

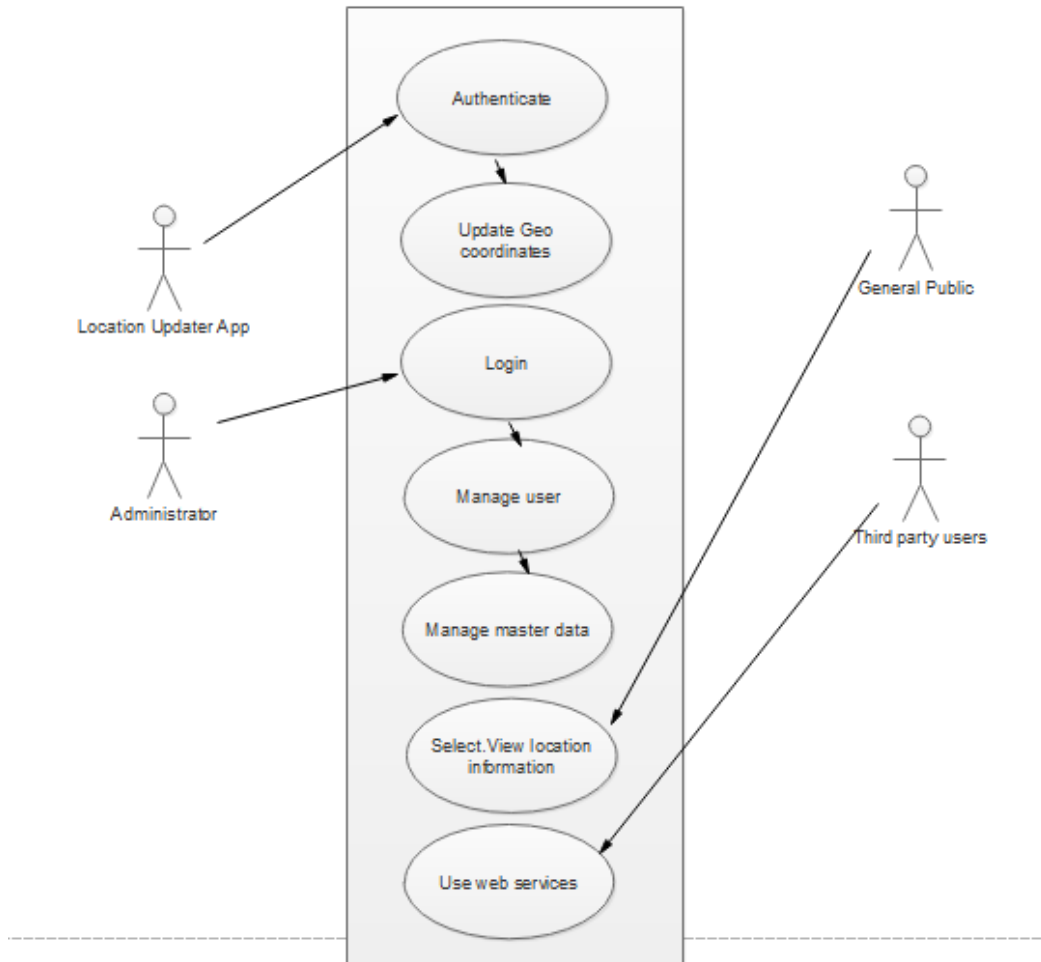
References

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Appendixes

Appendix A – Use Case Diagrams



Use Case Diagrams of the TrackIT System

Figure 5.3 - Use case diagram for TrackIT system

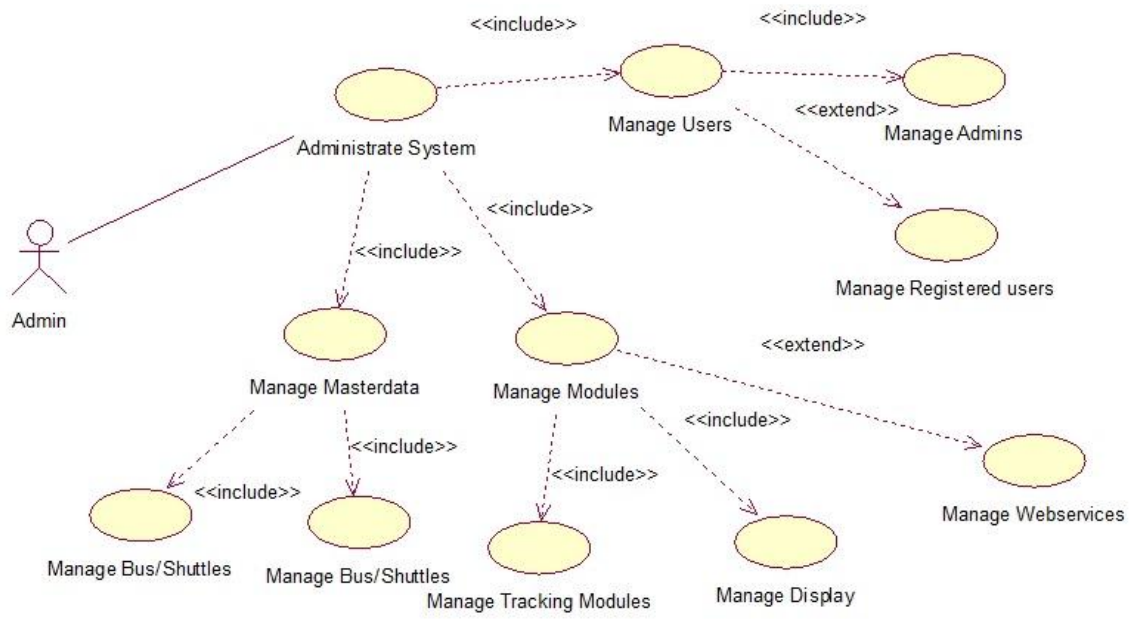


Figure 5.4 – Admin use case

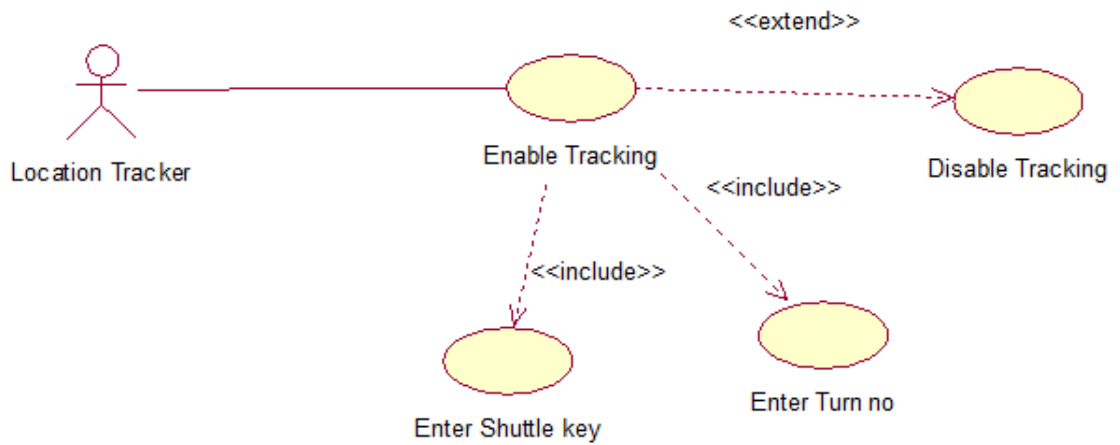


Figure 5.5 – Location Tracker

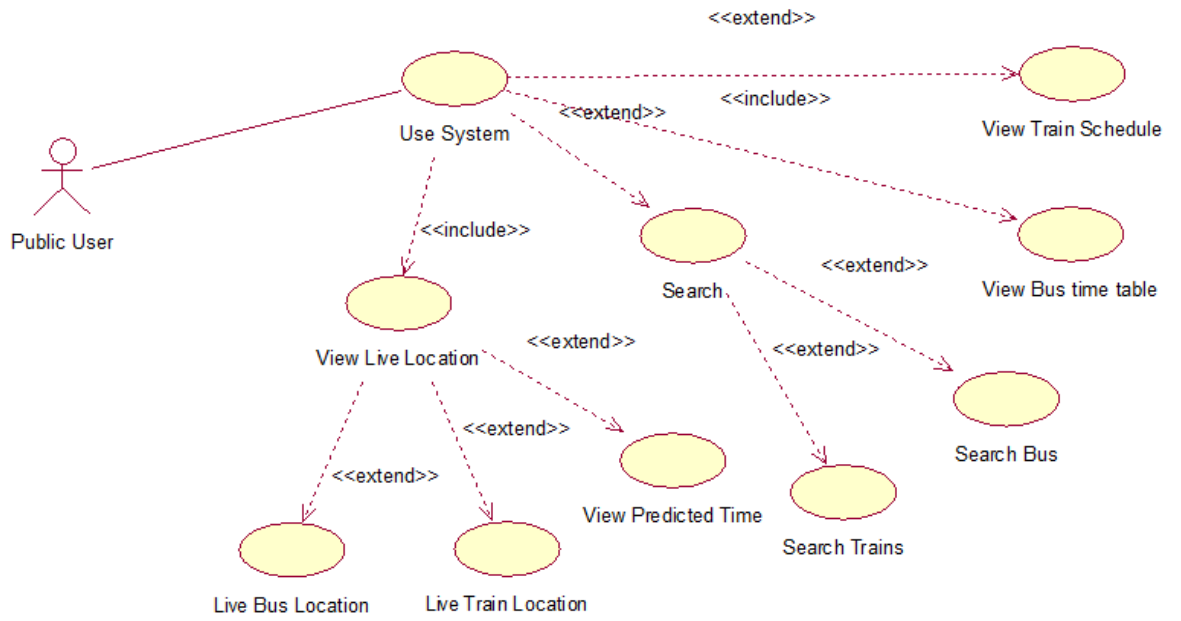


Figure 5.6 – Public user/passenger

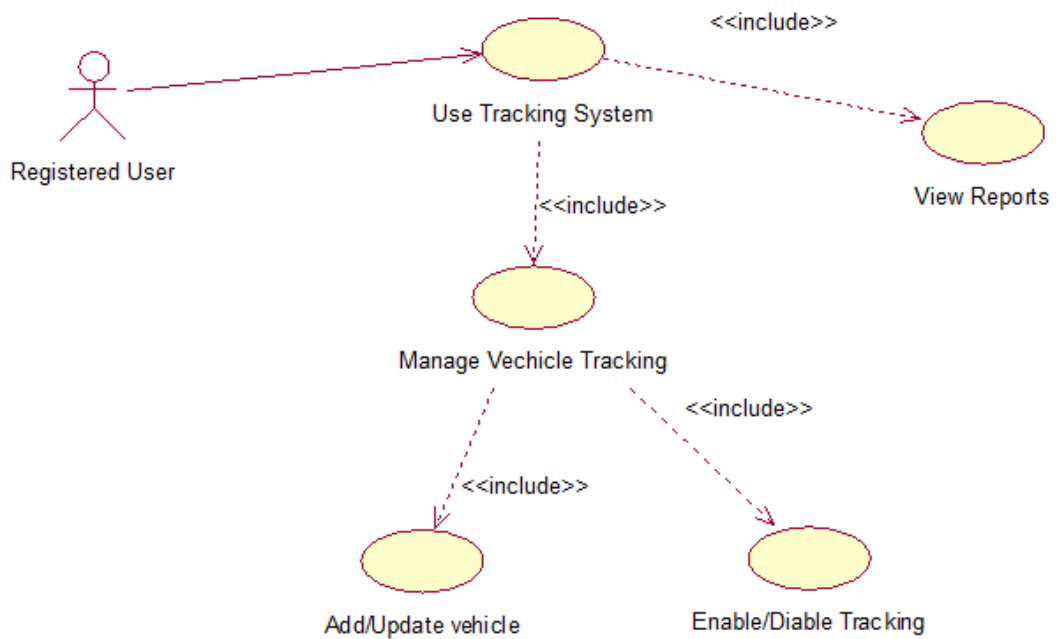


