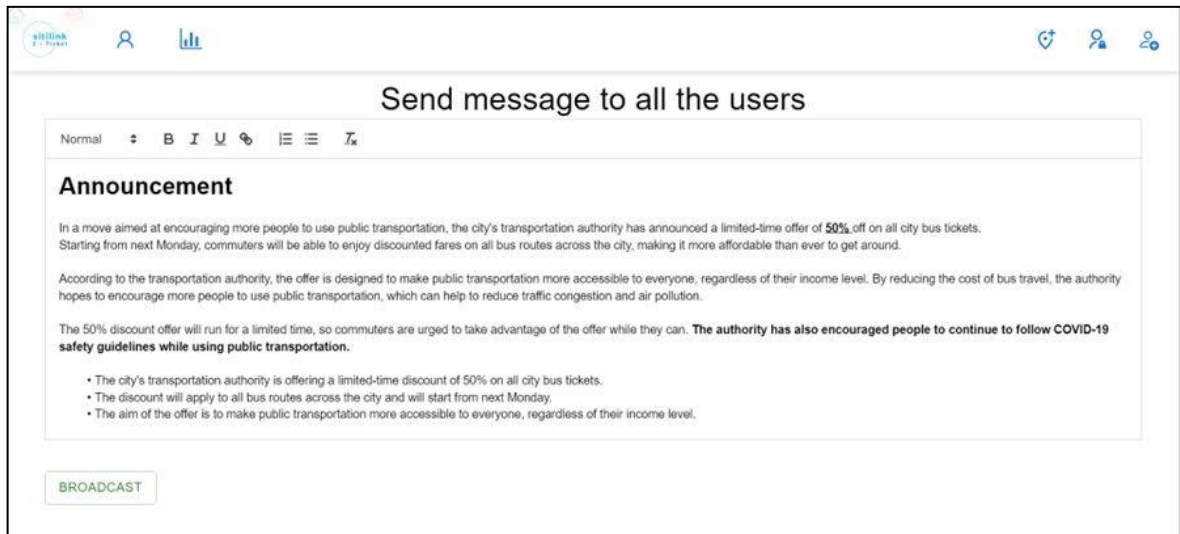
Hello how can we help you.

CANCEL   SEND MESSAGE

Message Hello how ... is send to arshil_hapani

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

Chapter 6 : Testing

6.1 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,	Password: dfghcvbnm@4	Error Toast with message 'Confirm	Error Toast with message 'Confirm

	If Admin enter different password and confirm password	Confirm Password: dfghcvbnm@44	password doesn't match password	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 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 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 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 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	Error toast with message, please enter all the required fields.	Error toast with message, please enter all the required fields.

		Conductor12@gmail.com DOB 1/12/1992		
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 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 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	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	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	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	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	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	Username User_3	Error toast with message, a user	Error toast with message, a user with

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			with this name already exist	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	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	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 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	Admin click on agree button	Success Toast with message, user deleted successfully	Error toast with message, failed to authenticate user, please login again.

	on agree button but authtoken is not available in browser's sessionStorage			
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	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	Error toast with message, This email is already registered	Error toast with message, This email is already registered

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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 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 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	Mobile number: 383838383838	Error toast with message, Please enter valid mobile	Error toast with message, Please enter valid mobile number with length 10

	number length not equal to 10		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 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	All the states related data is shown to the users in graphical format

			(data like number of ticket generated, daily collections, and users count)	(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	Error toast with detailed message about error in which field at which row and about which element (eg invalid stationID or station

Serial No.	Description	Test data	Expected data	Actual data
			stationID or station name format, or empty fields)	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

6.2 Test cases of Conductor side:-

Serial No.	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	QR code of passenger that does not exist Amount:	Success Toast message displays, Username doesn't exist	Success Toast message displays, Username doesn't exist

		code of passenger that doesn't exist.	Less than 500		
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 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.

6.3 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	Mobile number: 9293283	Error toast with message, Please	Error toast with message, Please enter

	button with mobile number length not equal to10		enter valid mobile number with length 10	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	Email: user@gmail.com card number: 8378 4848 8584 8584 Card expire time: 12/29 CVV:	Stripe validates all the card related details and further process payment and then redirected to the home page and success Snackbar appears	Stripe validates all the card related details and further process payment and then redirected to the home page and success Snackbar appears with

	and payment success.	748 Name on card: User 249 Country or region: India	with message, Recharged of <entered amount> is successfully debited to your account.	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	A edit profile modal open up with

			predefined data filled in text fields	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: <u>userOne@gmail.com</u> 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	Topic: "" Message: ""	Error Snackbar with message, please enter all the required fields	Error Snackbar with message, please enter all the required fields

	selecting either of 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.

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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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