LIVROUTE

Supervisor

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Description:

Our team will be developing a bus tracking system that allows students, teachers, and staff to view live bus locations, routes, pickup points, and estimated time of arrival. The system will feature an admin dashboard for managing bus and driver information, routes, and pickup points, and sending custom notifications to all users. The system will use driver's mobile phone as a GPS tracking system for the bus and include user-friendly interfaces for mobile platforms. Our goal is to create a secure, reliable, and user-friendly system that enhances the overall transportation experience.
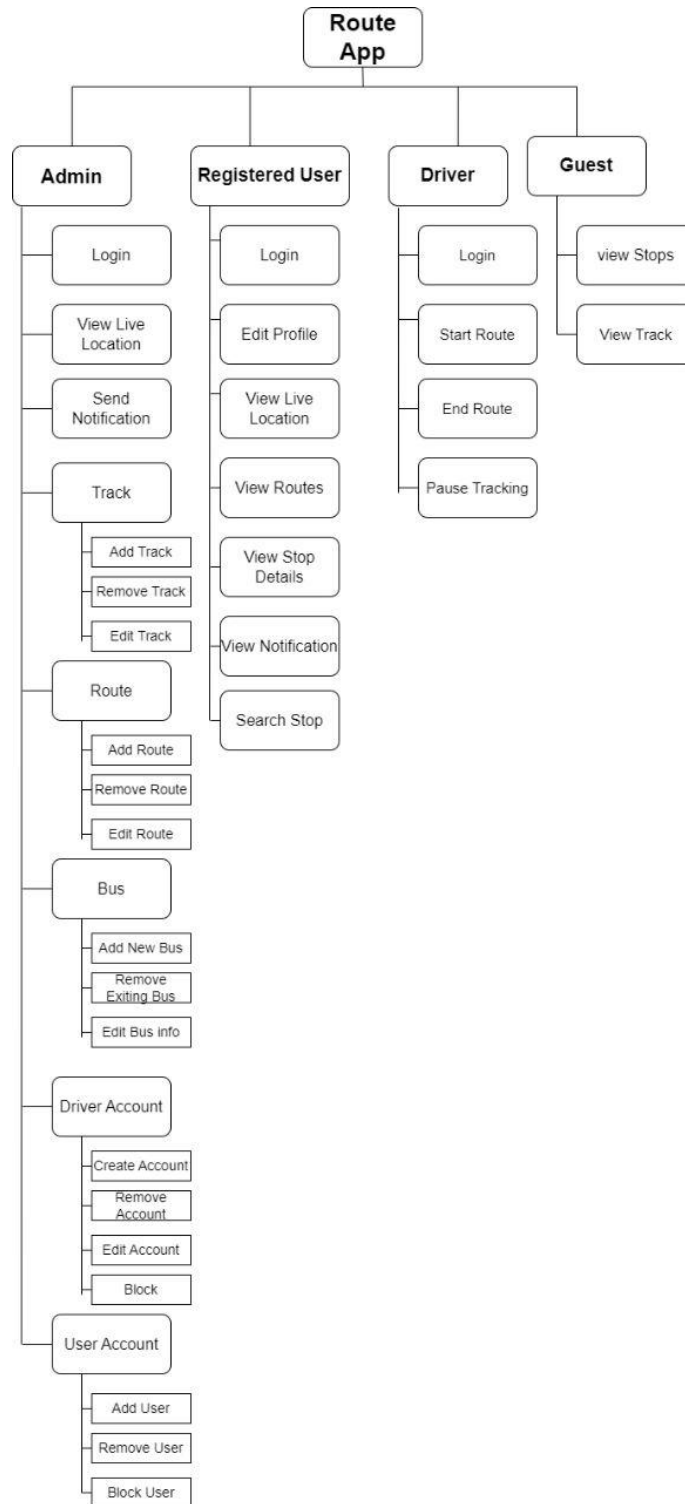
Scope:

The scope of route app involves the development of a software platform that enables the management for all bus routes. The system should be designed to facilitate the students and staff to view the stops and tracks of all the routes, their live location and also any alternative route their route is missed. The system should allow the driver to start and stop the route tracking. The system should also allow the admin to send to add or remove new route or stops in the route, add or block any user, driver and to assign a route to the driver.