Figure 5.7 – Registered user/Vehicle owner

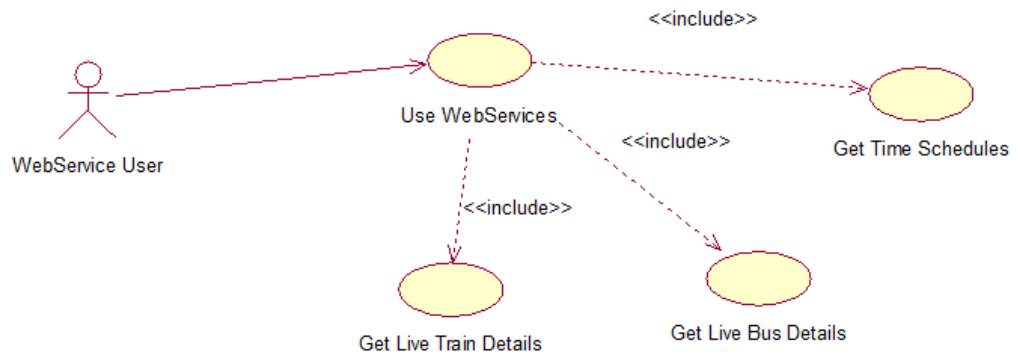


Figure 5.8 – Web service

Appendix B – Sequence Diagrams

Sequence Diagrams of the system

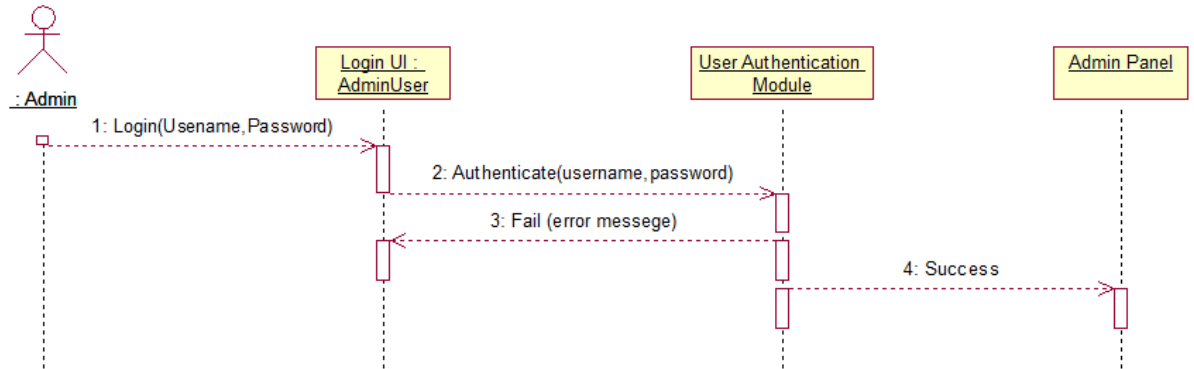


Figure 5.9 – Sequence diagram for Admin Login use case

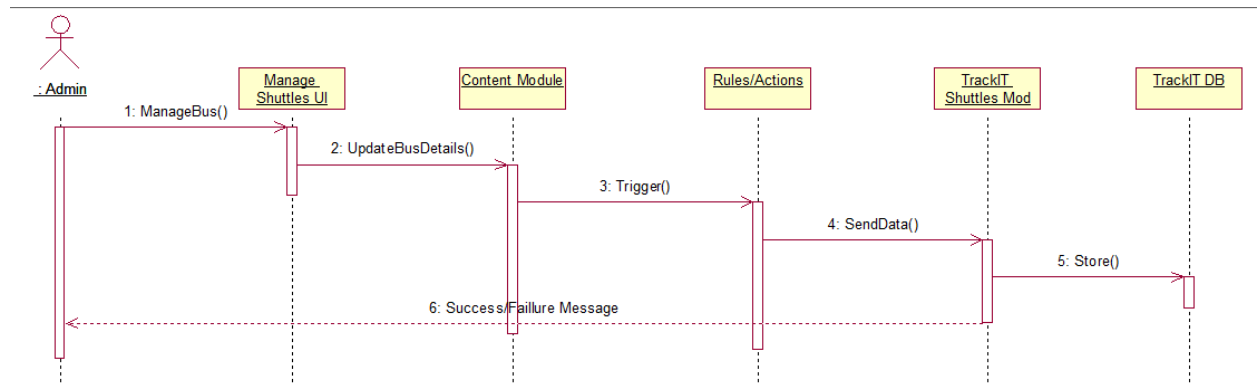


Figure 5.10 – Sequence diagram for manage buses use case

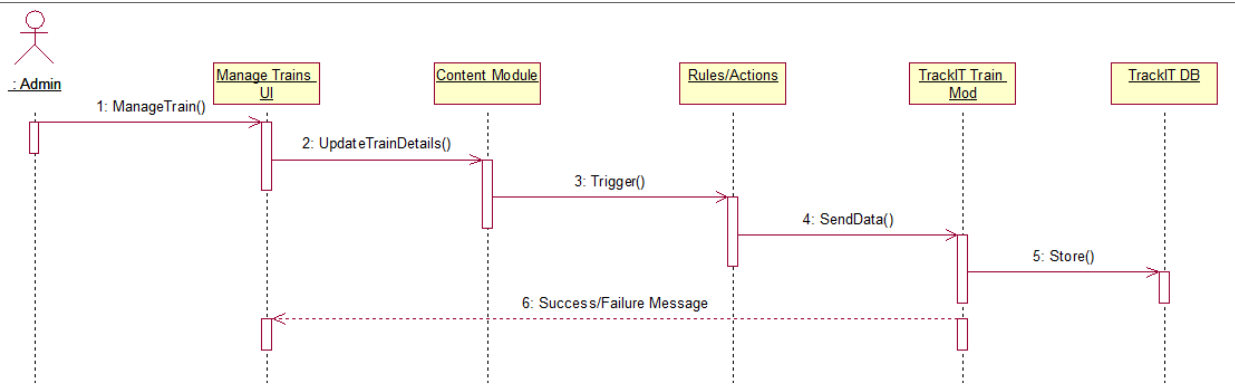


Figure 5.11 – Sequence diagram for manage trains use case

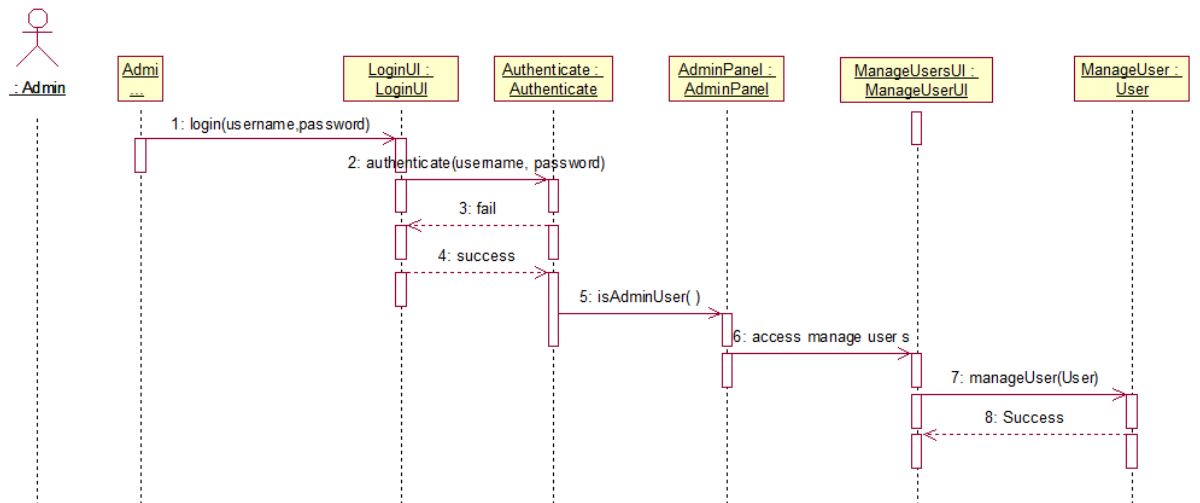


