



Sri Lanka Institute of Information Technology

Design Walkthrough Document for Ticketing System for Public Transport Network

SE3070 - Case Studies in Software Engineering – 2022

Group ID: SE3070_WE_20

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Individual Contribution

ID Number	Name	Contribution
IT21191688	Ruwanpura M.W.H.S.L	<ul style="list-style-type: none">• Use case diagram• Class diagram• Sequence diagram• Story Board• Wireframes
IT21191442	Rathnayaka G.T.S.T	<ul style="list-style-type: none">• Use case diagram• Class diagram• Sequence diagram• Story Board• Wireframes
IT21071652	Hewapathiranage T.K	<ul style="list-style-type: none">• Use case diagram• Class diagram• Sequence diagram• Story Board• Wireframes
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Introduction

"TicketTrack" Bus Ticketing System is a comprehensive web and mobile application designed to fulfil requirements of travelers. This versatile system offers a range of services, including seat reservations, hassle-free digital token-based journeys, convenient bus schedule, and online account top-ups. Users can easily register through their mobile phones, and upon registration, they gain access to a personalized digital token.

Assumptions

01. Passenger Accounts

- a. Each passenger's digital token is attached to a unique account.
- b. Every account starts with an initial credit when they receive their token.

02. Journey Calculation

- a. Fare calculation is based on the starting and ending points of the journey.
- b. Fare is deducted from the account when the passenger exits the bus.

03. Visitor Passes

- a. Visitors or foreigners can purchase temporary passes for a fixed duration.
- b. Temporary passes provide access to a specific number of journeys within that duration.

04. Ticket Inspection

- a. Inspectors use digital readers to validate passengers' tokens during the journey.
- b. Passengers without valid tokens are fined, and relevant data is recorded.

05. User Accounts

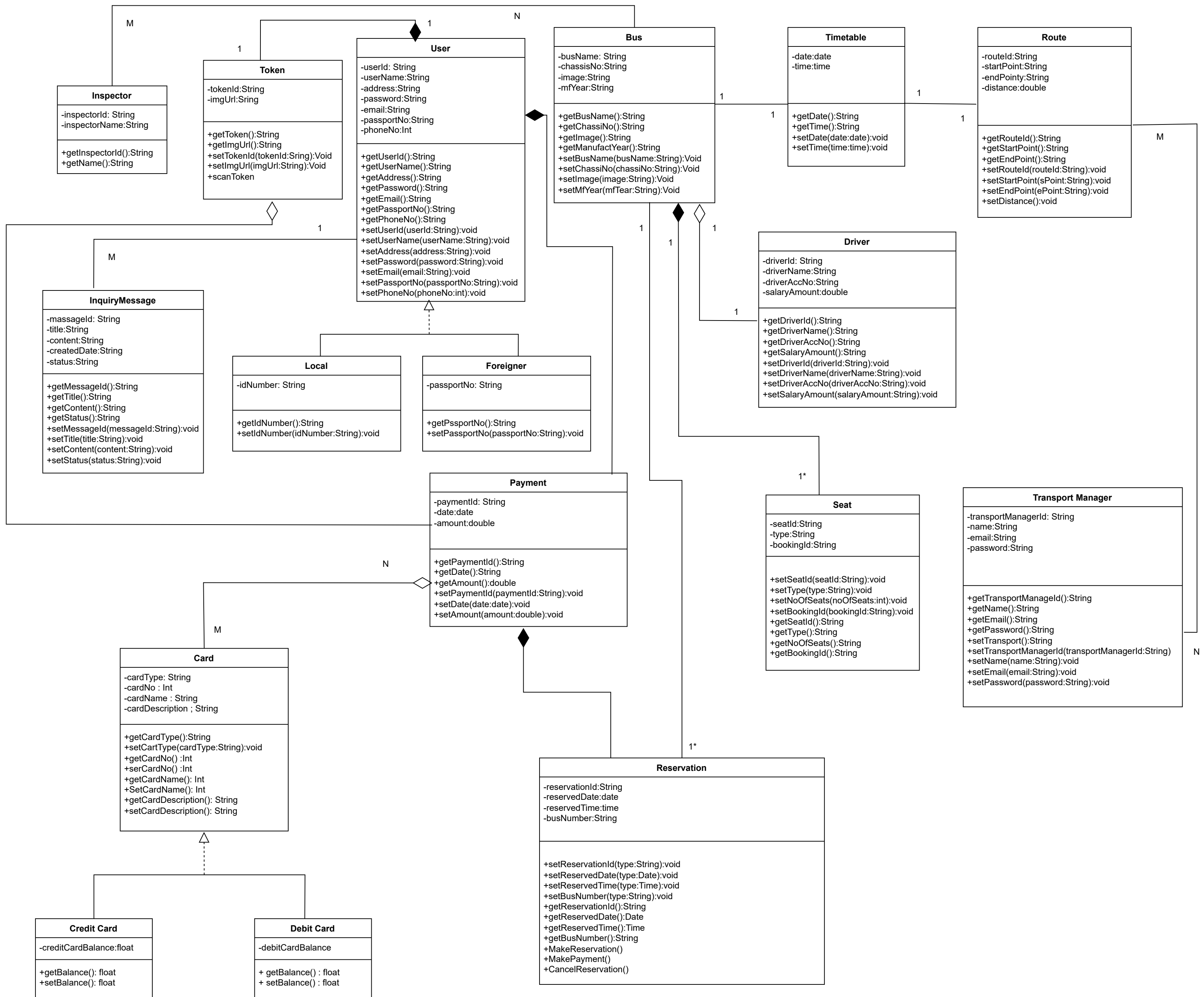
- a. Public transport managers and administrators have access to the system with different privileges.
- b. Passengers can access their account to view journey history and fare details.

