Software Requirements Specification

For

Cab Rental and Sharing System with GPS Tracking

Version 1.0 approved

Prepared by:

Shubham Singh
(U101114FCS192)
NIIT University

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1. Introduction

1.1 Purpose

Due to high demand of cabs in the university, there is requirement of an app to streamline and improve the process and experience of booking a cab. The purpose of the application is to simplify and ease the process of booking, sharing, tracking, calculating the fare, cancelling and storing data of a cab ride. The app uses GPS to track the cab and this information is made available to the user. Through the app the users can also cancel bookings and it helps multiple users in sharing a cab by making the details of users with similar destinations.

1.2 Product Scope

The application is useful for students who need to use the cab service as it helps the students know the exact location of the cabs and greatly simplifies the process of ordering a cab by putting it in an android app environment the function is just a touch away. It helps the faculty and other staff by automatically recording the data of each journey which the university can use to accurately pay for the cab rides. It also helps users in sharing cabs and gives users exact amounts to be paid for a journey by using the per KM rate and the GPS tracking data.

1.3 Intended Audience and Reading Suggestions

The software is made in such a way that even novice users and people alien to the environment can easily use it and learn to use it. The functions have been made simple to follow.

1.4 Document Conventions

The main interest of this document is the Overall topics of the app and the problems faced by the user.

1.5 References

- http://www.cse.chalmers.se/~feldt/courses/reqeng/examples/srs_example_2010_group2.pdf

- IEEE Std. 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.
- http://www.microtoolsinc.com/Howsrs.php

2. Overall Description

2.1 Product Perspective

The software works on similar lines along existing software. The app acts as a means of communication between the driver, user, and guard and a way for the admin to monitor all the cab rides. It allows user to book a cab and track the ride after it has been booked. It also allows for related fare calculation.

2.2 Product Functions

- Automates cab booking process.
- User can book/share cab through it.
- Allows user to share the details of the destination if user wants to share a cab with other users.
- SMS are automatically sent to driver and user from time to time alerting them of fare and location of cab etc.
- The app uses GPS to track location of vehicle and length of journey.
- Notifications for sharing of cabs and alerting of people with similar destinations.

2.3 User Class and Characteristics

Faculty –Since the faculty requires frequent use of cab service and the fare and KMS completed need to be recorded for official purposes the app can act as a means for the university to easily and accurately pay for the cab rides taken by the faculty. Also faculty can reach destination without delay by ordering taxi 30 mins before and the cab will reach just

on time. Also the process of signing in and out can be automated with the help of the app.

Students – This app will make travel very easy for students by automating the entire process and making sharing and booking cabs very easy.

2.4 Operating Environment

Minimum System requirements for Cab booking app –

- Hardware Requirement- GPS Enabled Smartphone.
- Operating System – Android (4.0 or higher)
- GPRS Data plan

2.5 Design and Implementation Constraints

Synchronization – Works with USB (2.0) charging port only, and connects to only Android (4.0 or above).

Internal Memory – The device should have at least 2GB of internal memory with 200mb of free space available

The app requires the device to have at least 1GB of RAM for proper functioning.

No external memory (like SD Card slot) is required as the app will have all of its data on the internal memory.

2.6 Assumption and Dependencies

The app is meant to work with any third party map software such as Apple maps but due to secure framework and user friendly nature of it, Google maps is preferred.

It will require a minimum of 512Mb RAM and minimum Android version 4.4

2.7 User Documentation

We are going to provide an online tutorial integrated with in the app in which will tell them how to use the App. The instructions for this for the app will be self-explanatory so we don't need any manual for explaining the working of this portal.
Moreover, a hard copy of the user manual with tutorial on how to use it will be provided to the customer so that they can function it smoothly.

3. External Interface Requirements

3.1 User Interfaces

- Cab Delay Alert Service.
- Alert to all users going on similar route to share a cab if they have selected share option.
- Mic icon will allow for easy access to send voice messages to guard and drivers.
- One click icon to see location of cab

3.2 Software Interfaces

All communications to and fro driver guard and user will go through server. Location logs will be kept on a server and only admin will have authority to view past location logs and delete them.

