

Smart Parking Business Use-Case Specification:

Version <0.1>

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| Smart Parking | Version: <0.1> |
| Business Use-Case Specification: | Date: <10/04/2016> |
| <document identifier> | |

Revision History

| Date | Version | Description | Author |
|---------------|---------|-------------|---------------------------|
| 10 April 2016 | <0.1> | First draft | Anjali,Ayush, Yashasvi |
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| <Project Name> | Version: <1.0> |
| Business Use-Case Specification: <Business Use-Case Name> | Date: <dd/mmm/yy> |
| <document identifier> | |

Table of Contents

| | | |
|-----|---|---|
| 1. | Introduction | 4 |
| 1.1 | Purpose | 4 |
| 1.2 | Scope | 4 |
| 1.3 | Definitions, Acronyms and Abbreviations | 4 |
| 1.4 | References | 5 |
| 1.5 | Overview | 5 |
| 2. | Business Use Cases | 6 |
| 2.1 | Register | |
| 2.2 | Log-in | |
| 2.3 | Log out | |
| 2.4 | Account | |
| 2.5 | Booking | |
| 2.6 | Cancellation | |
| 2.7 | Recharge | |
| 2.8 | Feedback/Complaint | |

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| <Project Name> | Version: <1.0> |
| Business Use-Case Specification: <Business Use-Case Name> | Date: <dd/mmm/yy> |
| <document identifier> | |

Business Use-Case Specification:

1. Introduction

A Web Based application for an efficient parking experience with additional features of e- payment and navigation. Use of smart phones to solve major parking problems the university. It is **very useful for new comers** for navigation: A Map of the area with turn by turn directions is provided. Less hassle, stress for users by saving time parking and focusing on the actual reason of visit to the campus. The visitors in the university will be able to book a parking slot prior to their arrival for saving time and having a pleasant parking experience.

1.1 Purpose

Parking management influences drivers search time and cost for parking spaces, parking revenue, and traffic congestion. The parking authority needs to monitor the state of each parking space in real time and optimize the parking management. The proposed reservation- based parking policy has the potential to simplify the operations of parking systems, as well as alleviate traffic congestion caused by searching for parking.

1.2 Scope

- 1.2.1 The basic scope is that the application reaches to the very base consumer that is, the person who is not very technology friendly.
- 1.2.2 GPS, Google maps, third party application for safe transactions is used.
- 1.2.3 To provide complete satisfaction and to ease the trouble that is caused now a days because of heavy congestion .To provide a long term parking solution for user and operators.

1.3 Definitions, Acronyms and Abbreviations

| | |
|------------------------|---|
| Administrator | The person governing all bookings and other related activities. |
| Regular user | Everyday customer who visits the campus almost daily. |
| One time user/New user | A guest to the campus who visits the campus only once or occasionally. |
| Parking Administrator | The person at the entry/exit gate who keeps a track of the cars parked and available slots. |

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|--------------------------------|--|
| GPS(Global Positioning System) | It is a space base navigation system that provides location and time where there is a un obstructed line of sight to four or more GPS satellites. |
| Maps | It is a desktop web mapping service ,it offers satellite imagery ,street maps,360 panoramic views ,real time traffic condition , and route travelling by foot ,car, bicycle or public transportations. |
| Information Security Analyst | A person who monitors the authentication procedure and looks after the security of user and parking data. |
| Database Manager | The database manager looks after all the databases and various operations like add,delete,update,rollback,commit. |
| Unregistered User | A user without an account in the database. |
| Third Party Application | A third party transaction is a business deal involving a buyer, seller and a third party. The third parties involvement varies with the type of business transaction. |