06. Token Readers

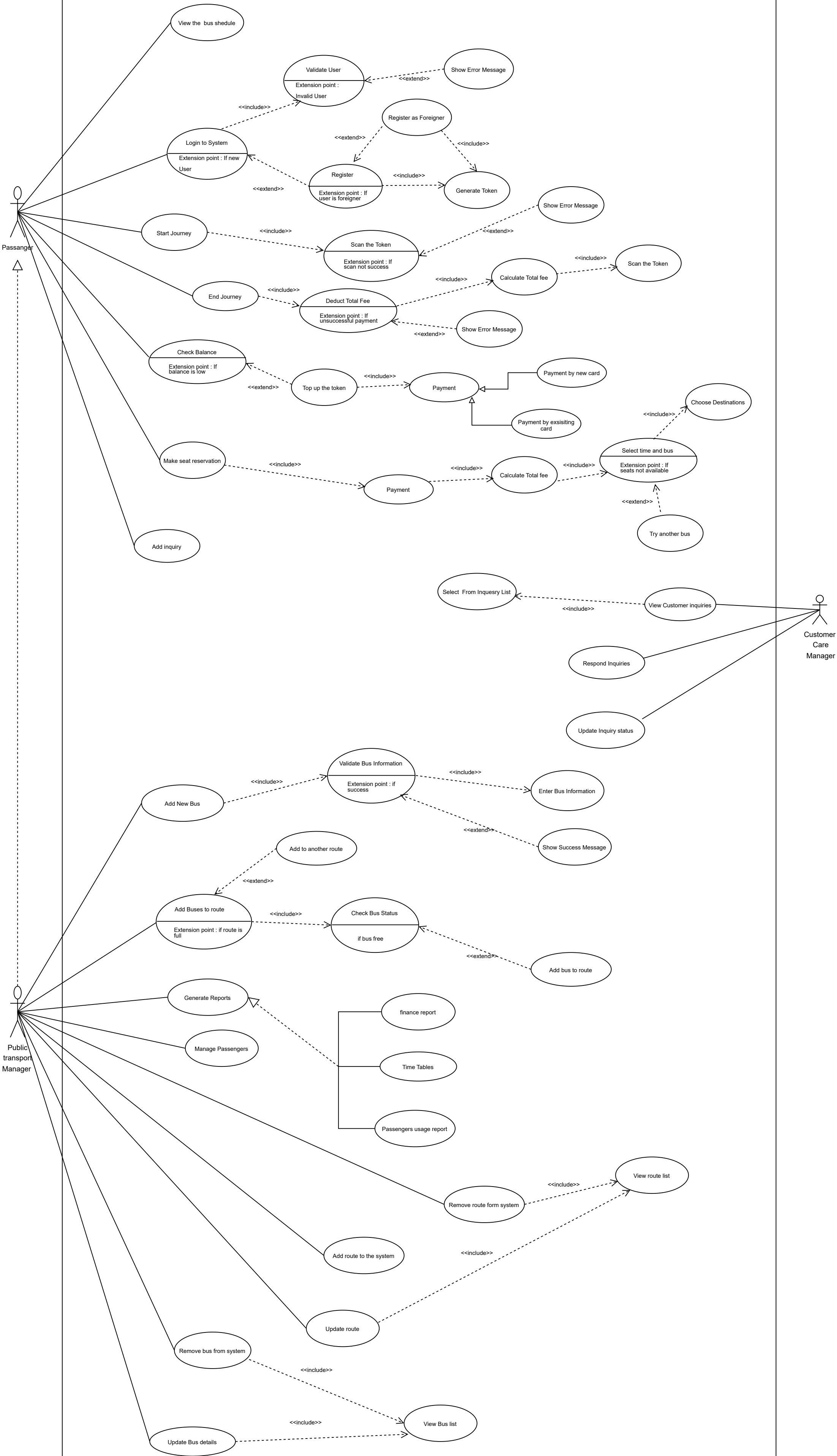
- a. The digital reader on the bus can read and validate tokens.

07. Notifications

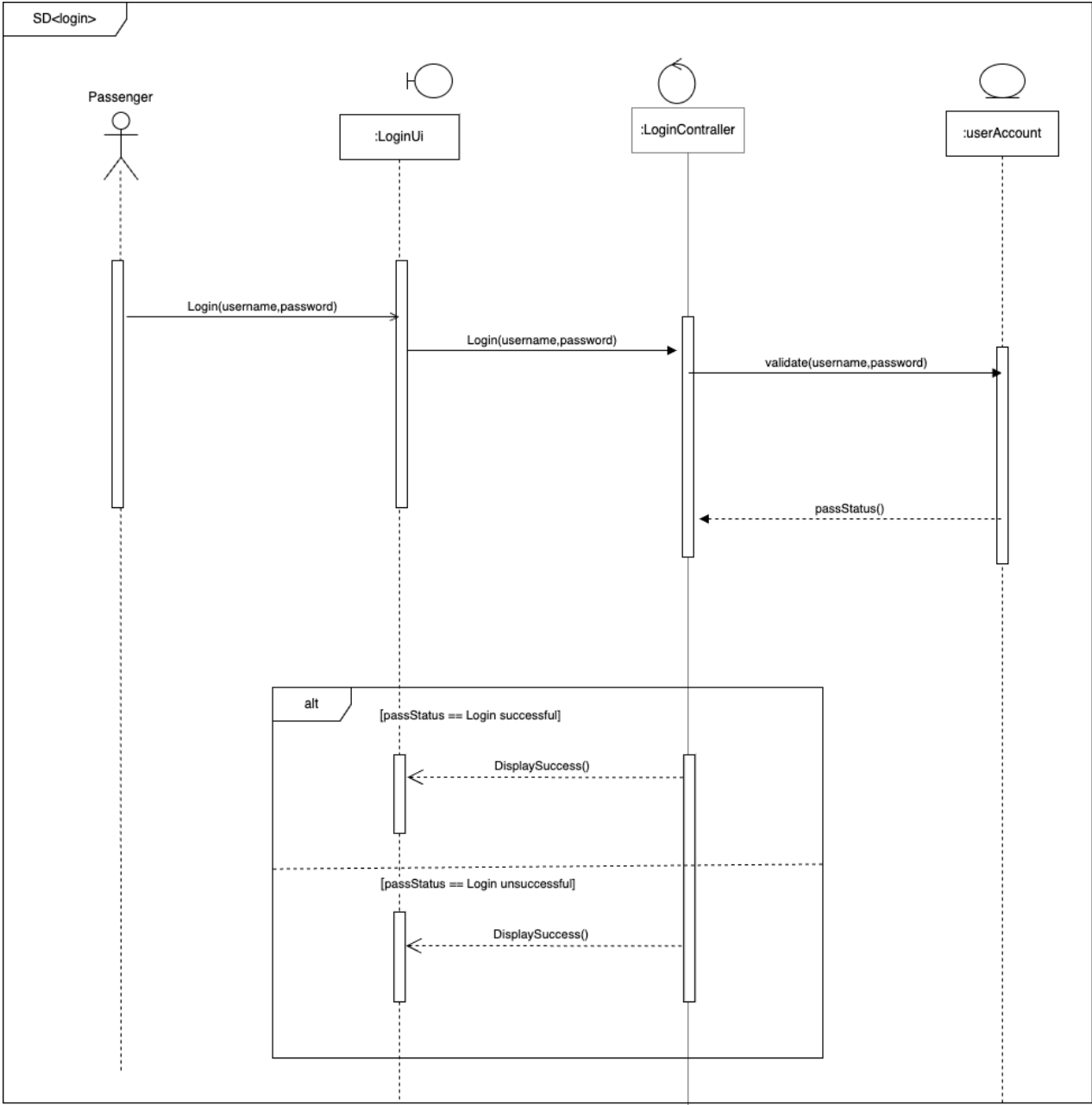
- a. Passengers receive notifications for low balance, successful journey validation, credit top-ups, and important system updates.