Figure 5.12 – Sequence diagram for manage users use case

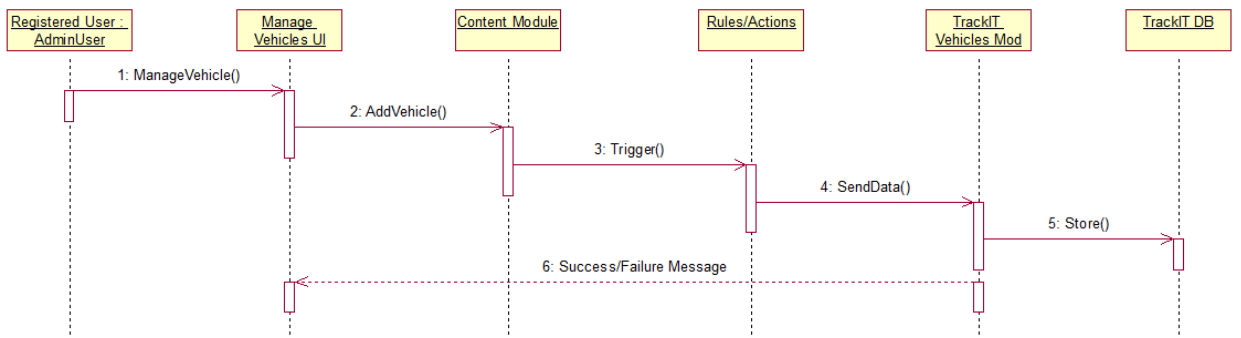


Figure 5.13 – Sequence diagram for manage vehicles use case

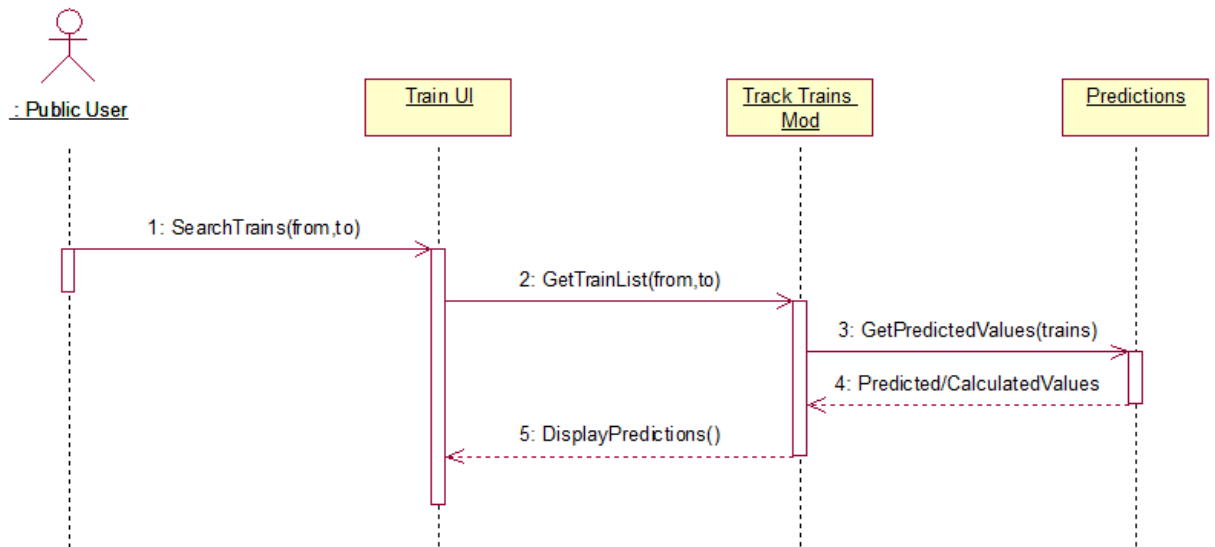


Figure 5.14 – Sequence diagram for search train use case

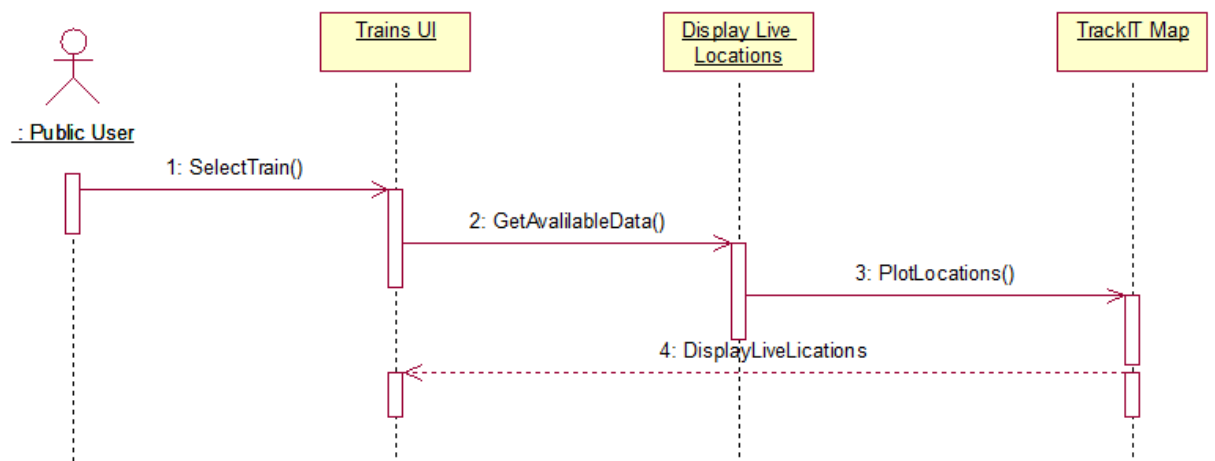


Figure 5.15 – Sequence diagram for view live train location use case

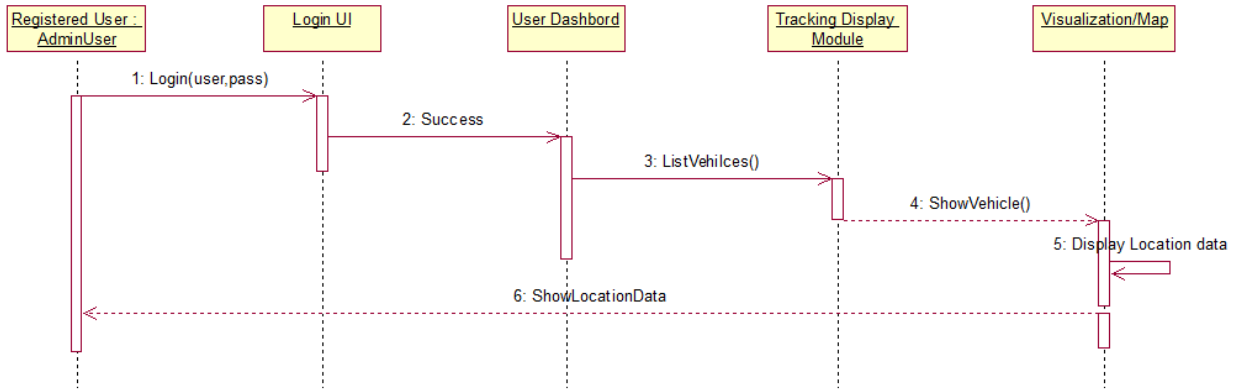


Figure 5.16 – Sequence diagram for view vehicle tracking use case

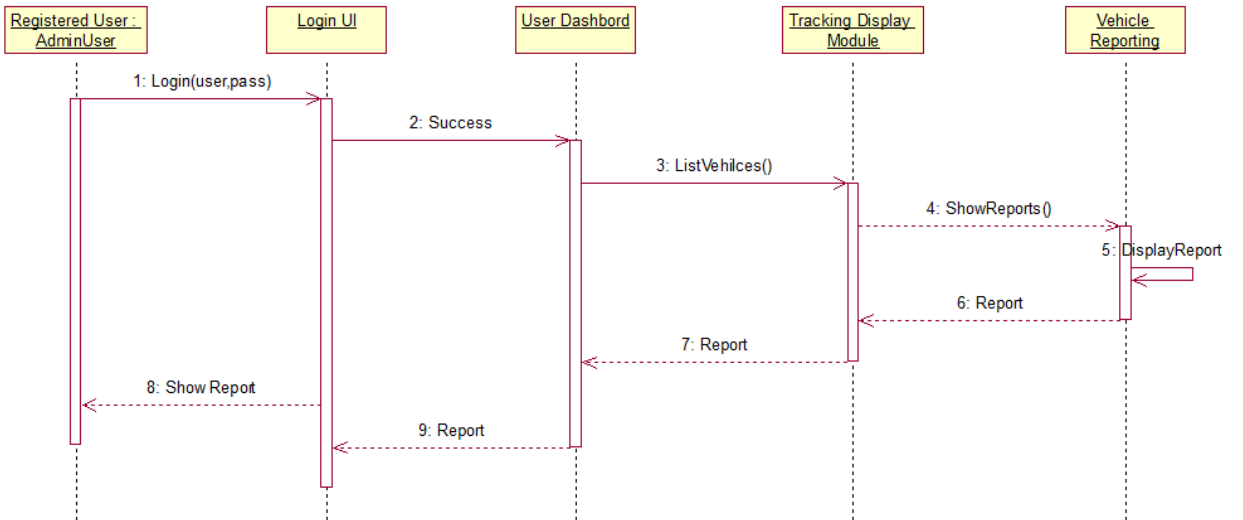