Vision Statement:

For students, staff members, and transport officers, who want to check and track their bus route via mobile app. KSK Routes is a bus route tracking app that will provide the facility to students and staff members to track their specific buses and the current location of the bus. Unlike Google Maps, the focus is to provide students and staff members an interactive UI and push notifications in case their route bus has started. Our product will lessen the transport office's burden of managing everyday student-driver issues and provide students or staff members with effective ways to reach university in case their route is missed.

Work Break-down Structure:

```
                              Route
                               App
        ┌──────────────┬─────────────┬──────────────┐
        │              │             │              │
     Admin       Registered User   Driver         Guest

     Login           Login          Login        view Stops

     View Live       Edit Profile   Start Route   View Track
     Location
                     View Live      End Route
     Send            Location
     Notification                   Pause Tracking
                     View Routes
     Track
                     View Stop
       Add Track     Details
       Remove Track  View Notification
       Edit Track
                     Search Stop
     Route

       Add Route
       Remove Route
       Edit Route

     Bus

       Add New Bus
       Remove
       Exiting Bus
       Edit Bus info

     Driver Account

       Create Account
       Remove
       Account
       Edit Account
       Block

     User Account

       Add User
       Remove User
       Block User
```

Requirements Analysis:

1. Functional Requirements:

FR001 Admin Accounts

FR002 Admin shall be able to add admin

FR003 Admin shall be able to import admin

FR004 Admin shall be able to export admin

FR005 Admin shall be able to block admin

FR006 Admin shall be able to unblock the blocked admin

FR007 Admin shall be able to remove admin

FR008 Admin shall be not be able to update upper-ranked admin

FR009 Driver Accounts

FR010 Admin shall be able to add driver

FR011 Admin shall be able to import driver

FR012 Admin shall be able to export driver

FR013 Admin shall be able to block driver

FR014 Admin shall be able to unblock the blocked driver

FR015 Admin shall be able to remove driver

FR016 Members Accounts

FR017 Admin shall be able to add members

FR018 Admin shall be able to import members

FR019 Admin shall be able to export members

FR020 Admin shall be able to block members

FR021 Admin shall be able to unblock the blocked members

FR022 Admin shall be able to remove members

FR023 Updating Tracks

FR024 Admin shall be able to add Track

FR025 Admin shall be able to import Tracks

FR026 Admin shall be able to export Tracks

FR027 Admin shall be able to remove Track

FR028 Admin shall be able to view Track

FR029 Admin shall be able to add stop in Track

FR030 Admin shall be able to remove stop in Track

FR031 Admin shall be able to edit stop in Track

FR032 Admin shall be able to build path with map in Track

FR033 Admin shall be able to copy path of one Track to another Track

FR034 Admin shall be able to edit path of Track

FR035 Admin shall be able to points in path of Track

FR036 Updating Routes

FR037 Admin shall be able to add Route

FR038 Admin shall be able to Import Routes

FR039 Admin shall be able to Export Routes

FR040 Admin shall be able to remove Route

FR041 Admin shall be able to edit Route

FR042 Admin shall be able to generate Timetable of Routes

FR043 Admin should be able to select Import mode of Route

FR044 Bus Details

FR045 Admin shall be able to add bus

FR046 Admin shall be able to remove bus

FR047 Admin shall be able to edit bus

FR048 Admin shall be able to export bus

FR049 Tracking

FR050 Admin shall be able to view Live Location of active routes

FR051 Admin shall be able to stop tracking of active routes

FR052 Messages

FR053 Admin shall be able to send messages to driver

FR054 Admin shall be able to send messages to members

FR055 Admin shall be able to delete send message

FR056 Call

FR057 Admin shall be able to call a driver.