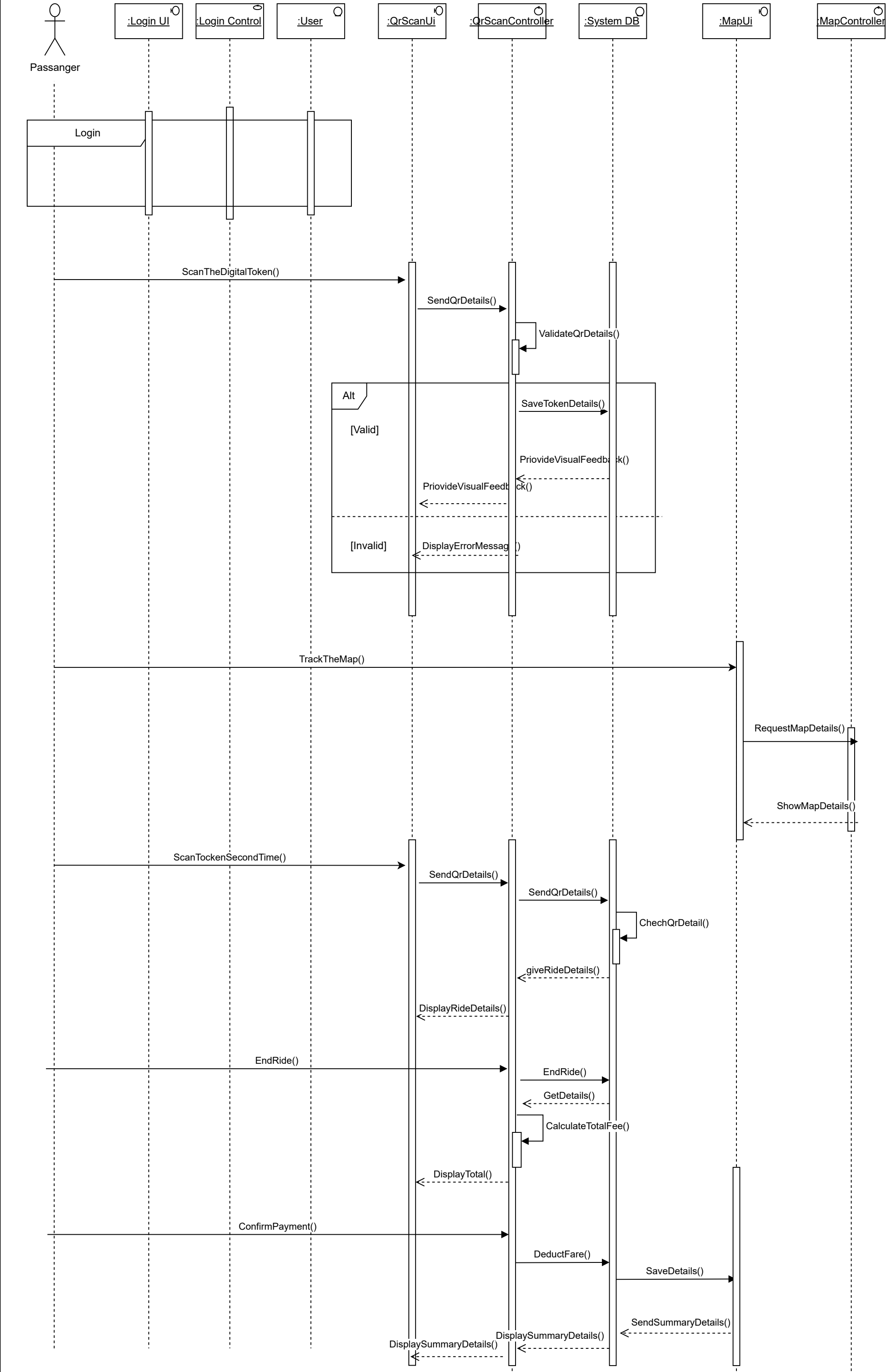


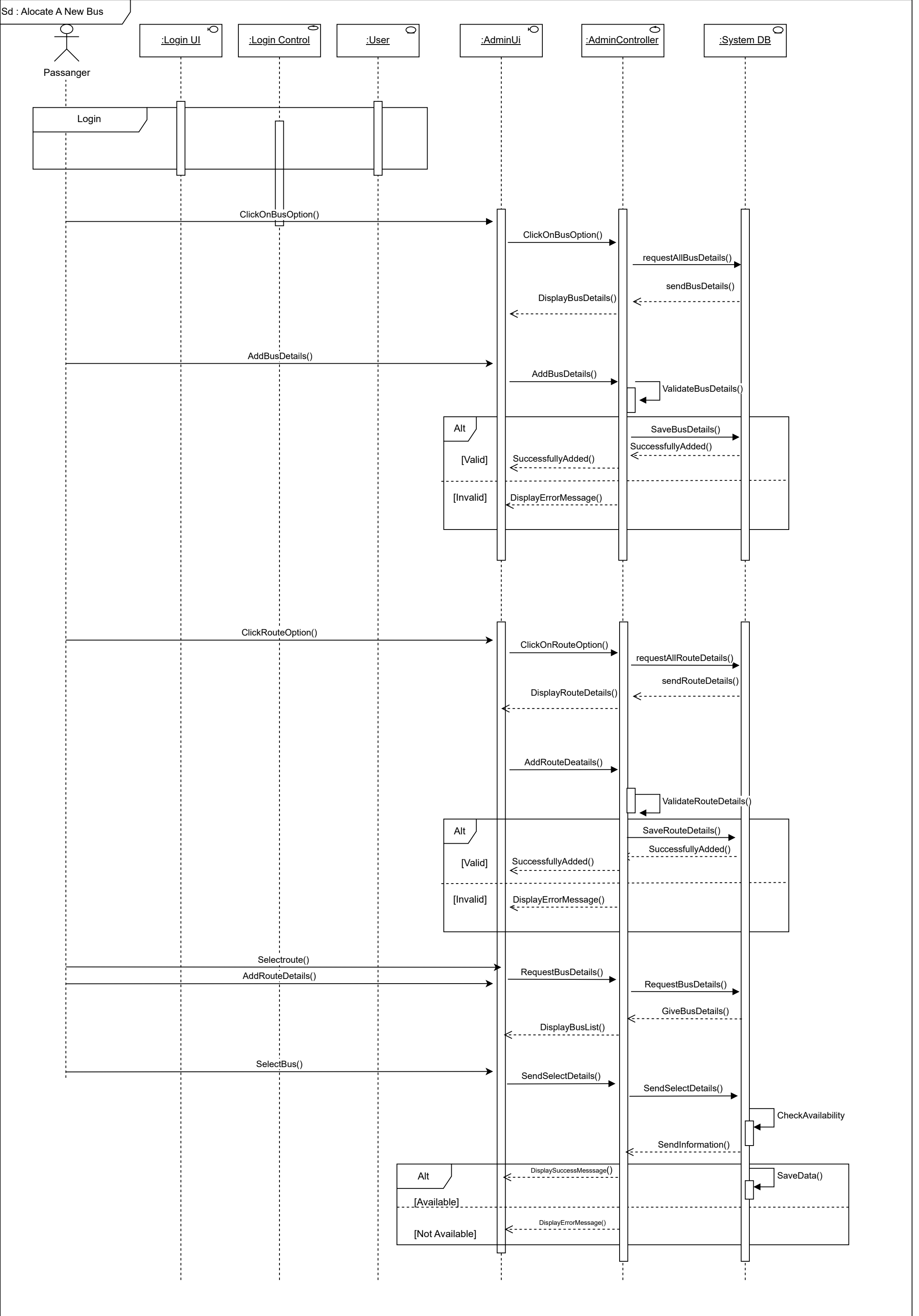
"TicketTrack" Ticketing System

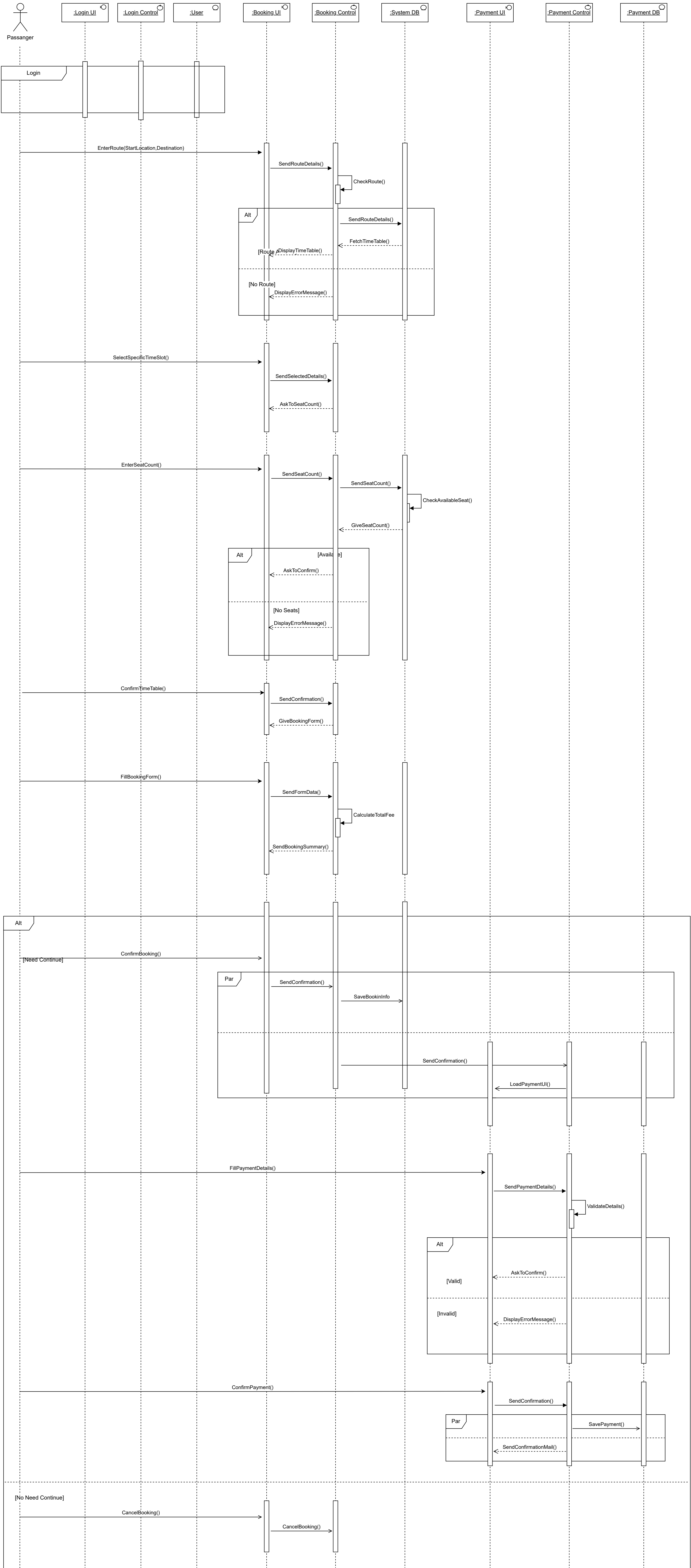


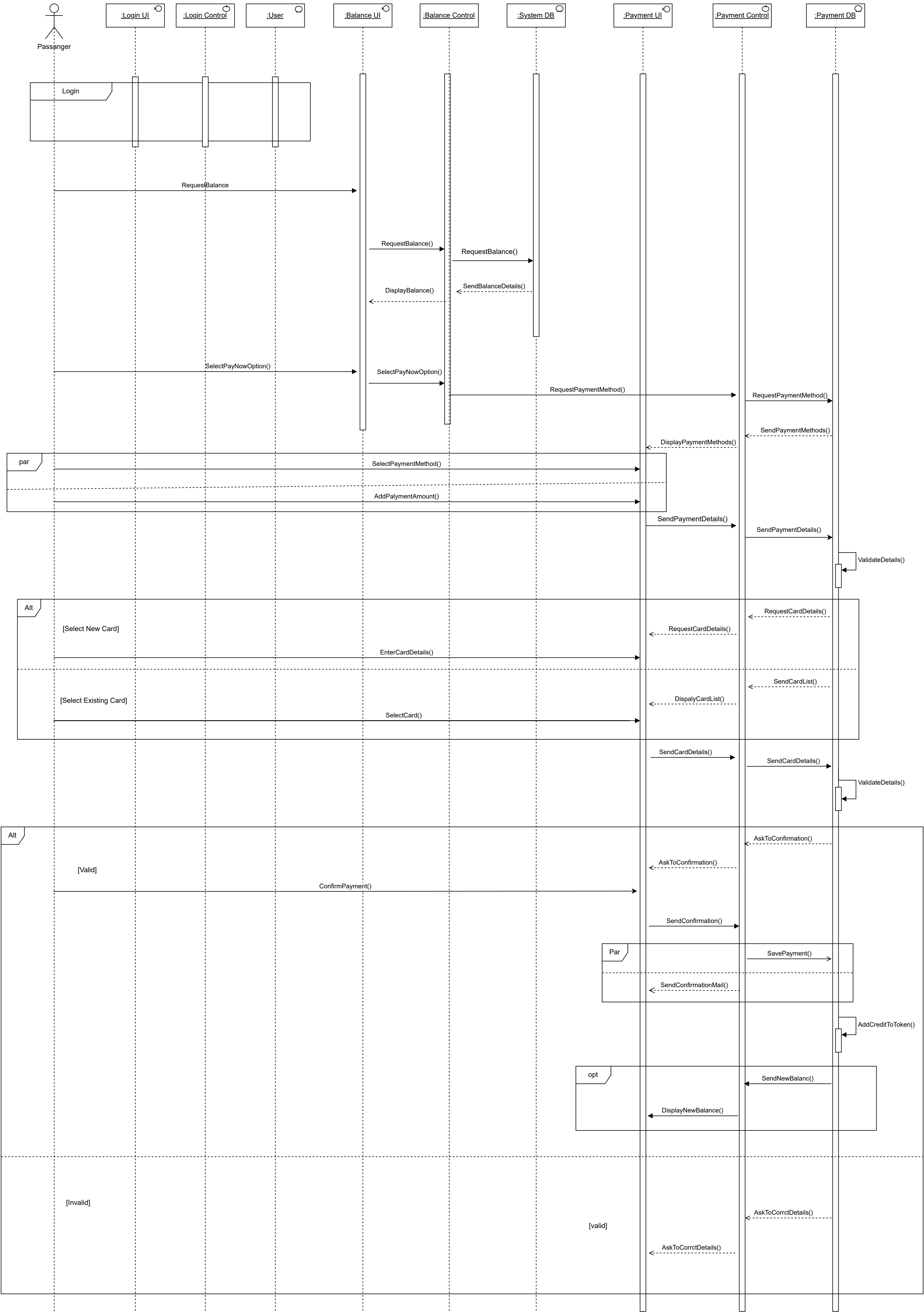
Sequence Diagrams







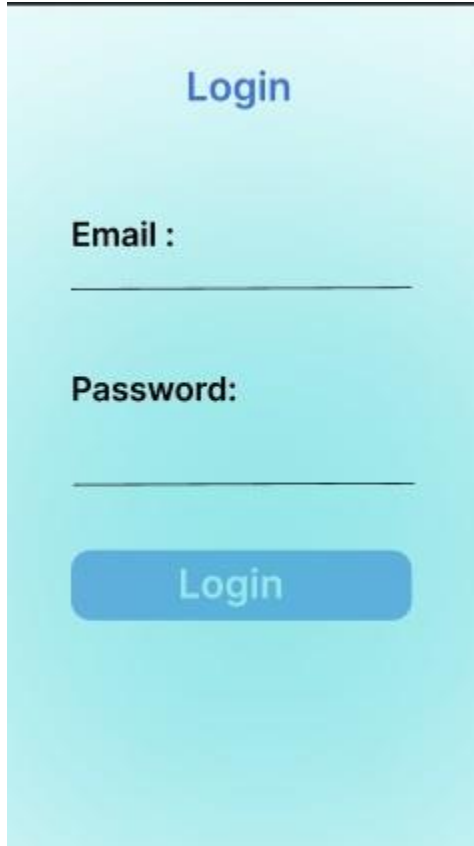




Wire Frame – High Fidelity

Main UI

Login user



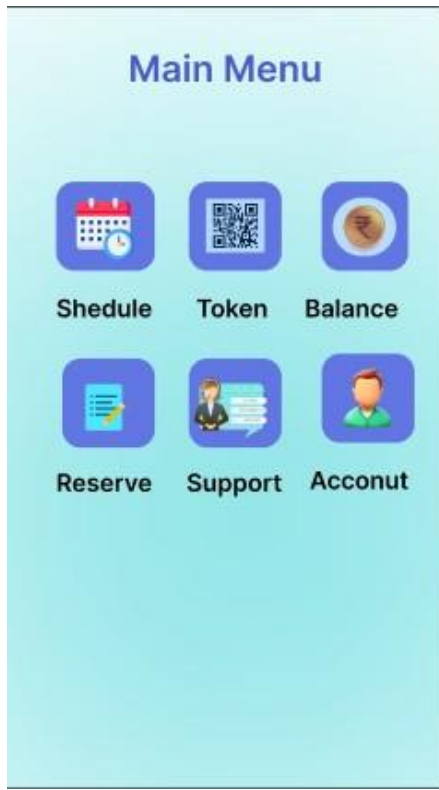
A wireframe for a login page. It features a light blue background. At the top center, the word "Login" is written in a dark blue font. Below this, there are two input fields. The first is labeled "Email :" and the second is labeled "Password:". Both labels are in a bold black font. Below the password field, there is a blue rounded rectangular button with the word "Login" in white text.

Register user