Figure 5.17 – Sequence diagram for view vehicle reports use case

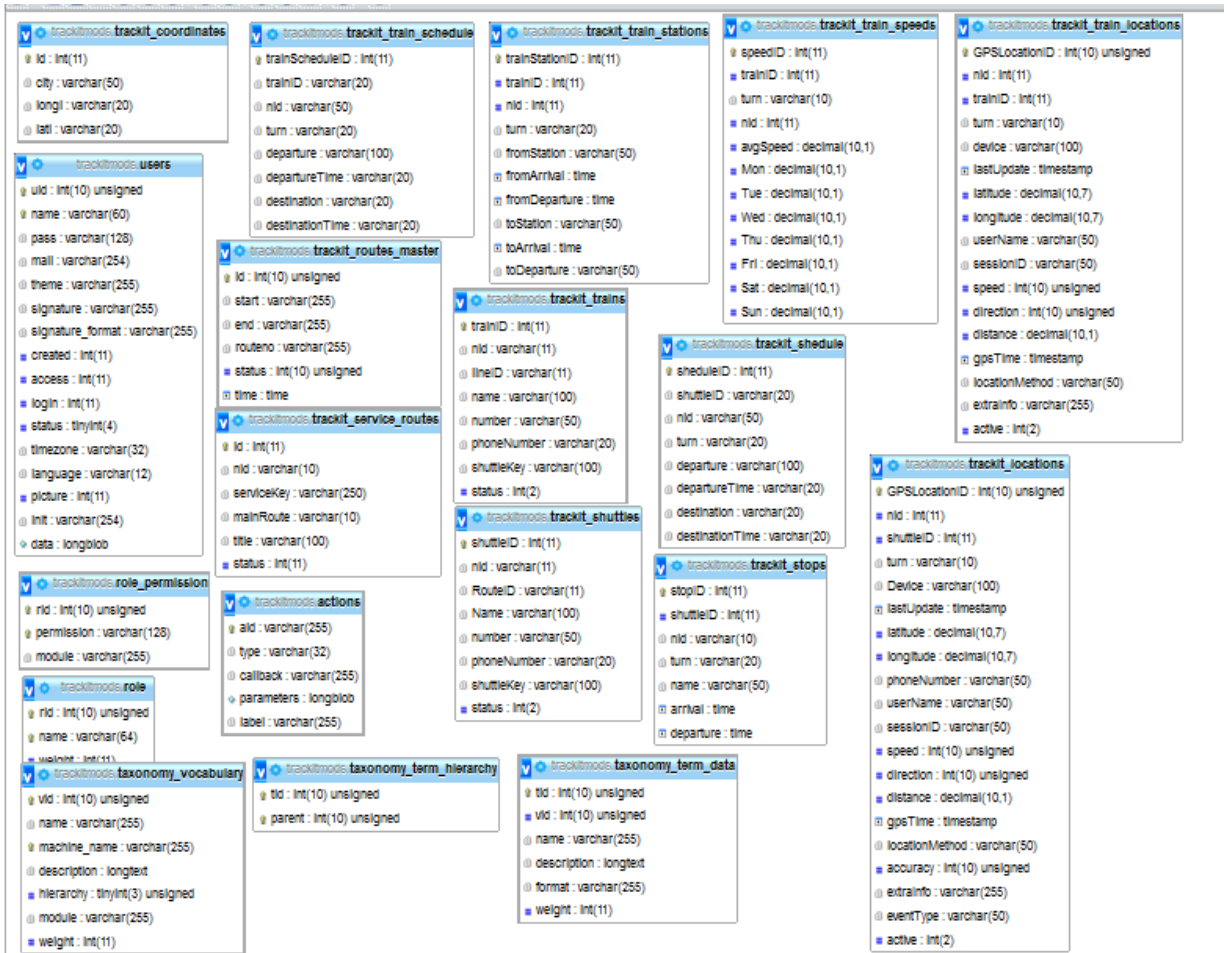


Figure 5.19 – Table structures of custom modules

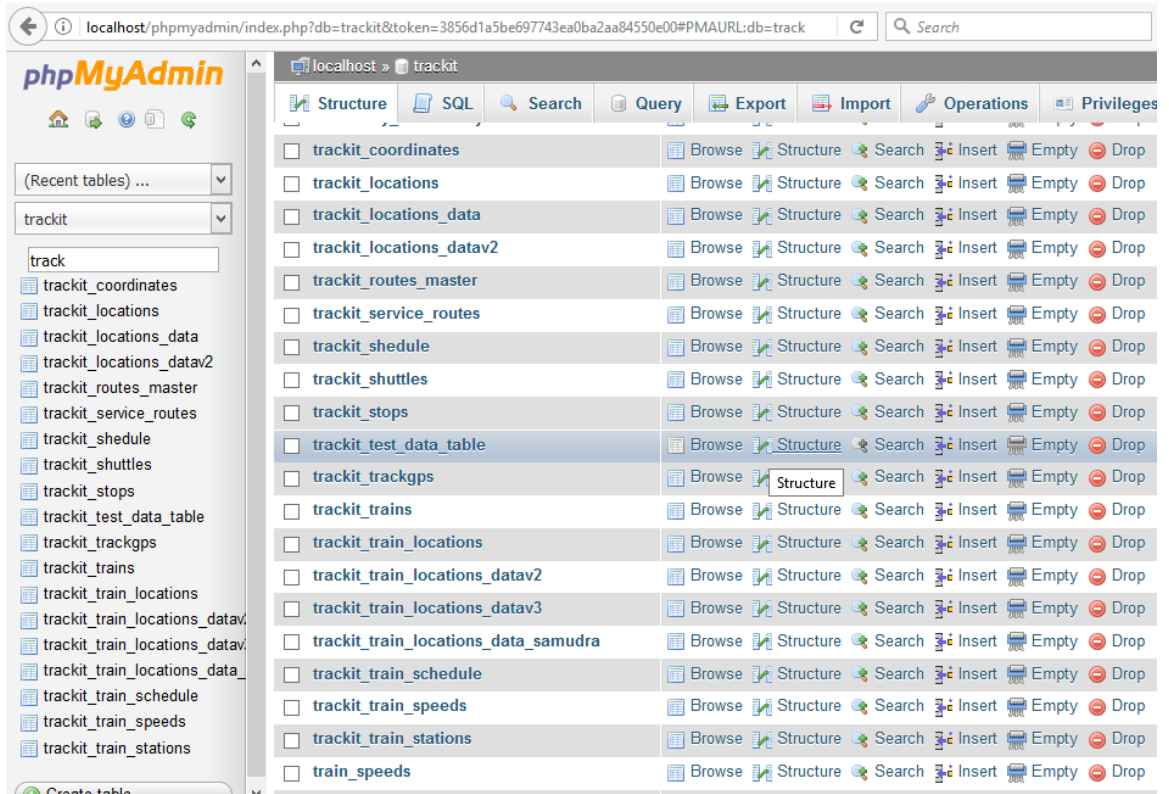
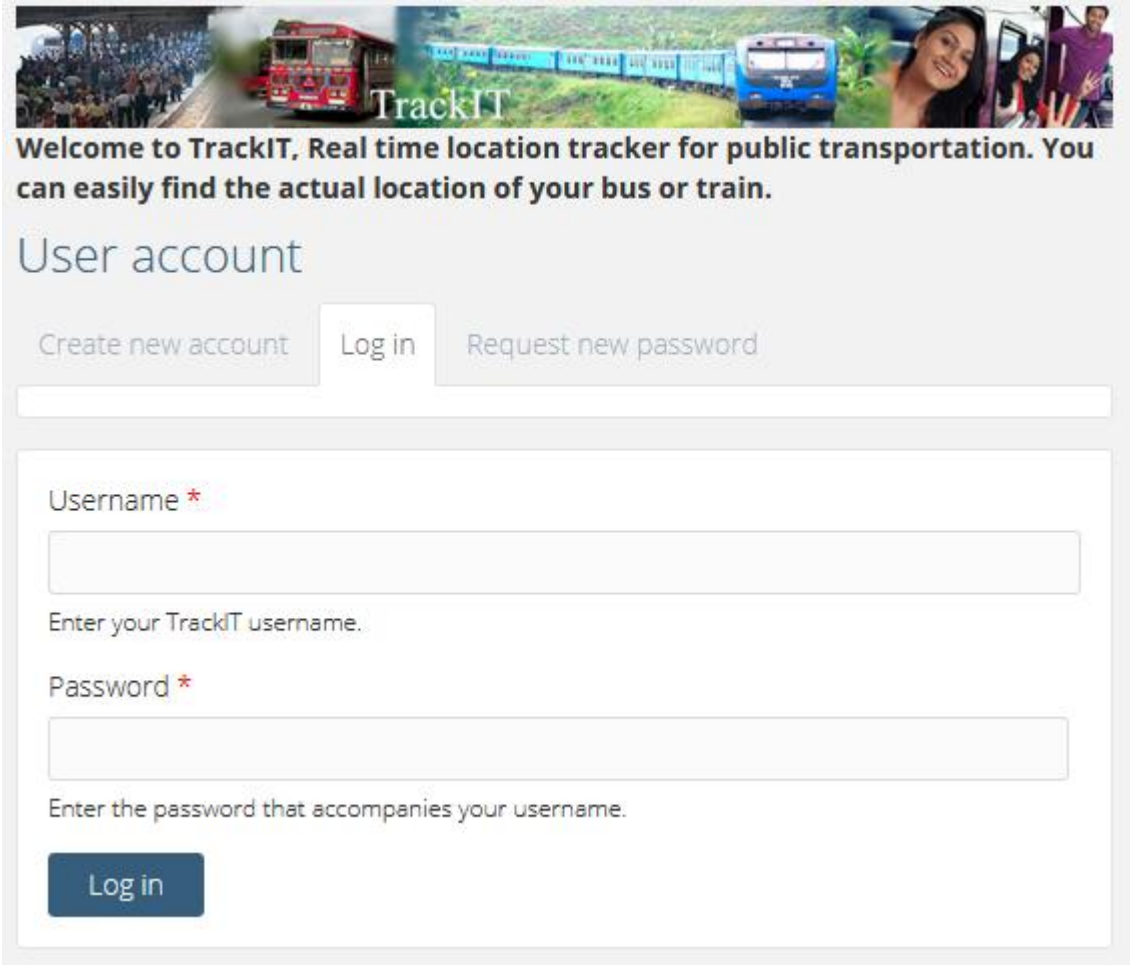


Figure 5.20 – Database administration interface - PhpMyAdmin

Appendix D – User Module

User Module Interfaces



Welcome to TrackIT, Real time location tracker for public transportation. You can easily find the actual location of your bus or train.