2. Non Functional Requirements:

NFR001 Admin Accounts

NFR001 System shall accept only CSV file as an Import of Admin Accounts

NFR002 Admin shall be able to generate a CSV file as an export of Admin Accounts

NFR003 System should automatically send notification to admin when he get blocked

NFR004 Blocked Admin should not be able to login through its account

NFR005 Driver Accounts

NFR006 System shall accept only CSV file as an Import of Driver Accounts

NFR007 Admin shall be able to generate a CSV file as an export of Driver Accounts

NFR008 System should automatically send notification to driver when he get blocked

NFR009 Blocked driver should not be able to login through its account

NFR010 Members Accounts

NFR011 System shall accept only CSV file as an Import of Members Accounts

NFR012 Admin shall be able to generate a CSV file as an export of Members Accounts

NFR013 System should automatically send notification to member when he get blocked

NFR014 Blocked member should not be able to login through its account

NFR015 Updating Tracks

NFR016 System shall accept only CSV file as an Import of Tracks

NFR017 Admin shall be able to generate a CSV file as an export of Tracks

NFR018 System should automatically delete reference from routes of Deleted Track

NFR019 System should not accept invalid format of text in a path of Track

NFR020 Updating Routes

NFR021 System shall accept only CSV file as an Import of Route

NFR022 Admin shall be able to generate a CSV file as an export of Route

NFR023 Admin must be able to select multiple option in Import of Route

NFR024 System should have adding Tracks only option in Import of Route

NFR025 System should have adding Bus only option in Import of Route

NFR026 System should have adding Drivers only option in Import of Route

NFR027 Bus Details

NFR028 System shall accept only CSV file as an Import of Route

NFR029 Admin shall be able to generate a CSV file as an export of Route

NFR030 Tracking

NFR031 System shall send notification to driver after admin stop it's tracking

NFR032 Messages

NFR033 System should send a notification if user receive a message

NFR034 Admin shall be able to send message to Admin, Driver and Members.

NFR035 Call
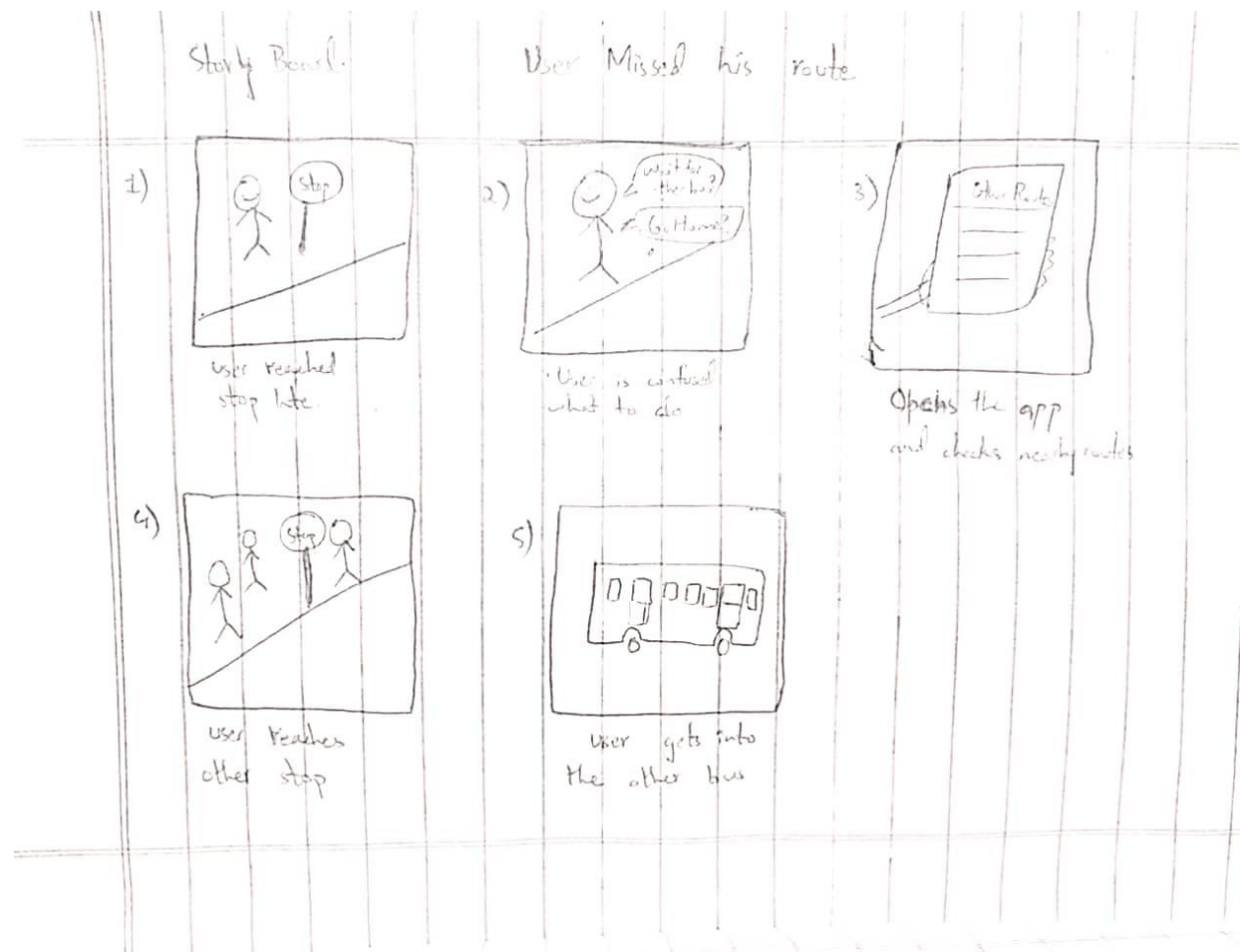
NFR036 System should allow only one admin on a call with one driver.