A wireframe for a registration page. It features a light blue background. At the top center, the word "Login" is written in a dark blue font. Below this, there are five input fields. The first is labeled "Name", the second "Email", the third "Password", the fourth "NIC number", and the fifth "Address". All labels are in a bold black font. Below the address field, there is a purple rounded rectangular button with the word "Register" in white text.

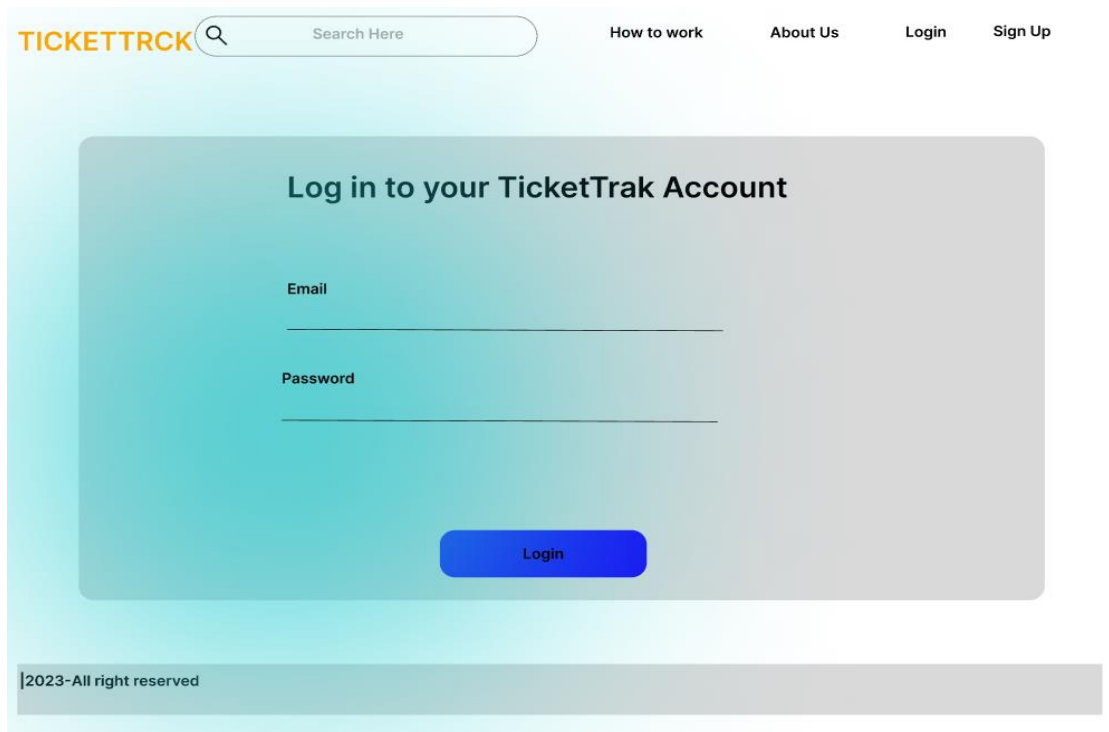
User account dashboard



token generate page



Login User



Register user

TICKETTRCK

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REGISTER TO THE TICKETTRACK


First Name	<input type="text"/>	Last Name	<input type="text"/>
Email	<input type="text"/>	Password	<input type="text"/>
NIC Number	<input type="text"/>	Address	<input type="text"/>

Register

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User account dashboard

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Shedule


Token


Balance


Reserve



Support



Acconut

Logout

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Token generate page

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You should scan this when you enter and leave from the vehicle



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Allocate a new bus UI

Add new bus

Allocate Buses

Bus ID

Bus Name

Chassie No

Driver name

No of Seats

Bus Route

Add

Cancel

Display successful message



Display bus details

Allocated Bus Details

Bus ID	B102
Bus Name	Private
Chassie No	0990451
Driver name	Thanuja
No of Seats	52
Bus Route	None