User account

Create new account Log in Request new password

Username *

Enter your TrackIT username.

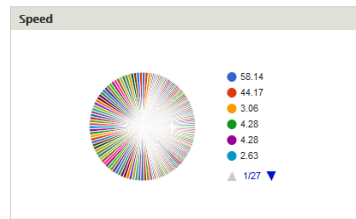
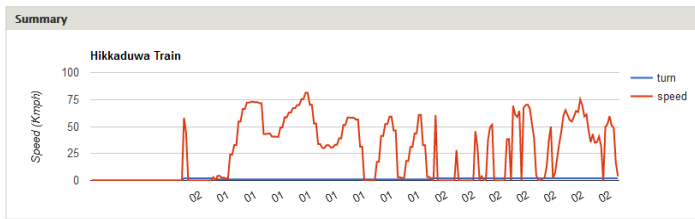
Password *

Enter the password that accompanies your username.

Log in

Figure 6.7 – Log in page

+ Customize dashboard



Trains

Add New Train

Samudra Devi	Edit	Remove
Hikkaduwa Train	Edit	Remove

Search form

Configurations

[Rules Config](#) | [Web Services](#)

Shuttles/Buses

Add New Shuttle

Panadura - Galpatha	Edit	Remove
Galpatha - Panadura	Edit	Remove
Samudra	Edit	Remove
Hikkaduwa Train	Edit	Remove
Test 3.1	Edit	Remove

Bus Routes

Add New Route

100 - Panadura - Colombo	Edit
450 - Panadura - Horana	Edit
459 - Galpatha - Panadura	Edit
459 - Panadura - Galpatha	Edit
459/3 - Panadura - Kolamadiriya	Edit

Recent Trackers

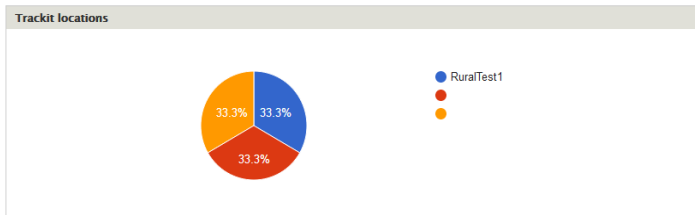
Samudra Devi superadmin	edit	delete
Hikkaduwa Train superadmin	edit	delete
Search Train superadmin	edit	delete
Panadura - Galpatha superadmin	edit	delete
Galpatha - Panadura superadmin	edit	delete

[More](#)

Stations

Coordinates

Angulana	Edit
Bambalapitiya	Edit
Dehiwala	Edit
Egodauyana	Edit
Kollupitiya	Edit



Train Lines

Add New Line

Down - Coastal Line - Colombo Fort - Matara	Edit
UP - Coastal Line - Matara - Colombo Fort	Edit

Users

Add New User | Manage Permission

Tracker1	tracker	Edit
Administrator	administrator	Edit
superadmin	administrator	Edit

Figure 6.8 – Administration Dashboard

This web page allows administrators to register new users. Users' e-mail addresses and usernames must be unique.

Username *

Spaces are allowed; punctuation is not allowed except for periods, hyphens, apostrophes, and underscores.

E-mail address *

A valid e-mail address. All e-mails from the system will be sent to this address. The e-mail address is not made public and is used for sending you notifications by e-mail.

Password *

Confirm password *

Provide a password for the new account in both fields.

Password strength: _____

Status

Blocked

Active

Roles

authenticated user

administrator

tracker

Notify user of new account

Figure 6.9 – Add new administrator users

PERMISSION	ANONYMOUS USER	AUTHENTICATED USER	ADMINISTRATOR	TRACKER
TrackIT - Map				
TrackIT map Allow to view location map	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
TrackIT - Track				
TrackIT track gps Allow to send gps coordinates for the system	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TrackIT - Train				
TrackIT - Trains Map				
TrackIT City Coordinates				
Access trackit master data Managing routes master data requires the Administer blocks permission.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TrackIT Routes Master				

Figure 6.10 - Granting permission levels for different user roles

Appendix E – Track Module

Bus Tracking Interfaces

UPDATE OPTIONS

Delete selected content

<input type="checkbox"/>	TITLE	TYPE	AUTHOR	STATUS	UPDATED	OPERATIONS
<input type="checkbox"/>	Panadura - Galpatha updated	Shuttle	superadmin	published	04/29/2017 - 02:14	edit delete
<input type="checkbox"/>	Shuttle 01 updated	Shuttle	superadmin	not published	04/17/2017 - 01:49	edit delete
<input type="checkbox"/>	Shuttle 02 updated	Shuttle	superadmin	not published	04/17/2017 - 01:49	edit delete
<input type="checkbox"/>	Test2 new	Shuttle	superadmin	not published	04/17/2017 - 01:49	edit delete
<input type="checkbox"/>	Galpatha - Panadura	Shuttle	superadmin	published	03/19/2017 - 13:55	edit delete
<input type="checkbox"/>	Test 3.1	Shuttle	superadmin	published	03/13/2017 - 12:55	edit delete

Figure 6.11 – Bus master data administration interface

Create Shuttle o

Title *

Route
459 - Panadura - Galpatha ▼

Shuttle Key *

[Show row weights](#)

SCHEDULE

Turn

Departure

Departure Time

+ **Destination**

Destination Time

[Show row weights](#)

STOPS

Turn

Stop Name

+ **Arrival Time**

Departure Time

Number

Phone Number

Menu settings
Not in menu Provide a menu link

Revision information No revision
URL path settings No alias
Comment settings Closed
Authoring information By superadmin
Publishing options Published

Figure 6.12 - Adding bus and time schedule

[+ Add term](#) [Show row weights](#)

NAME	OPERATIONS
+ 100 - Panadura - Colombo	edit
+ 450 - Panadura - Horana	edit
+ 459 - Galpatha - Panadura	edit
+ 459 - Panadura - Galpatha	edit
+ 459/3 - Panadura - Kalamadiriya	edit

[Save](#) [Reset to alphabetical](#)

Figure 6.13 – Bus routes administration interface

Active rules

NAME	EVENT	STATUS	OPERATIONS
Add New service- bus/train Machine name: rules_add_new_service_bus_train, Weight: 0	After saving new content of type <i>Service</i>	Custom	edit disable clone delete export
Update service - bus/train Machine name: rules_update_service_bus_train, Weight: 0	After updating existing content of type <i>Service</i>	Custom	edit disable clone delete export
Update Shuttle Machine name: rules_update_shuttle, Weight: 0	After updating existing content of type <i>Shuttle</i>	Custom	edit disable clone delete export
Add new Shuttle Machine name: rules_add_new_shuttle, Weight: 0	After saving new content of type <i>Shuttle</i>	Custom	edit disable clone delete export
Remove Shuttle Machine name: rules_remove_shuttle, Weight: 0	After deleting content of type <i>Shuttle</i>	Custom	edit disable clone delete export
Add New Train Machine name: rules_add_new_train, Weight: 0	After saving new content of type <i>Train</i>	Custom	edit disable clone delete export
Update Train Machine name: rules_update_train, Weight: 0	After updating existing content of type <i>Train</i>	Custom	edit disable clone delete export
Remove Train Machine name: rules_remove_train, Weight: 0	After deleting content of type <i>Train</i>	Custom	edit disable clone delete export

Figure 6.14 – Admin interface to manage rules when managing master data

Appendix F – Train Tracking Module

Train Tracking Interfaces

SHOW ONLY ITEMS WHERE

- where type is Train

and where status

UPDATE OPTIONS

<input type="checkbox"/>	TITLE	TYPE	AUTHOR	STATUS	UPDATED	OPERATIONS
<input type="checkbox"/>	Samudra Devi	Train	superadmin	published	04/08/2017 - 14:38	edit delete
<input type="checkbox"/>	Hikkaduwa Train	Train	superadmin	published	04/08/2017 - 14:15	edit delete

Figure 6.15 – Managing train admin interface

Home » Add content

Create Train o

Title *

Train Line
 UP - Coastal Line - Matara - Colombo Fort v

Train Key *

Train Number

[Show row weights](#)

TRAIN SCHEDULE

Turn No

Departure Station

Station Departure Time

+

Destination Station

Station Destination Time

[Show row weights](#)

TRAIN STATIONS

Train Turn No

From Station
 - None - v

From Arrival

From Departure

+

To Station
 - None - v

To Arrival

To Departure

Phone Number

Menu settings Provide a menu link

Revision information
 No revision

URL path settings
 No alias

Comment settings
 Open

Authoring information
 By superadmin

Publishing options
 Published

Figure 6.16 – Adding train and schedule to the system

[+ Add term](#) [Show row weights](#)

NAME	OPERATIONS
+ Down - Coastal Line - Colombo Fort - Matara	edit
+ UP - Coastal Line - Matara - Colombo Fort	edit

[Save](#) [Reset to alphabetical](#)

Figure 6.17 – Train Lines interface

[+ Add term](#) [Show row weights](#)

NAME	OPERATIONS
+ Angulana	edit
+ Bambalapitiya	edit
+ Dehiwala	edit
+ Egodaupaya	edit
+ Kollupitiya	edit
+ Korawalawella	edit
+ Lunawa	edit
+ Moratuwa	edit
+ Mount Lavinia	edit
+ Panadura	edit
+ Ratmalana	edit
+ Wellawatta	edit

[Save](#) [Reset to alphabetical](#)

Figure 6.18 – Railway Stations

[Home » Administration](#)
TrackIT Coordinates [o](#)

ID	CITY	LONGITUDE	LATITUDE	ACTION
1	panadura	79.93046329999993	6.720229199999998	Edit Delete