3. Physical Product Requirements:

- Computer Hardware
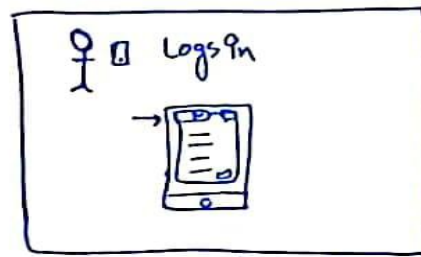- Mobile Devices
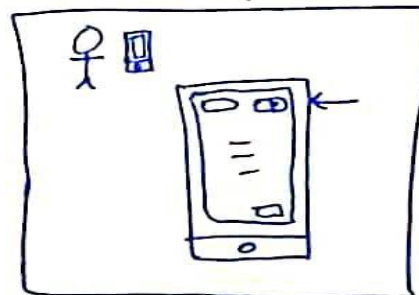- Internet Connection

4. Storyboards:

1. Admin

2. Driver
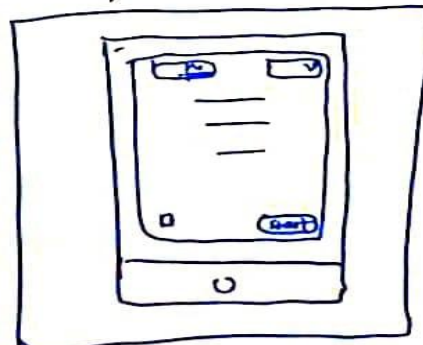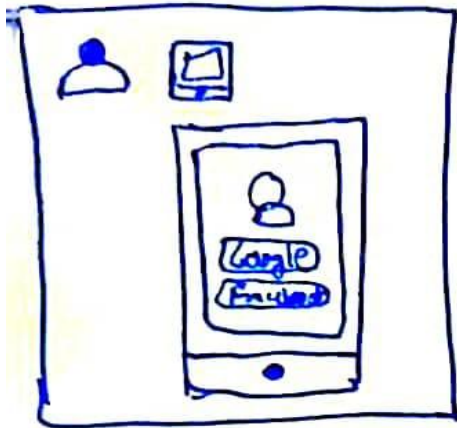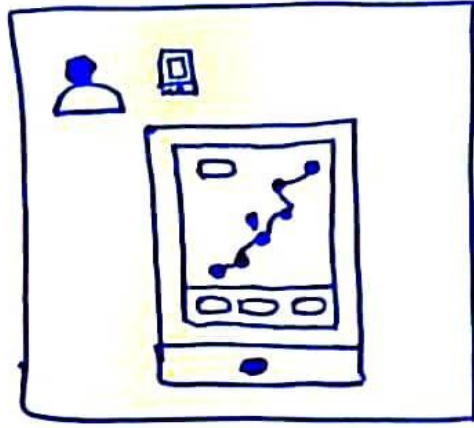