Update

Delete

Add route

Add Route

Route No

177

Distanase

20km

Start location

Kaduwela

End Location

Kottawa

Add

Cancel

All routes

All Routes

Route No

177

Distanase

20km

Start location

Kaduwela

End Location

Kottawa

Update

Delete

see the list of buses that have already added to system

list of buses that have already added to the system

type	Length (km)	Number of Bus Stops	ADBS (m)	Drop of Bu Leng
an	14.4	19	800	
	20.8	31	693	
	33.0	36	943	1
	17.2	22	819	6
wn	16.9	25	704	3
wn	12.4	18	729	4
wn	12.6	20	663	2
e	6.4	12	582	8


Show bus timetable

Bus timetable

Bus Time Table							
Bus Destination							
Bus No	1 Bus Stop	2 Bus Stop	3 Bus Stop	4 Bus Stop	5 Bus Stop	6 Bus Stop	7 Bus Stop
177	1	2	3	4	5	6	7
178	1	2	3	4	5	6	7
Bus Time Table							
Bus No	1 Bus Stop	2 Bus Stop	3 Bus Stop	4 Bus Stop	5 Bus Stop	6 Bus Stop	7 Bus Stop
177	08:00	08:10	08:20	08:30	08:40	08:50	09:00
178	08:05	08:15	08:25	08:35	08:45	08:55	09:05
179	08:10	08:20	08:30	08:40	08:50	09:00	09:10
180	08:15	08:25	08:35	08:45	08:55	09:05	09:15
181	08:20	08:30	08:40	08:50	09:00	09:10	09:20
182	08:25	08:35	08:45	08:55	09:05	09:15	09:25
183	08:30	08:40	08:50	09:00	09:10	09:20	09:30
184	08:35	08:45	08:55	09:05	09:15	09:25	09:35
185	08:40	08:50	09:00	09:10	09:20	09:30	09:40
186	08:45	08:55	09:05	09:15	09:25	09:35	09:45

Add new bus

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Add New Route

Route No	<input type="text"/>	Distance	<input type="text"/>
Start Location	<input type="text"/>	End Location	<input type="text"/>


Cancel Add Route


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Display successful message


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Bus Add Successfully

OK

Name2023-All right reserved




Display bus details

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Alocated Busses

Bus Id	Bus Name	Cassie Number	Driver Name	Bus Type	Bus Route	Update	Delete
B102	Thanuja Putha	99900099	Thanuja	52	None	<input type="button" value="Update"/>	<input type="button" value="Delete"/>

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Add route

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Add New Route




Route No

Distance

Start Location

End Location


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All routes

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All Routes

Route Id	Route No	Distance	Start Location	End Location	Update	Delete
Route1	R0002	20Km	Malabe	Kaduwele	<input type="button" value="Update"/>	<input type="button" value="Delete"/>


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See the list of buses that have already added to system

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Buses & route details

Route Id	Route No					
Bus Route	Route Type	Length (km)	Number of Bus Stops	ADBS (m)	Proportion of Bus Lane Length (%)	ADI (m)
An'ting 7	Suburban	14.4	19	800	0	403
Route 74	Local	20.8	31	693	0	408
Bei'an	Local	33.0	36	943	06	805
Route 779	Local	17.2	22	819	61.8	399
Route 55	Downtown	16.9	25	704	39.1	317
Route 818	Downtown	12.4	18	729	42.4	430
Route 792	Downtown	12.6	20	663	21.1	376
Route 614	Shuttle	6.4	12	582	84.6	374

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Show bus timetable

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BUS Timetable

Route No

Search

Route Id	Route No					
Bus Destination:						
Bus No.	Bus Stop Name	Bus Stop Name	Bus Stop Name	Bus Stop Name	Bus Stop Name	Bus Stop Name
B	A	B	C	D	E	F
Stop ID	1	2	3	4	5	6
Route No.	Monday To Saturday					
	AM			PM		
8	6:00	6:10	6:20	13:30	14:40	15:50
6	7:00	7:10	7:20	14:30	15:40	16:50
5	8:00	8:10	8:20	15:30	16:40	17:50
9	9:00	9:10	9:20	16:30	17:40	18:50
3	10:00	10:10	10:20	17:30	18:40	19:50
5	11:00	11:10	11:20	18:30	19:40	20:50
7	12:00	12:10	12:20	19:30	20:40	21:50
8	13:00	13:10	13:20	20:30	21:40	22:50

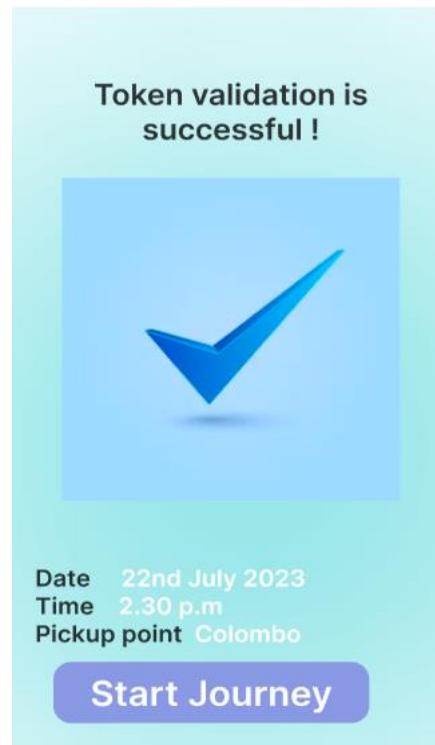
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Make a ride