[Add new record](#)

Figure 6.19 – Geo coordinates of stations

Events

ELEMENTS	WEIGHT	OPERATIONS
After saving new content of type <i>Train</i>		delete
+ Add event		

Conditions

ELEMENTS	WEIGHT	OPERATIONS
None		
+ Add condition + Add or + Add and		

Actions [Show row weights](#)

ELEMENTS	OPERATIONS
+ TrackIT - save on node create - Train Parameter: <i>Node-Map</i> : [node]	edit delete
+ Add action + Add loop	

SETTINGS

[Save changes](#)

Figure 6.20 – Rules configurations to handle train master data

Appendix G – Frontend Modules

Frontend Interfaces

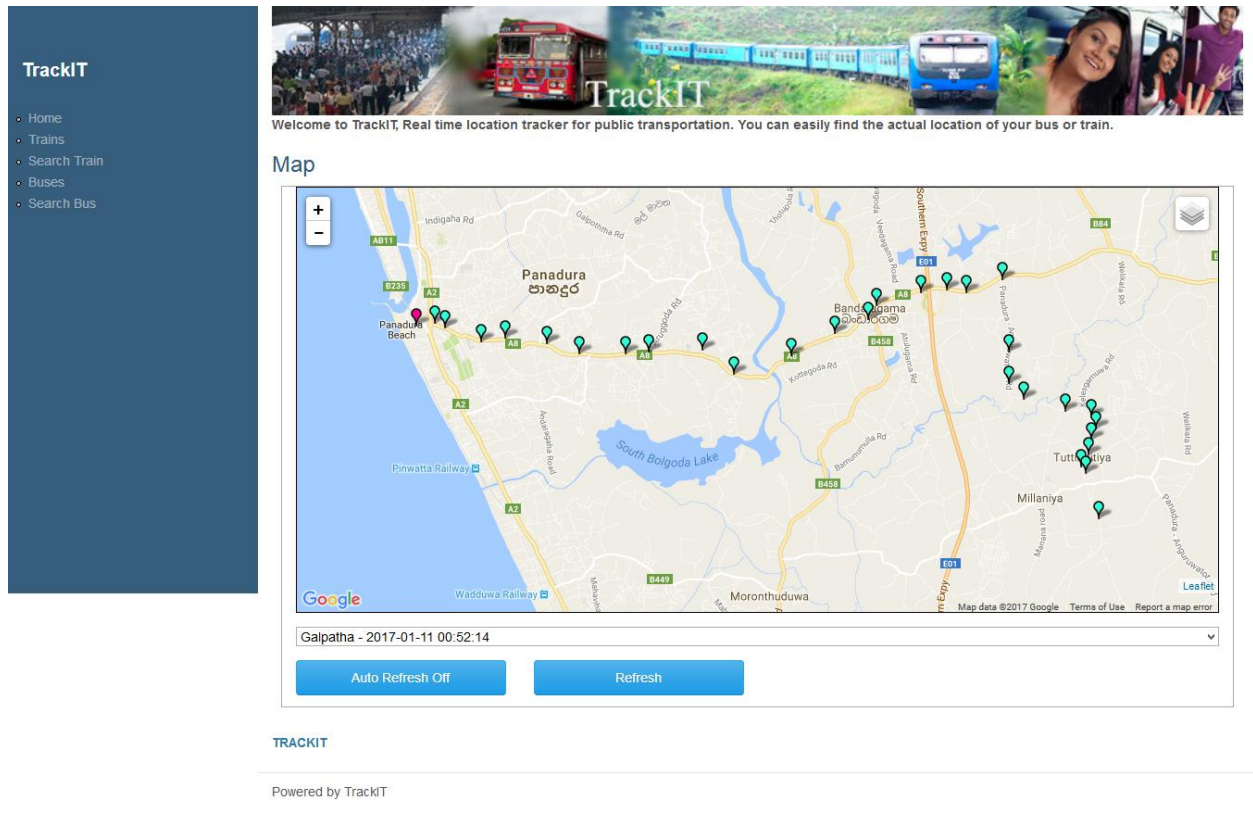



Figure 6.21 – Home page for public users

TrackIT

- Home
- Trains
- Search Train
- Buses
- Search Bus

Home



Welcome to TrackIT, Real time location tracker for public transportation. You can easily find the actual location of your bus or train.

Trains

TRAINS

Samudra Devi
Hikkaduwa Train

SCHEDULES

Departure

Time

Apply

Samudra Devi
Schedule

DEPARTURE STATION	STATION DEPARTURE TIME	DESTINATION STATION	STATION DESTINATION TIME	TURN NO
Panadura	07:06	Kollupitiya	07:50	01

Hikkaduwa Train
Schedule

DEPARTURE STATION	STATION DEPARTURE TIME	DESTINATION STATION	STATION DESTINATION TIME	TURN NO
Panadura	07:01	Kollupitiya	07:36	01
Kollupitiya	17:08	Panadura	17:35	02

TRACKIT

Powered by TrackIT

Figure 6.22 – List of Trains with schedule

- TrackIT
- Home
- Trains
- Search Train
- Buses
- Search Bus



Welcome to TrackIT, Real time location tracker for public transportation. You can easily find the actual location of your bus or train.

Hikkaduwa Train

Submitted by superadmin on Sat, 03/25/2017 - 13:37

Kollupitiya Railway Station, Colombo, Sri Lanka

Hikkaduwa - 01 - 2017-03-14 07:00:42

Auto Refresh Off Refresh

Train Line:
UP - Coastal Line - Matara - Colombo Fort

Train Schedule:

DEPARTURE STATION	STATION DEPARTURE TIME	DESTINATION STATION	STATION DESTINATION TIME	TURN NO
Panadura	07:01	Kollupitiya	07:36	01
Kollupitiya	17:08	Panadura	17:35	02

Train Stations:

FROM STATION	FROM ARRIVAL	FROM DEPARTURE	TO STATION	TO ARRIVAL	TO DEPARTURE	TRAIN TURN NO
Panadura	07:01	07:02	Wellawatta	07:28	07:29	01
Wellawatta	07:28	07:29	Bambalapitiya	07:32	07:33	01
Bambalapitiya	07:32	07:33	Kollupitiya	07:36	07:37	01
Kollupitiya	17:08	17:09	Bambalapitiya	17:12	17:13	02
Bambalapitiya	17:12	17:13	Wellawatta	17:17	17:18	02
Wellawatta	17:17	17:18	Panadura	17:35	17:36	02

Train Number:
8063


[Log in](#) or [register](#) to post comments

Figure 6.23– Live train details and timetable

TrackIT

- Home
- Trains
- Search Train
- Buses
- Search Bus

Home



Welcome to TrackIT. Real time location tracker for public transportation. You can easily find the actual location of your bus or train.

Search

SEARCH

Train Line *

From *

To *

Start Time

Eg: 14:30

Day


Results : from Panadura to Bambalapitiya between 00:00:00 Hrs and 23:59:59 Hrs

YOUR STATION	NAME	ARRAIVAL TIME	DEPARTURE TIME	DESTINATION/TIME	STATUS	ARRAIVE IN(PREDICTED)	START	END
Panadura	Hikkaduwa Train	07:01:00	07:02:00	Bambalapitiya/07:32:00	Live	0 Mins	Panadura-07:01	Kollupitiya-07:36
Panadura	Samudra Devi	07:05:00	07:06:00	Bambalapitiya/07:35:00			Panadura-07:06	Kollupitiya-07:50

Powered by TrackIT

Figure 6.24 – Train Search and Search Results

Home



Welcome to TrackIT, Real time location tracker for public transportation. You can easily find the actual location of your bus or train.

Buses

BUSES

Panadura - Galpatha
Galpatha - Panadura
Test 3.1

SCHEDULES

Departure **Time**

Panadura - Galpatha

TURN	DEPARTURE	DEPARTURE TIME	DESTINATION	DESTINATION TIME
02	Panaduraa	18:40	Galpatha	19:30

Galpatha - Panadura

TURN	DEPARTURE	DEPARTURE TIME	DESTINATION	DESTINATION TIME
01	Galpatha	6:05	Panadura	6:55

Test 3.1

TURN	DEPARTURE	DEPARTURE TIME	DESTINATION	DESTINATION TIME
1	Panadura	08:00	Colombo	09:30
2	Colombo	10:00	Panadura	11:30

Powered by TrackIT

Figure 6.25 – List of buses with time schedule

TrackIT

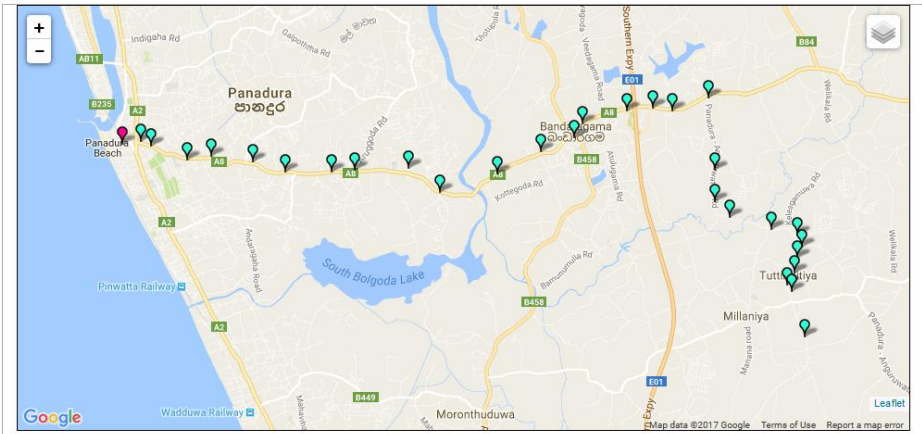
- Home
- Trains
- Search Train
- Buses
- Search Bus



Welcome to TrackIT, Real time location tracker for public transportation. You can easily find the actual location of your bus or train.