Driver logs In

Selects Route

Starts the Route tracking
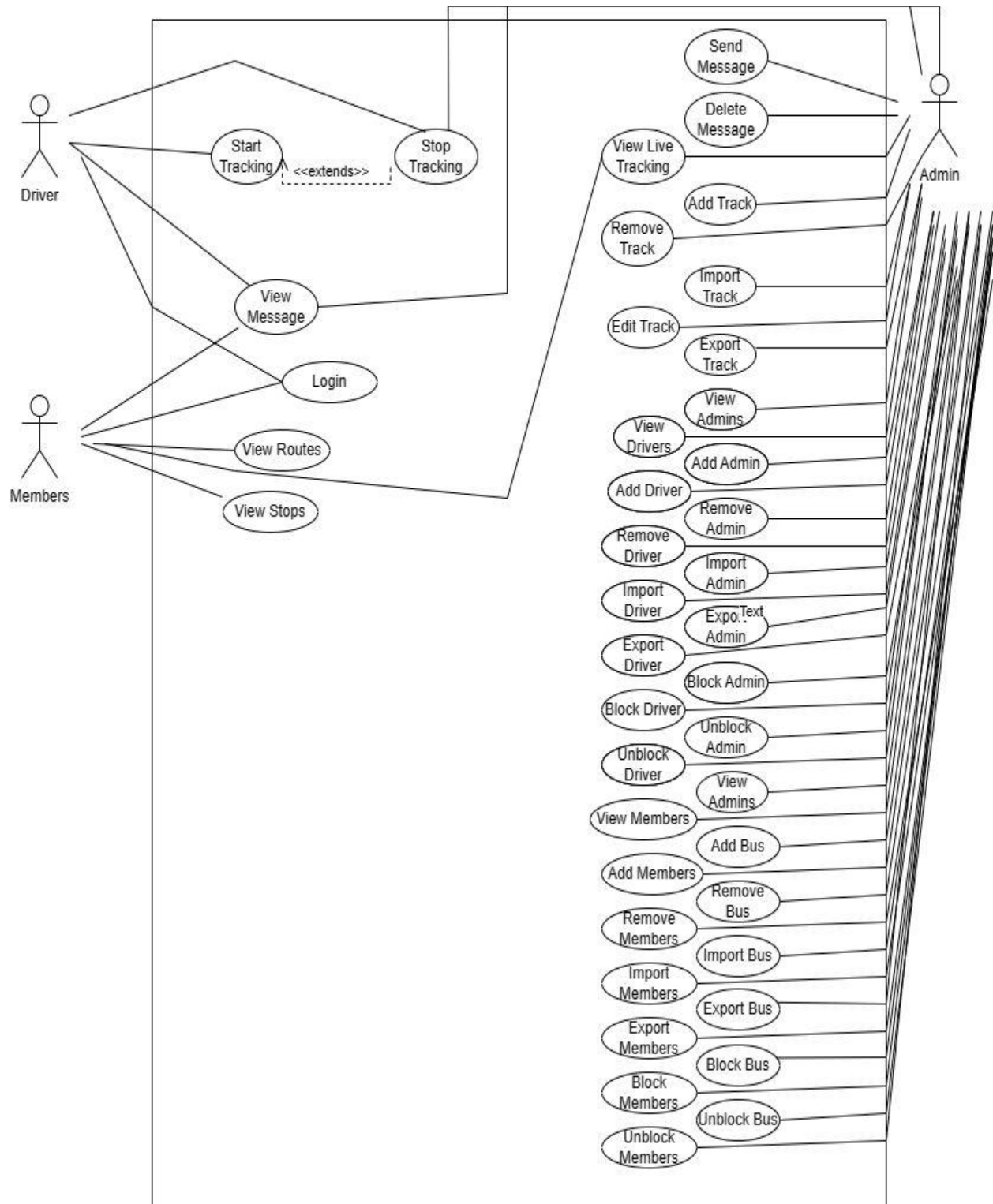
3. Member

User

LogIn

Tracks the location

UML Diagrams:

1. Usecase Diagram:

2. Class Diagram:

STOP

PK	stop_id SMALLINT NOT NULL
FK	track_id VARCHAR(50)
	stop_no TINYINT NOT NULL
	isStop BIT NOT NULL
	stop_name VCARCHAR(50)
	lattitude DOUBLE
	longitude DOUBLE
	time_of_arrival TIME

PATH

PK	path_id int NOT NULL
FK	track_id VARCHAR(50)
	stop_no TINYINT NOT NULL
	lattitude DOUBLE
	longitude DOUBLE