Scan the QR



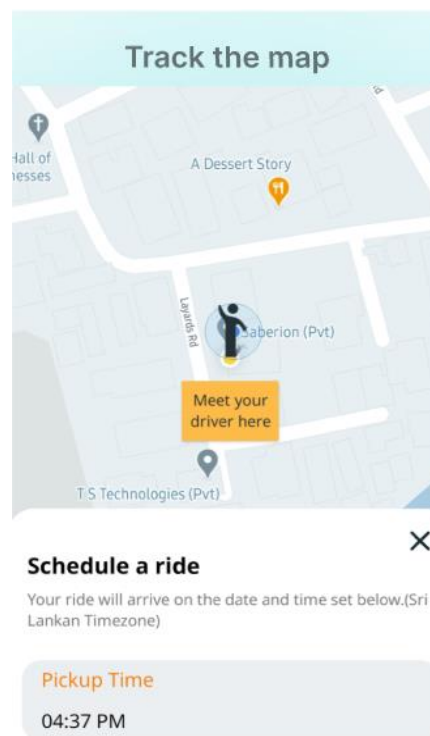
Token validation



Token validation



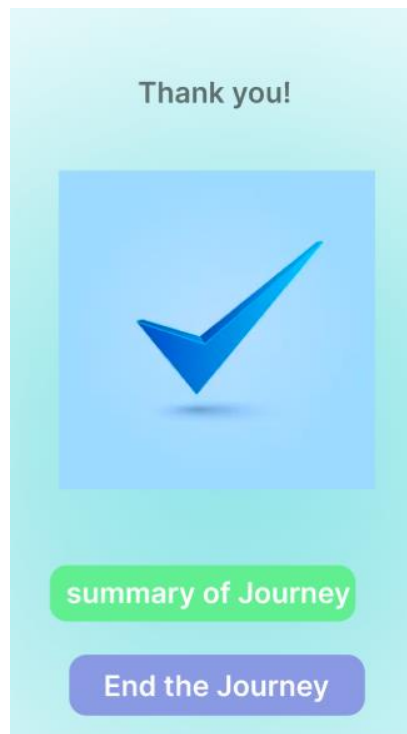
Track the map



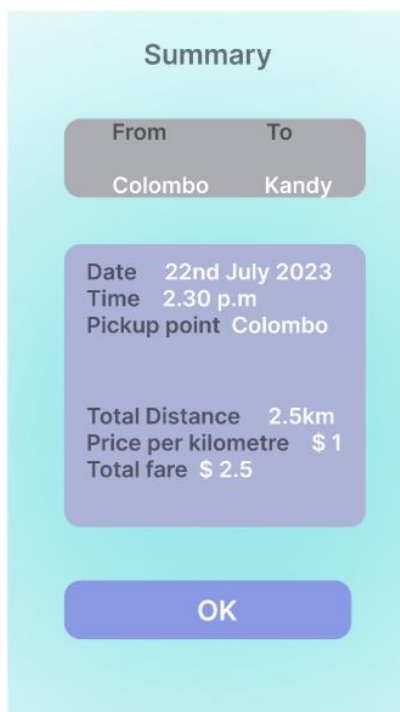
After arriving at the destination,
the passenger scans the digital token.



show summary of journey



Show summary of journey



Wire Frame – High Fidelity

Mobile UI


01. Plan Journey

Book Tickets

Start

End

Select on Map



Next

02. Select Time / Bus

Select Time

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

Change Travel

Cancel

03. View summary of specific time and select seat count

9.00AM - 10.15AM
NQ - 4534

BUS ID - 00BG/90/T6

Route NO - 166 1/3

Driver - Kamal Ariyarathe

No of Seats - 56

Select Seat Count

1

2

3

4

5

6

7

Confirm

Cancel

04. Display Availability of Seats

SORRY!
No Seats Available

✗

OK

05. Display Booking Summary

SUMMARY

9.00AM - 10.15AM
NQ - 4534

BUS ID - 00BG/90/T6

Route NO - 166 1/3

Driver - Kamal Ariyarathe

No of Seats - 56

Rs. 567/=

Confirm Booking

Cancel

06. Payment Page

Card Number
42xxx xxxx xxxx xxxx


VISA

Payment
Rs. 567.00

Expire Date
11/23

CVV
255

Pay Now



Cancel

01. Plan Journey

TICKETTRCK

Search Here

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Book Tickets

Start

End

OK



Select on Map

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02. Select Time / Bus

TICKETTRCK

Search Here

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Select Time

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓

9.00AM - 10.15AM | NQ - 4534

✓


Change Travel


Cancel

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03. View summary of specific time and select seat count

TICKETTRCK

 Search Here

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9.00AM - 10.15AM | NQ - 4534

BUS ID - 00BG/90/T6

Route NO - 166 1/3

Driver - Kamal Ariyaratne

No of Seats - 56

Select Seat Count

1

2

3

4

5

6

7


Confirm


Cancel


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04. Display Availability of Seats

TICKETTRCK

 Search Here

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SORRY!
No Seats Available


OK

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06. Display Booking Summary

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9.00AM - 10.15AM | NQ - 4534

BUS ID - 00BG/90/T6

Route NO - 166 1/3

Driver - Kamal Ariyaratne

No of Seats - 56

Rs. 567/=

Confirm Booking

Cancel

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08. Payment Page


TICKETTRCK

Search Here

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Card Number

42xxx xxxx xxxx xxxx

VISA

Payment

Rs. 567.00

Expire Date

11/23

CVV

255

Pay Now

Cancel

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High-Fidelity UI (Mobile) – Top-Up User Account

01.View Balance

View Balance

ID200066601365

Namekamal

Emailkam@gmail.com

Phone No0702512947

Balance1423.44

pay now

pay later

02.Select Payment Method

PAY

Select Payment Method

New Card

Existing Card

VISA

V PAY

MasterCard

MasterCard

Discover

Discover

Google Pay

Apple Pay

Google Pay

confirm

Cancel

03.Enter Payment Details

PAY

Card NoXXXXXXX

NameH.D.Kamal perera

Amount4000.00

Description

Pay

Cancel

04.Display Successful Message

05.Display Unsuccessful Message

Payment successful

OK

Payment Unsuccessful

close

01.Check Balance

TICKETTRCK

Search Here

How to work

About Us

Saman Kumara

View Balance

ID	200066601365
Name	Saman
Email	sam@gmail.com
Phone No	0702512947
Balance	1423.44

Pay now

Pay later

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02.Select Payment Method

TICKETTRCK

Search Here

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Pay

Select payment method

New card

Existing card

VISA

mastercard

Maestro

JCB

DISCOVER

AMERICAN EXPRESS

Diners Club INTERNATIONAL

UnionPay 银联

Confirm

Cancel

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03.Enter Payment Details

TICKETTRCK

Search Here

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Saman Kumara

Payment Details

Card no

23XXXXXXXXXX

Card holder's name

Saman K.H.D.T

Amount

4000.00

description

Pay

Cancel

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04.Display payment Successful Message

TICKETTRCK


Search Here

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Saman Kumara

Payment Successful



OK

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05.Display Unsuccessful Message

TICKETTRCK


Search Here

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Payment Unsuccessful



Close

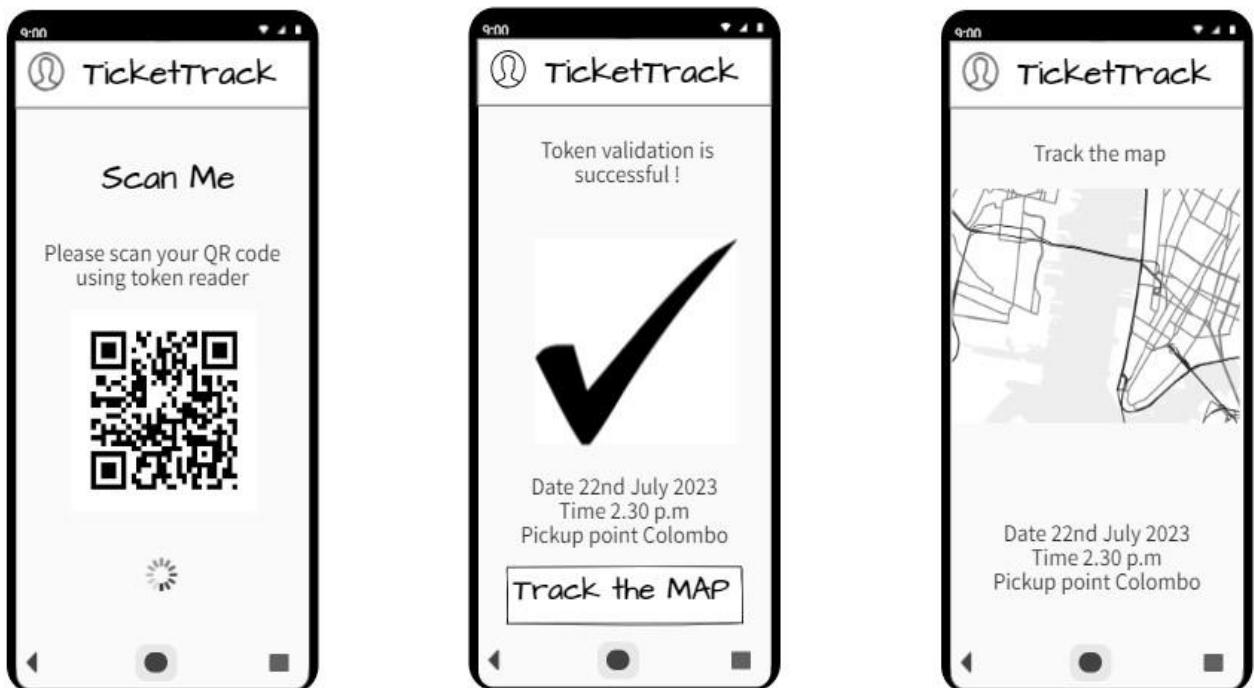
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Wire Frame – Low Fidelity