Galpatha - Panadura

Submitted by superadmin on Sun, 03/19/2017 - 13:55



Galpatha - 2017-01-11 00:52:14

Auto Refresh Off Refresh

SCHEDULE

TURN	DEPARTURE	DEPARTURE TIME	DESTINATION	DESTINATION TIME
01	Galpatha	6:05	Panadura	6:55

ROUTE SCHEDULE

Galpatha - Panadura

TURN	DEPARTURE	DEPARTURE TIME	DESTINATION	DESTINATION TIME
01	Galpatha	6:05	Panadura	6:55


Powered by TrackIT

Figure 6.26 – Live map and schedule

TrackIT

- Home
- Trains
- Search Train
- Buses
- Search Bus

Home



Welcome to TrackIT, Real time location tracker for public transportation. You can easily find the actual location of your bus or train.

Search

SEARCH

Route:

From *

To *

Start Time

Eg. 14:30

Day:

Results : from Bandaragama to Panadura

LOCATION	ARRAIVAL	DEPARTURE	SHUTTLE	STATUS	ARRAIVE IN	START	END
Bandaragama	06:40:00	06:42:00	Galpatha - Panadura	Live	8 Mins	Galpatha-6:05	Panadura-6:55

Powered by TrackIT

Figure 6.27 – Bus Search and Results

Create Vehicle +

Title *

Vehicle Key *

Vehicle Number *

Vehicle Type *
Car

Menu settings Not in menu	<input type="checkbox"/> Provide a menu link
Revision information No revision	
URL path settings No alias	
Comment settings Closed	
Authoring information By superadmin	
Publishing options Published	

Figure 6.28 – Add vehicle to system

Appendix H – Services

Web service

```
function trackit_train_api_resource_retrieve($nid) {
    $node = node_load($nid);
    $query = db_select('trackit_train_locations_datav3', 'tr');
    $query->fields('tr', array('longitude', 'latitude', 'speed', 'gpsTime', 'turn'));
    $query->condition('nid', $nid, '=');
    $query->range(0, 2);
    $result_locations = $query->execute();
    $row_loc = array();
    while ($record = $result_locations->fetchAssoc()) {
        $row_loc['longitude'] = $record['longitude'];
        $row_loc['latitude'] = $record['latitude'];
        $row_loc['speed'] = $record['speed'];
        $row_loc['time'] = $record['gpsTime'];
        $row_loc['turn'] = $record['turn'];
    }

    $return_obj = array(
        'train_name' => $node->title,
        'train_id' => $node->nid,
        'locations' => $row_loc,
    );

    return $return_obj;
}
```

Figure 6.29 – Part of a code to get location updates for web service

<input checked="" type="checkbox"/>	▼ trackit_train
	CRUD operations
<input checked="" type="checkbox"/>	retrieve Retrieves train schedule info.
<input type="checkbox"/>	► user

Save

Figure 6.30 – Train data retrieval enabled in service

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
-<result>
  <train_name>Hikkaduwa Train</train_name>
  <train_id>29</train_id>
  -<locations is_array="true">
    -<item>
      <longitude>79.9047265</longitude>
    </item>
    -<item>
      <latitude>6.7121550</latitude>
    </item>
    -<item>
      <speed>2.628</speed>
    </item>
    -<item>
      <time>2017-03-01 07:01:46</time>
    </item>
    -<item>
      <turn>01</turn>
    </item>
    -<item>
      <longitude>79.9045096</longitude>
    </item>
    -<item>
      <latitude>6.7124659</latitude>
    </item>
    -<item>
      <speed>0</speed>
    </item>
    -<item>
      <time>2017-03-01 07:02:16</time>
    </item>
    -<item>
      <turn>01</turn>
    </item>
  </locations>
</result>
```

Figure 6.31 – Web service output

Appendix I – Mobile Application

Development and Interfaces

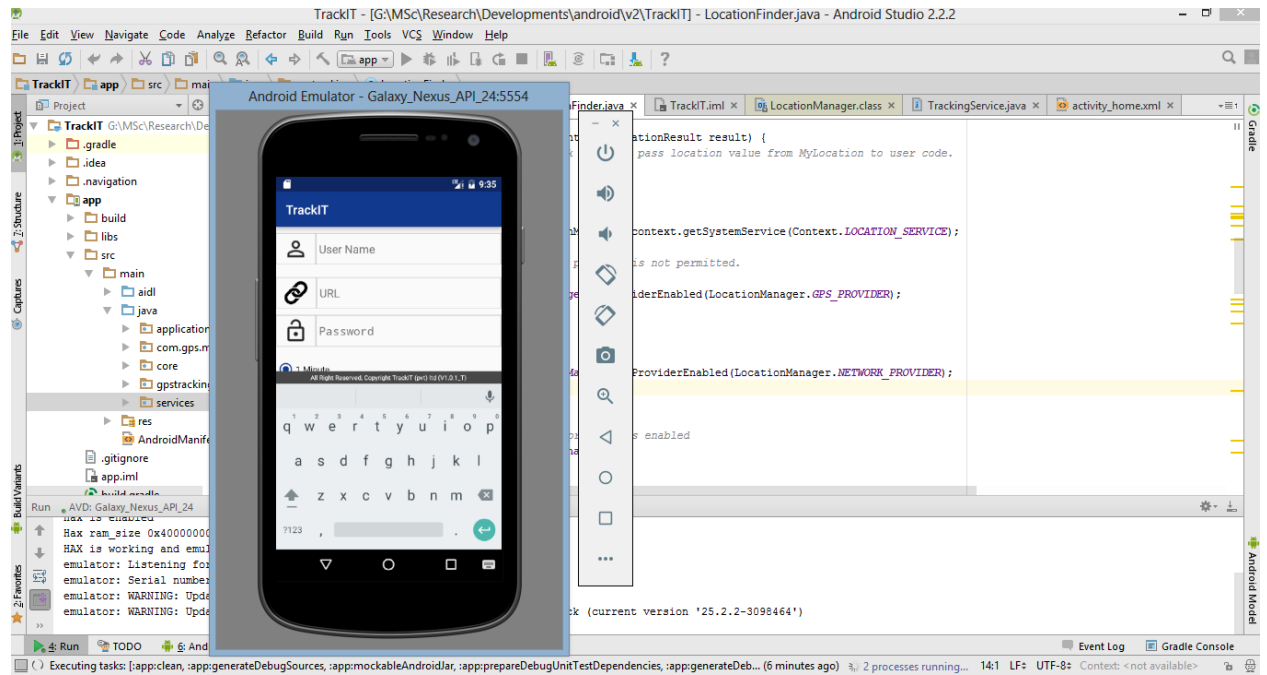


Figure 6.33 - Mobile Application development on Android Studio

```

Public void getLocation (Context context, LocationResult result) {
    location Result = result;
    this.context = context;
    turnGPSOn ();
    if (locationManager == null)
        locationManager =
(LocationManager)context.getSystemService(Context.LOCATION_SERVICE);

    //exceptions will be thrown if provider is not permitted.
    try {
        gps_enabled = locationManager.isProviderEnabled(LocationManager.GPS_PROVIDER);
    } catch (Exception ex) {
        ex.printStackTrace();
    }
    try {
        network_enabled =
locationManager.isProviderEnabled(LocationManager.NETWORK_PROVIDER);
    } catch (Exception ex) {
        ex.printStackTrace();
    }
    //don't start listeners if no provider is enabled
    if (!gps_enabled && !network_enabled)
        return;

    if (gps_enabled) {
        locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER,
Home.TIME_DURATION, MINIMUM_DISTANCE_CHANGE_FOR_UPDATES_GPS, locationListenerGps);
        return;
    }
    else if (network_enabled) {
        locationManager.requestLocationUpdates(LocationManager.NETWORK_PROVIDER,
MINIMUM_TIME_BETWEEN_UPDATES_NETWORK,
MINIMUM_DISTANCE_CHANGE_FOR_UPDATES_NETWORK,locationListenerNetwork);