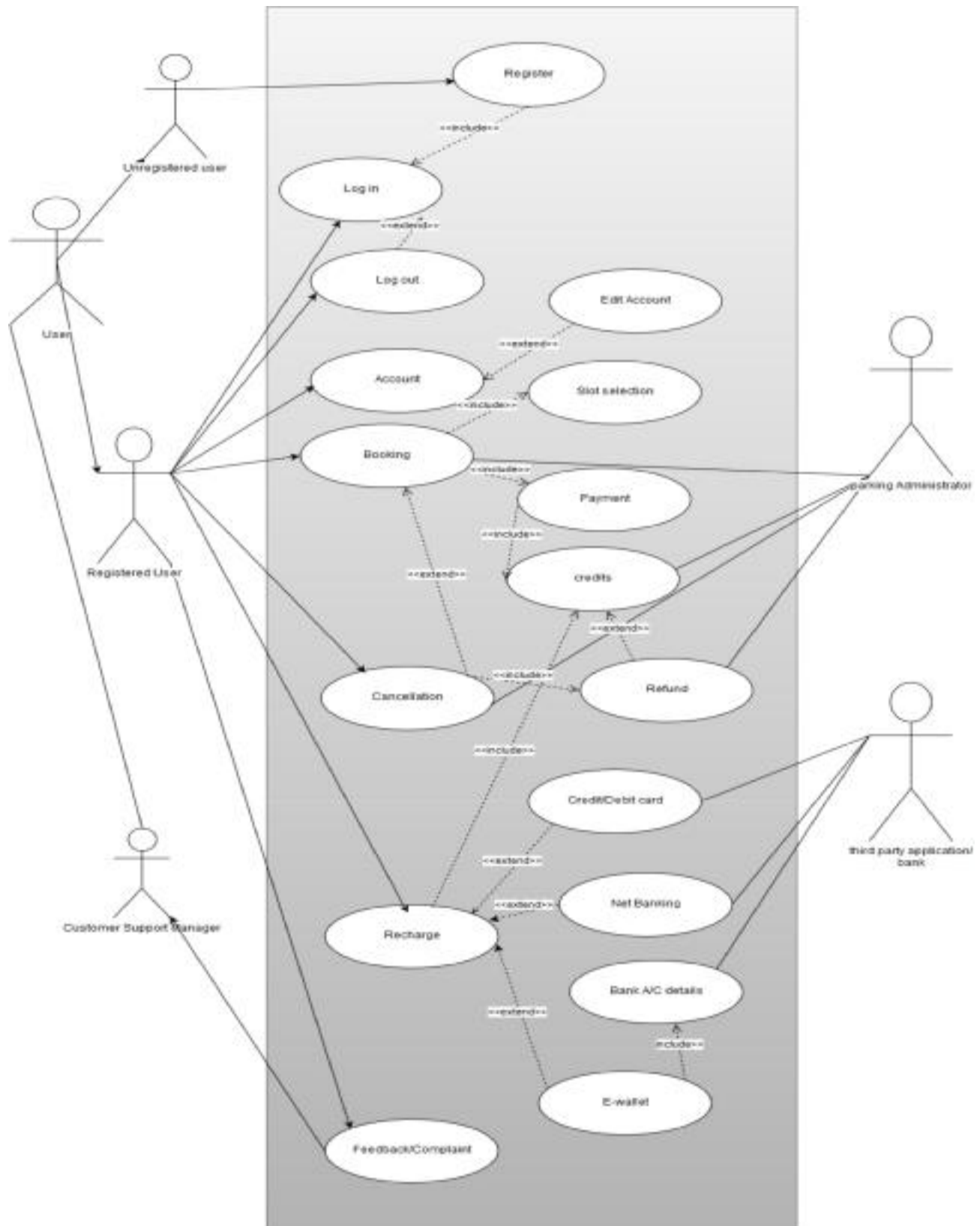
1.4 References

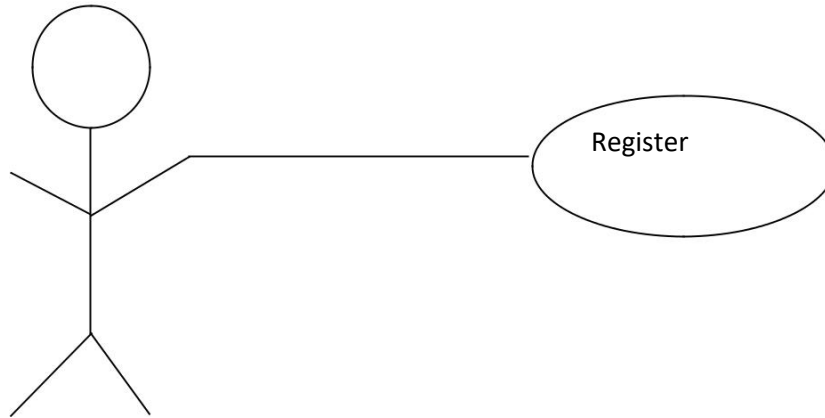
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1.5 Overview

The document describes all the use cases from a business perspective where the interaction of the user with the application is described. Each use case is assigned a priority level,risk and status. The various functionalities along with the work flows is also described.