3.3 Communication Interfaces

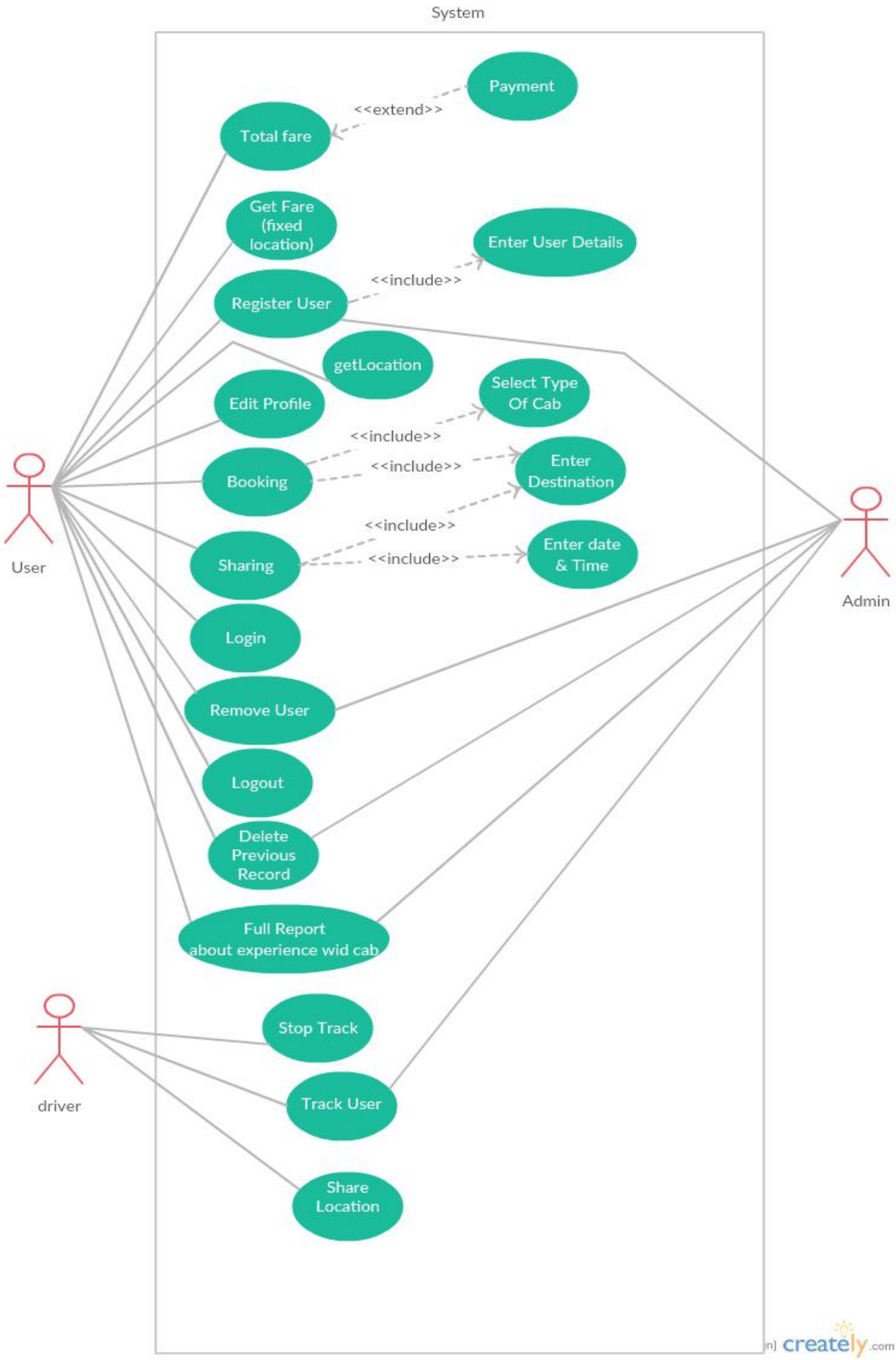
Email is necessary for user to sign up for the service. Each user should have unique mobile number associated with Email id. App will also need access to GPS and notification authority.

3.4 Hardware Interfaces

This app is meant for Smart Phone users with working 3G connection. The app needs access to phones GPS and user has to give app permission to send notifications and use mic also.

4. System Features

- This system should allow user to book or share a cab.
- This system should allow user to enter the number of kilometer he has travelled.
- The system should provide current location of the cab being tracked at request.
- The system should log position of the cab being tracked at a fixed interval of time.
- The system should let admin to delete or edit location log.


System
Payment
<<extend>>
Total fare
Get Fare (fixed location)
Enter User Details
<<include>>
Register User
getLocation
Edit Profile
Select Type Of Cab
<<include>>
Booking
<<include>>
Enter Destination
<<include>>
Sharing
<<include>>
Enter date & Time
Login
Remove User
Logout
Delete Previous Record
Full Report about experience wid cab
Stop Track
Track User
Share Location
User
Admin
driver
creately.com

4.1 Functions

4.1.1 Total fare (UC1):
Total cost for a journey will be calculated by providing current location and destination.

4.1.2 Get Fare (UC2):
Total Fare for predefined location will calculated.

4.1.3 Register User (UC3):
User will need to register himself on the App. Admin has authority to accept the registration of user.

4.1.4 Get Location (UC4):
This function will allow the user to get/track the current location of the cab.

4.1.5 Edit Profile (UC5):
User can edit their profile and update information any time they want.

4.1.6 Booking (UC6):
After checking the availability of the cab the customers books a cab or number of cabs according to their requirements.