        return;
    }
}

```

Figure 6.34 – Code segment to get location updates

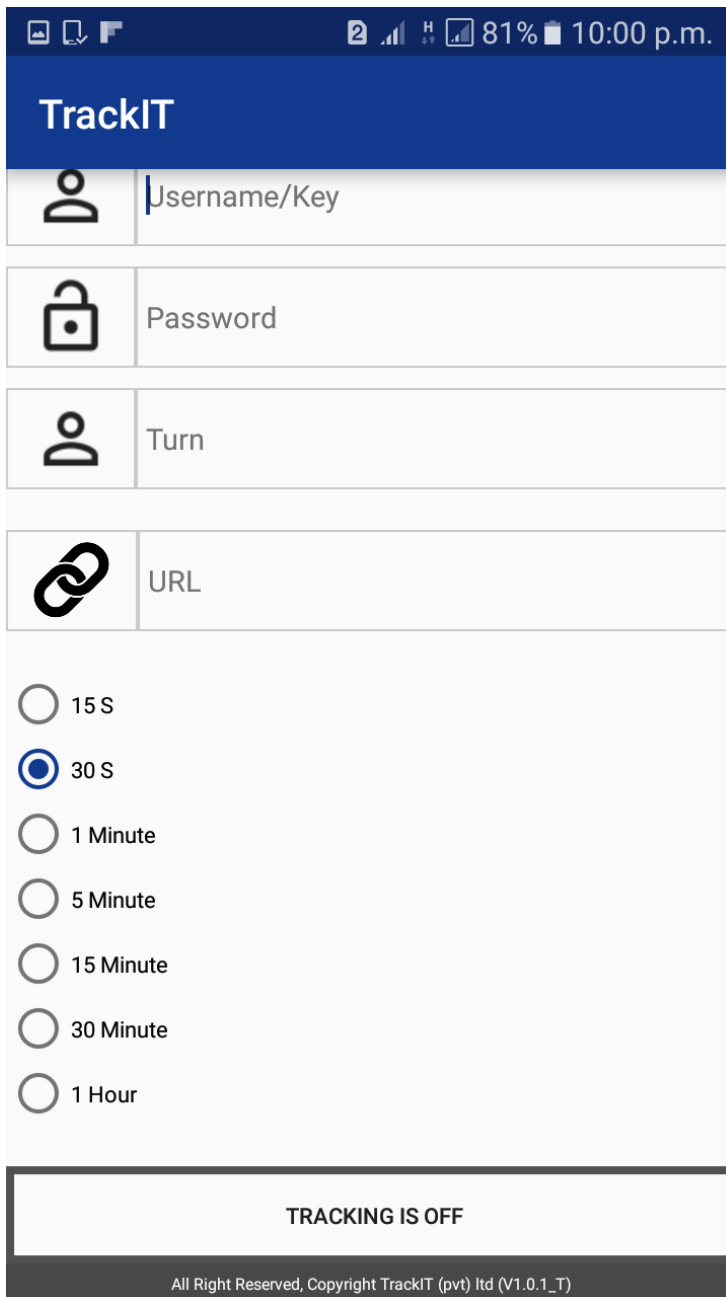


Figure 6.35 - Mobile Application installed on phone

Appendix J – Evaluation

Evaluation Forms

TrackIT Main Web Application Evaluation in terms of usability

Selectable options- 1 - Very poor, 2 – Poor, 3 – Average, 4 - Good, 5 - Excellent

	Question	Selectable Answers
1	How would you categorize the system in terms of navigation through the system to entering, proceeding and closing the system?	1 / 2 / 3 / 4 / 5
2	Could you understand the system functionality at the first time use?	1 / 2 / 3 / 4 / 5
3	How would you categorize the system based on speed?	1 / 2 / 3 / 4 / 5
4	How would you categorize the usefulness of the system for your daily travelling needs?	1 / 2 / 3 / 4 / 5
5	How easy to access the system through your mobile device?	1 / 2 / 3 / 4 / 5

Table 7.1 – Evaluation form to validate usability

TrackIT Main Web Application Evaluation in terms of functionality

Selectable options- 1 - Very poor, 2 – Poor, 3 – Average, 4 - Good, 5 - Excellent

	Question	Selectable Answers
1	Does the system provide enough information in when viewing schedule?	1 / 2 / 3 / 4 / 5
2	Does it show live location when you navigate to relevant page?	1 / 2 / 3 / 4 / 5
3	How would you categorize the accuracy predicted time based on your search results based on your experience?	1 / 2 / 3 / 4 / 5
4	When comparing with existing systems for	1 / 2 / 3 / 4 / 5

	the similar purpose, how would you categorize this system	
5	How much do you satisfied the overall functionality provided by this system?	1 / 2 / 3 / 4 / 5

Table 7.2 – Evaluation form to validate functionality

TrackIT Main Web Application Evaluation in terms of Overall Impression

Selectable options- 1 - Very poor, 2 – Poor, 3 – Average, 4 - Good, 5 – Excellent

	Question	Selectable Answers
1	Does system provide the final result within your expected time scope with expected quality?	1 / 2 / 3 / 4 / 5
2	Did you encounter any difficulty while accessing the system functionalities, how would you categorize system based on this feature?	1 / 2 / 3 / 4 / 5
3	Look and feel when application to be used regular basis	1 / 2 / 3 / 4 / 5
4	How do you categorize the system based on familiarity?	1 / 2 / 3 / 4 / 5
5	Rate the system based on your overall satisfaction about the system	1 / 2 / 3 / 4 / 5

Table 7.3 – Evaluation form to validate overall impression

TrackIT Location updater mobile application - Evaluation in terms of usability

Selectable options- 1 - Very poor, 2 – Poor, 3 – Average, 4 - Good, 5 - Excellent

	Question	Selectable Answers
1	How would you categorize the mobile application in terms of navigation through the system to entering, proceeding and closing the system?	1 / 2 / 3 / 4 / 5
2	Could you understand the functionality at the first time use?	1 / 2 / 3 / 4 / 5
3	How would you categorize the system usability in terms of starting, stopping in each trip?	1 / 2 / 3 / 4 / 5
4	How application/error messages are understandable?	1 / 2 / 3 / 4 / 5
5	How to you categorize, your attention to start/stop app in each trip?	1 / 2 / 3 / 4 / 5

Table 7.4 – Evaluation form to validate usability of mobile application

TrackIT Location updater mobile application - Evaluation in terms of functionality

Selectable options- 1 - Very poor, 2 – Poor, 3 – Average, 4 - Good, 5 - Excellent

	Question	Selectable Answers
1	Does the application provide enough information when start tracking and stopping?	1 / 2 / 3 / 4 / 5
2	Rate the application based on expected output/behavior	1 / 2 / 3 / 4 / 5
3	How would you categorize the application functionality based on live updates sent to main system?	1 / 2 / 3 / 4 / 5
4	When comparing with existing applications, how would you categorize this app?	1 / 2 / 3 / 4 / 5
5	How much do you satisfied the overall functionality provided by this application?	1 / 2 / 3 / 4 / 5

Table 7.5 – Evaluation form to validate functionality of mobile application

TrackIT Location updater mobile application - Evaluation in terms of Overall

Impression

Selectable options- 1 - Very poor, 2 – Poor, 3 – Average, 4 - Good, 5 – Excellent

	Question	Selectable Answers
1	Does system provide the final result (Starting/Stopping) within your expected time scope with expected quality?	1 / 2 / 3 / 4 / 5
2	Did you encounter any difficulty while accessing the application functionality, how would you categorize system based on this feature?	1 / 2 / 3 / 4 / 5
3	Categorize the Look and feel when application to be used regular basis	1 / 2 / 3 / 4 / 5
4	How do you categorize the application based on familiarity?	1 / 2 / 3 / 4 / 5
5	Rate the application based on your overall satisfaction	1 / 2 / 3 / 4 / 5

Table 7.6 – Evaluation form to validate overall impression of mobile application

Evaluation Results

Main Web Application - Functionality							
User feedback data analysis - Weighted marks							
	Question	Marks					
		Very Poor	Poor	Average	Good	Excellent	Total
1	Does the system provide enough information in when viewing schedule?	0	0	12	64	0	76
2	Does it show live location when you navigate to relevant page?	0	0	6	56	20	82
3	How would you categorize the accuracy predicted time based on your search results based on your experience?	0	3	24	40	0	67
4	When comparing with existing systems for the similar purpose, how would you categorize this system	0	0	6	48	30	84
5	How much do you satisfied the overall functionality provided by this system?	0	0	30	40	0	70
						Total	379
						Percentage %	75.8

Table 7.7 – Evaluation results for main web application functionality

Main Web Application - Usability							
User feedback data analysis - Weighted marks							
	Question	Marks					
		Very Poor	Poor	Average	Good	Excellent	Total
1	How would you categorize the system in terms of navigation through the system to entering, proceeding and closing the system?	0	3	12	56	0	71
2	Could you understand the system functionality at the first time use?	0	0	24	48	0	72
3	How would you categorize the system based on speed?	0	9	18	32	0	59
4	How would you categorize the usefulness of the system for your daily travelling needs?	0	0	6	48	30	84
5	How easy to access the system through your mobile device?	0	3	36	24	0	63
						Total	349
						Percentage %	69.8

Table 7.8 – Evaluation results for main web application usability

Main Web Application - Overall Impression						
User feedback data analysis - Weighted marks						
Question	Marks					
	Very Poor	Poor	Average	Good	Excellent	Total
1 Does system provide the final result within your expected time scope with expected quality?	0	0	12	56	10	78
2 Did you encounter any difficulty while accessing the system functionalities, how would you categorize system based on this feature?	0	0	12	56	10	78
3 Look and feel when application to be used regular basis	0	0	12	64	0	76
4 How do you categorize the system based on familiarity?	0	0	6	56	20	82
5 Rate the system based on your overall satisfaction about the system	0	0	6	56	20	82
Total						396
Percentage %						79.2

Table 7.9 – Evaluation results for main web application overall impression

Mobile Application - Functionality						
User feedback data analysis - Weighted marks						
Question	Marks					
	Very Poor	Poor	Average	Good	Excellent	Total
1 Does the application provide enough information when start tracking and stopping?	0	6	18	40	0	64
2 Rate the application based on expected output/behavior	0	0	54	8	0	62
3 How would you categorize the application functionality based on live updates sent to main system?	0	6	42	8	0	56
4 When comparing with existing applications, how would you categorize this app?	0	0	36	32	0	68
5 How much do you satisfied the overall functionality provided by this application?	0	0	54	8	0	62
Total						312
Percentage %						62.4

Table 7.10 – Evaluation results for mobile application functionality

Main Web Application - Usability							
User feedback data analysis - Weighted marks							
	Question	Marks					Total
		Very Poor	Poor	Average	Good	Excellent	
1	How would you categorize the mobile application in terms of navigation through the system to entering, proceeding and closing the system?	0	3	30	32	0	65
2	Could you understand the functionality at the first time use?	0	6	48	0	0	54
3	How would you categorize the system usability in terms of starting, stopping in each trip?	2	6	24	16	0	48
4	How application/error messages are understandable?	0	0	42	24	0	66
5	How to you categorize, your attention to start/stop app in each trip?	0	3	42	16	0	61
						Total	294
						Percentage %	58.8

Table 7.11 – Evaluation results for mobile application usability

Mobile Application - Overall Impression							
User feedback data analysis - Weighted marks							
	Question	Marks					Total
		Very Poor	Poor	Average	Good	Excellent	
1	Does system provide the final result (Starting/Stopping) within your expected time scope with expected quality?	0	3	30	32	0	65
2	Did you encounter any difficulty while accessing the application functionality, how would you categorize system based on this feature?	0	6	42	8	0	56
3	Categorize the Look and feel when application to be used regular basis	0	12	18	24	0	54
4	How do you categorize the application based on familiarity?	0	0	54	8	0	62
5	Rate the application based on your overall satisfaction	0	0	42	24	0	66
						Total	303
						CL	41.4
						Percentage %	60.6

Table 7.12 – Evaluation results for mobile application overall impression