Business Use Cases:



Use Case Name: Register

Unregistered User

Use case Identifier: UC 01

Actor: Unregistered User

Summary Description: The user creates a new account in order to book parking slot.

Priority: Must Have

Risk Level: High

Status: High Level

Pre-Condition:

1. The user has entered the URL for accessing the application.
2. The home page is displayed where the user selects the “Register” option.

Post- Condition:

1. The user has registered.
2. The user can now log-in and book a parking slot.

Basic Path:

1. The user clicks on Register.
2. The registration form is displayed.
3. The user enters his information (name ,car number ,phone number,e-mail ID,password)
4. The user enters captcha to verify he is not an artificial body.
5. The user clicks on submit option.
6. A new account is now created in the database.
7. The user gets a confirmation message on the registered mobile number.

SmartParking

8. The user is then redirected to the log in page.

Alternative Paths: (identified only)

2.a: The user closes the application and decides not to register.

2.b: The user register himself through instead he directly logins from his google or facebook id

5: The registration details are invalid, the empty form is redisplayed.

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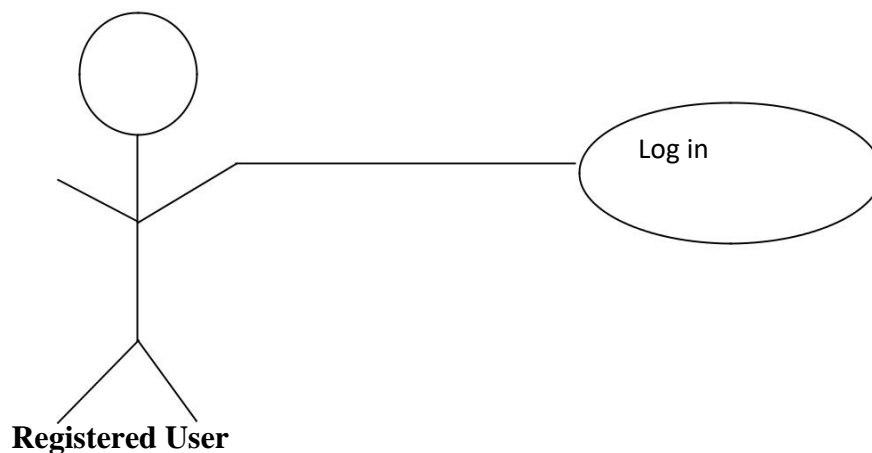
Business Rules: (identified only)

- The name must be only in characters(No numbers or special characters)
- The car no. must be correct format.
- The mobile number must be of 10 digits.
- The e-mail ID must be in the defined format of a valid domain name.
- The number of cars must not be more than 3.

Non-Functional Requirements:

- Performance: The form must be fetched quickly.
- Throughput: The database must updated quickly with the new record.
- Response Time: The user gets the response from the system in the given time.
- Security: The new entries must be secure from un-authenticated access.

Use Case Name: log in



Use case Identifier: UC 02

Actor(s): Registered User

Summary Description: A registered user logs into his account.

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Priority: Must Have

Risk Level: High

Status: High Level

Pre-Condition:

The user has registered .

Post- Condition:

The user is taken to his account

Basic Path:

1. The user clicks on the log in option in the homepage which takes him to the log-in page.
2. The user enters the Registered Mobile Number and Car number .
3. Log-in button is clicked.
4. On successful login,user is taken to his account
5. If the authentication is successful the user is taken to his account.

Alternative Paths: (identified only)

4. a. The user enters wrong authentication details, the home page is redisplayed with an error message.