TRACK

PK	track_id int NOT NULL
	track_name varchar(50)

DRIVER

PK	driver_id INT NOT NULL
	username VARCHAR(20) NOT NULL
	password VARCHAR(20) NOT NULL
	isBlock BIT NOT NULL

BUS

PK	bus_id INT NOT NULL
	number_plate VARCHAR(10) NOT NULL
	model_no TINYINT
	isWorking BIT NOT NULL

ROUTE

PK	route_id INT NOTNULL
FK1	track_id int
FK2	driver_id int
FK3	bus_id int
FK4	route_type_id int NOT NULL
	route_name VARCHAR(20) NOT NULL

ADMIN

PK	admin_id INT NOT NULL
	name VARCHAR(20)
	security_level int
	isBlocked BIT NOT NULL

Members

PK	member_id INT NOT NULL
	name VARCHAR(20)
	isBlocked BIT NOT NULL
FK	route_id INT

ROUTE TYPE

PK	route_type_id INT NOTNULL
	route_type_name VARCHAR(20)

MESSAGES

PK	message_id int NOT NULL
	time DATETIME NOT NULL
	message VARCHAR(250)
FK	adnin_id INT

3. Object Diagram:

4. Packager Diagram:

5. Deployment Diagram:

```
┌──────────────┐     ┌──────────────┐     ┌──────────────┐
│   Database   │─────│    Server    │─────│    Modem     │
└──────────────┘     └──────────────┘     └──────────────┘