4.1.7 Sharing (UC7):
If a user want to share a cab with other students/faculty, he will provide details (time of departure, location, type of cab) and a notification will be sent to other app users. If other want to share they will contact user. User can also check for sharing if some other person is willing to share.

4.1.8 Login (UC8):
Every user need to login into their account to start booking/sharing cab or to track the location of the cab.

4.1.9 Remove User (UC9):
User can delete his account if he doesn't need facility. Admin has authority to delete user account, from the server.

4.1.10 Logout (UC10):
User will have option to log out himself after completion of his task.

4.1.11 Delete Previous Record (UC11):
Allows admin and user to delete logged entry.

4.1.12 Full report about experience wid cab (UC12):
Allow the user to give feedback about their experience with cab and the Driver. They can also complain to admin about something they didn't like.

4.1.13 Stop track (UC13):
This function will allow User to stop tracking.

4.1.14 Track User (UC14):
This function will allow driver and admin to track user.

4.1.15 Share Location (UC15):
Driver will share their location with guard/user.

4.1.16 Payment (UC16):
After booking the required cab, the customer can pay the amount in advance or after reaching to the destination.

4.1.17 Enter User Detail (UC17):
App user will have to provide their details while making their id and while booking the cab.

4.1.18 Select Type of Cab (UC18):
User can choose from different type of cabs available depending upon their necessity.

4.1.19 Enter Destination (UC19):
User can input their destination and they can see their distance from current location.

4.1.20 Enter Date & Time (UC20):
For advance booking of a cab user will have to provide date and time (when they would like their cab to arrive). For same day booking then only time would be required.

4.2 Functional Requirements Table

Requirement Id	Short Name	Description
RQ1	User Profile	**RQ1.1 Enter User Detail:** App user will have to provide their details while making their id and while booking the cab. **RQ1.2 Edit Profile:** User can edit their profile and update information any time they want.
RQ2	Sign Up Phase	**RQ2.1Register a User:** User will need to register himself on the App. **RQ2.2Remove User:** User can delete his account. Admin has authority to delete user account, from the server.
RQ3	Login Phase	**RQ3.1Login:** Every user need to login into their account to start booking/sharing cab. **RQ3.2Log out:** User will have option to log out after completion of his task.
RQ4	Cab Booking	**RQ4.1Booking:** After checking the number of cab available the customers books a cab according to their requirements. **RQ4.3Enter Date &Time:** If user wants to book a cab, they have to provide date and time. **RQ4.4Select type of Cab:** User can choose from different type of cabs available. **RQ4.5Enter Destination:** User can input their destination and they can see their distance from current location.
RQ5	Cab Sharing	**RQ5.1Sharing:** If a user want to share a cab with other students/faculty they can provide their details. If other want to share they will contact user. **RQ5.2Enter Date &Time:** If user wants to book a cab, they have to provide date and time. **RQ5.3Enter Destination:** User can input their destination and they can see their distance from current location.
RQ6	Payment Option	**RQ6.1Payment:** After booking the required cab, the customer can pay the amount in advance or after reaching to the destination. **RQ6.2Total Fare:** Total cost for a location will be calculated using per km rate. **RQ6.3Get fair:** Total Fare for predefined location will calculated. **RQ6.4Full report about experience wid cab:** User can give feedback after the journey.

RQ7	Tracking Phase	**RQ7.1Share Location:** Driver will share their location with guard/user. **RQ7.3Stop Track:** This function will allow user to stop tracking. **RQ7.5Track User:** This function will allow driver and admin to track use **RQ7.6Delete Previous record:** Allow admin and user to delete logged entry.

5. Other Non-Functional Requirements

Non-functional requirement ID	Non-functional Requirement	Description
NR1	Performance Requirements	It is available during all 24 hours. Offered through Air conditioned or non-Air conditioned Cabs. About 20 cabs run daily. Types of concerns and complexities: Special 10% discount is given to corporate customers for their advance monthly bookings.
NR2	Safety Requirements	Privacy issue may occur. Only user who has booked the car will be able to track it. The user will sent the request to driver for tracking his location.
NR3	Security Requirements	Security attempts to verify protection mechanism built into a system will in fact protect it from improper penetration. Security is provided for each user by giving them login name and password. Security was done, as any other anonymous user can't log in with a user password if the user is already logged in.
NR4	Software Quality Attributes	This app has an additional feature that allow user to enter the no. of kilometres travelled manually, which will help the organization to get exact number and there will be no case of discrepancy.

NR5	Business Rules	The admin will play the most vital role. He will be responsible for maintaining the database and then using them further. We'll use 3rd party application to use map, we'll need to take the rights to use that.

6. Other Requirement

We need to maintain a database to store all our records.
We need to seek the permission of the respective company to use their GPS services.