List of buses available to assign for the routes



Make a ride



Book tickets

A mobile app wireframe for the 'Book Tickets' screen. It features a title bar with a hamburger menu icon and a status bar. The main content area has the title 'Book Tickets' at the top. Below it are two input fields labeled 'Start' and 'End'. A 'Select On Map' button is positioned above a map showing a street grid with a highlighted route. At the bottom is a 'Next' button.

A desktop web page wireframe for the 'Book Tickets' screen. The header includes the site name 'TicketTrak', a search bar, and navigation links for 'How to work', 'About Us', and 'Kamal Perera' with a user profile icon. The main content area has the title 'Book Tickets' and two input fields labeled 'Start' and 'End'. An 'Ok' button is below these fields. To the right is a map with a highlighted route and a 'Select On Map' button. The footer contains the text '2023 - All Right Reserved'.

Top up

A desktop web page wireframe for the 'View Balance' screen. The header is identical to the previous page, with 'TicketTrak', a search bar, and navigation links. The main content area has the title 'View Balance' and a large box containing user information:

Transport ID	200056534523
Name	Kamal Perera
Email	Kamal@gmail.com
Phone no	070-2512345
Balance	1423 . 00

Below the information box are two buttons: 'Pay Now' and 'Pay Later'. The footer contains the text '2023 - All Right Reserved'.

View Balance

Transport ID

200056534523

Name

Kamal Perera

Email

Kamal@gmail.com

Balance

1423 . 00

Phone no

070-2512345

Pay Now

Pay Later

Alloacte new bus



1 Transport Manager Logging to the System

Bus Route	Route Type	Length (km)	Number of Bus Stops	ADBS (m)	Proportion of Bus Lane Length (%)	ADI (m)
Act'ing 7	Suburban	14.4	19	800	0	403
Route 74	Local	20.8	31	693	0	438
Be'lan	Local	38.0	36	945	0	835
Route 779	Local	17.2	22	499	61.8	399
Route 55	Downtown	16.9	25	708	39.1	317
Route 818	Downtown	12.4	18	729	42.4	430
Route 792	Downtown	12.6	20	663	21.1	376
Route 814	Shuttle	6.4	12	582	58.6	374

2 Transport manager can see list of busses

DATE & LOCATIONS

One Way **Round Trip**

Departing:
07-12-2016

From: **To:**
Choose Choose

Check Availability

Select trip type - one way or roundtrip, then select Departing (and Returning) date. From the drop down menus select your departure and arrival cities. On the next screen you will see available Routes, Dates and seats.

3 System will check bus details

[illegible]

4 Transport manager can create timetable for allocated buses

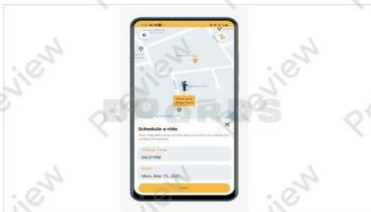


5 The driver of the bus will be notified of the route details and timetable via an email.

Make a ride



- 1 The passenger scan the digital token before start the journey



-
- 2 The system will record details



- 3 After arriving at the destination, the passenger scans the digital token



4 System calculate the fare

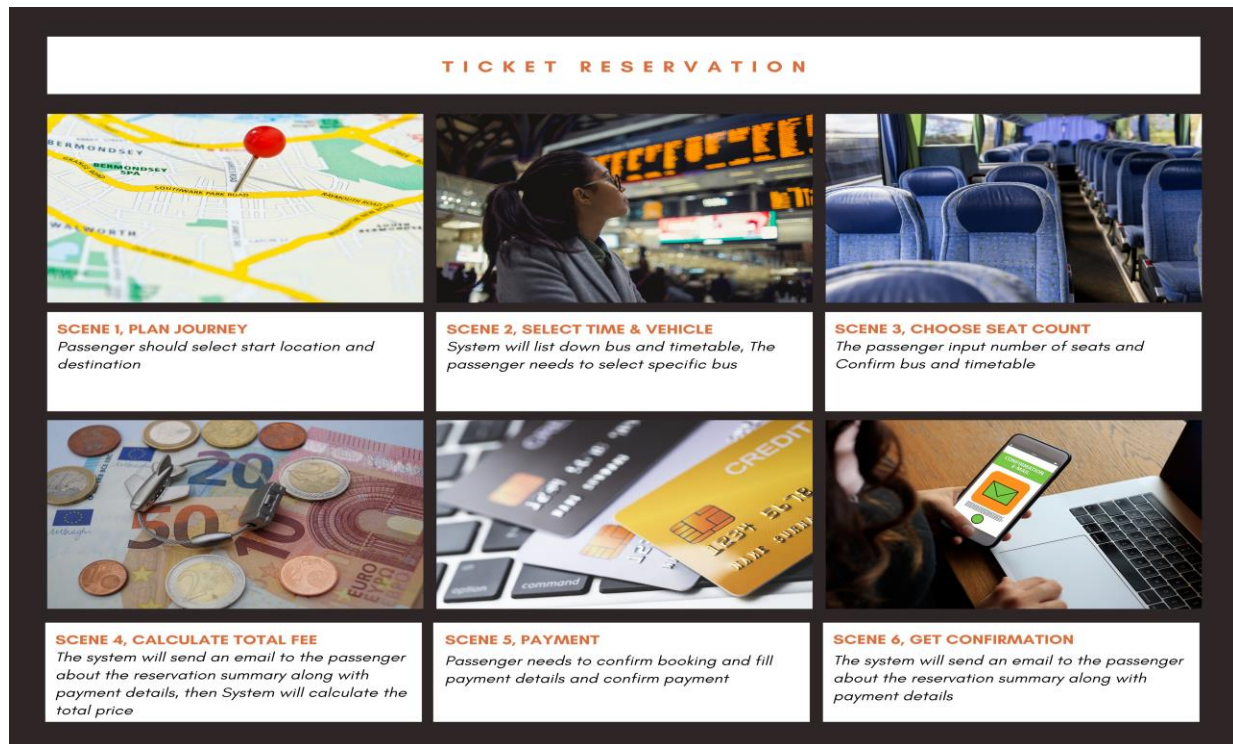


5 pay the bill

[illegible]

6 Summary Of the payment

Ticket reservation



Top up