                                                  │
                                          ┌──────────────┐
                                          │   PC/Mobile  │
                                          └──────────────┘
                                                  │
                                          ┌──────────────┐
                                          │ App (LivRoute)│
                                          └──────────────┘
                                                  │
                                          ┌──────────────┐
                                          │     User     │
                                          └──────────────┘
```
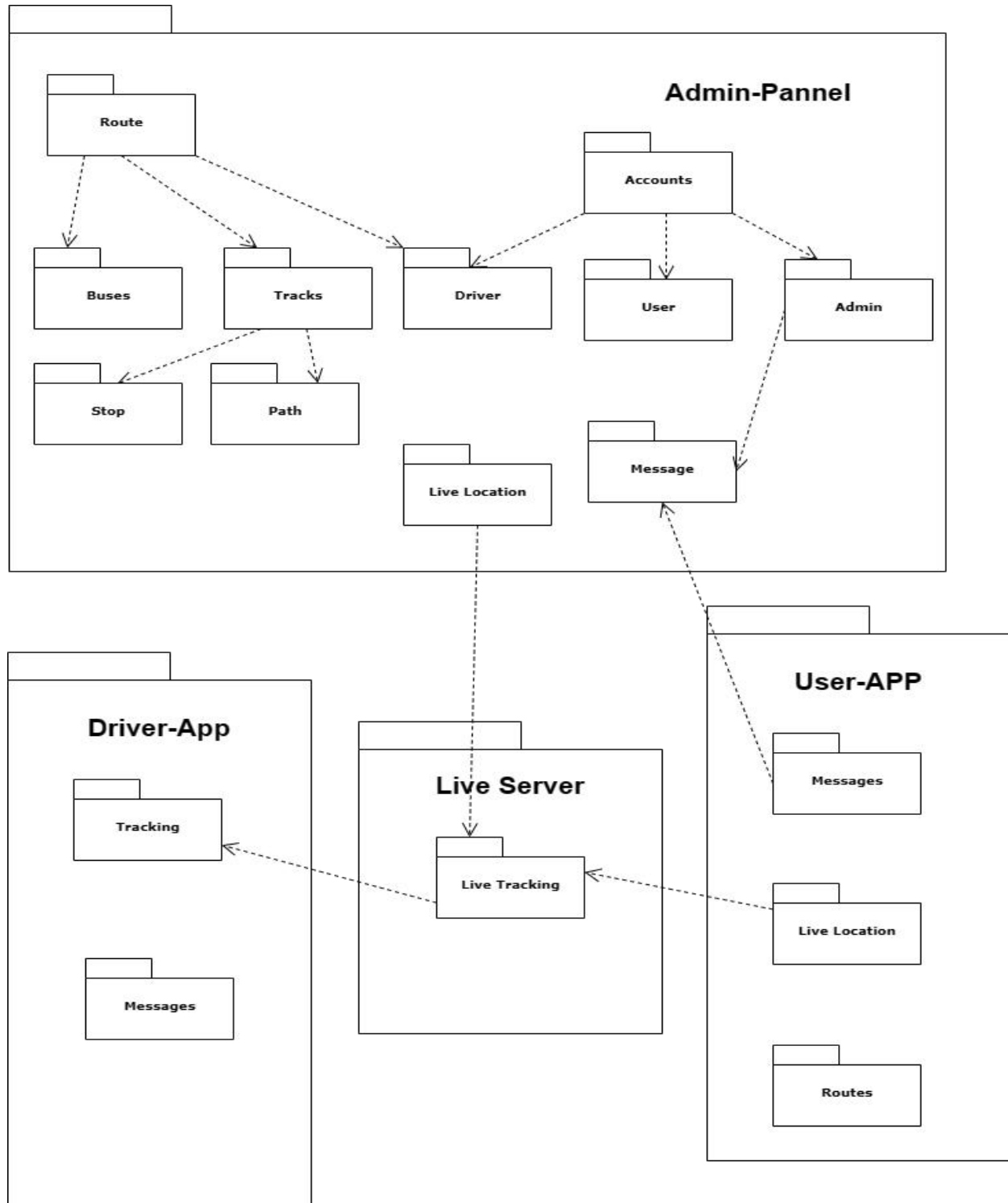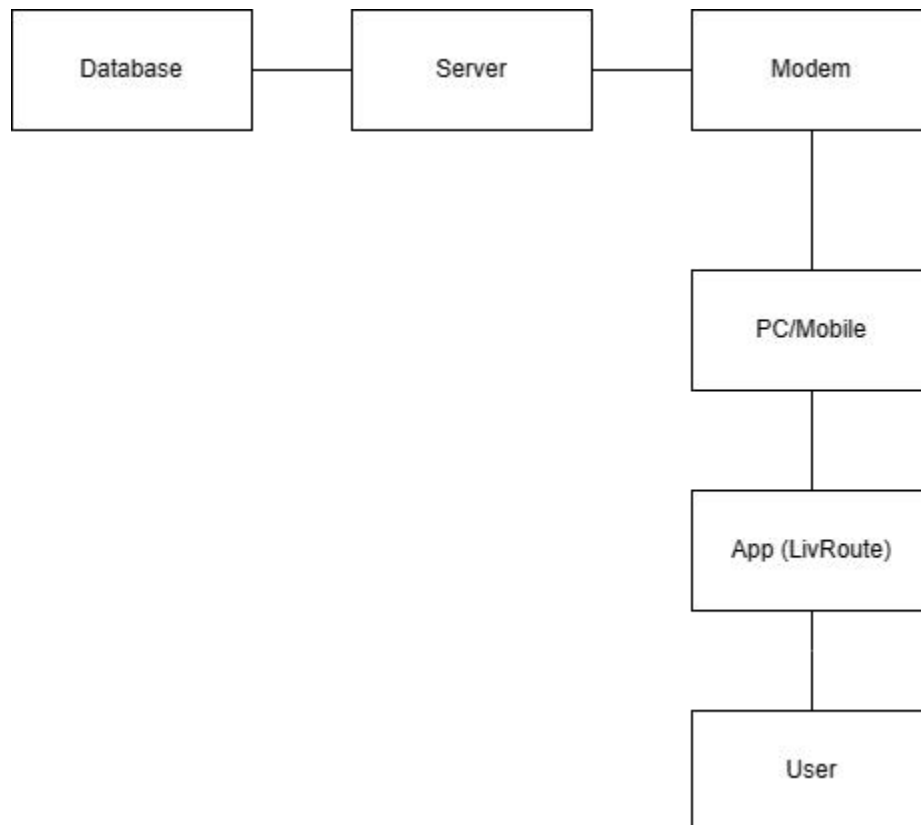
Timeline / Gantt Chart:

Steps	First Week	Second Week	Third Week	Fourth Week
Scope,Vision of the project	██			
Requirement of the Project	██			
Story Boards of the Project		██		
Use Cases		██		
UML Diagrams of the project			██	
Test Cases				██
Building of the prototype				██