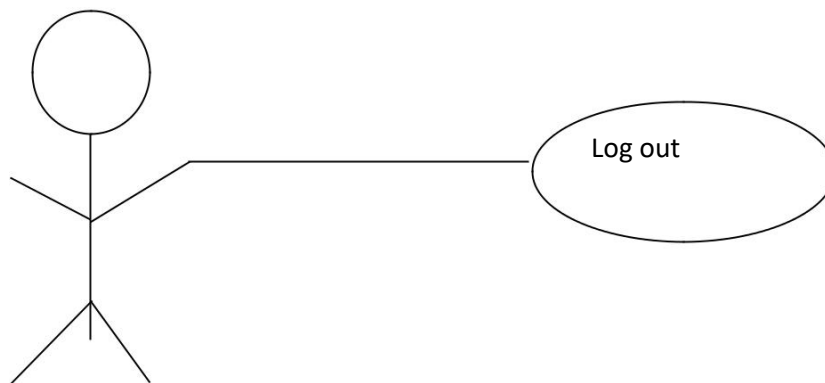
Business Rules: (identified only)

- The log in ID must be same as the values in the database.
- The password must match with record values.

Non-Functional Requirements:

- Performance: The user session must begin immediately with no delay.
- Throughput: The database must match the ID and password within the response time.
- Security: Unauthenticated access must be denied.

Use Case Name: Log out



Registered User

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Use case Identifier: UC 03**Actor(s): Registered User**

Summary Description: The user will logout from the application after filling the details or after checking the details or after booking the parking slot.

Priority: Medium

Risk Level: High

Status: Medium-level

Pre-Condition:

The user has logged in.

Post- Condition:

The user is taken to his account

Basic Path:

1. The user clicks on Log out option.
2. The user then confirms his decision to log out.
3. The session is closed.
4. The user reaches the home page.

Alternative Paths: (identified only)

- 2.a. The user closes the application and decides to logout after use.
- 3.a. When we have internet connection problem.

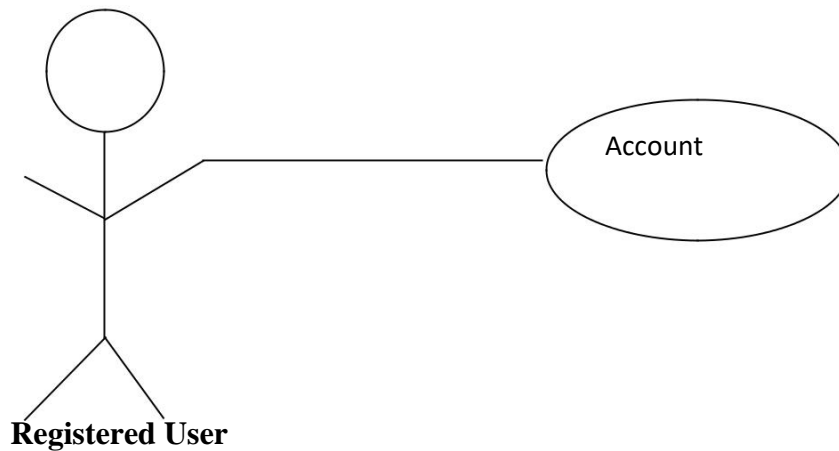
Business Rules: (identified only)

The log out must not fail abruptly: The user must be notified if an error occurs.

Non-Functional Requirements:

- Performance: The user session must close immediately with no delay.

Use Case Name: Account



Use case Identifier: UC 04

Actor(s): Registered User

Summary Description: The user will visit his current account or it will make changes in it.

Priority: High

Risk Level: High

Status: High-level

Pre-Condition:

The user has logged in.

Post-Condition:

The user can now proceed to the next step either booking, recharge or log out.

Basic Path:

1. The user clicks on account.
2. The application will show the profile of the user.
3. The user will view his account.
4. The user can edit his account by clicking on edit option against the field to be edited.
5. The user then confirms his edition.
6. Then he is redirected to the main account page.
7. The user can go to feedback.
8. The user can book the parking slot.

Alternative Paths: (identified only)

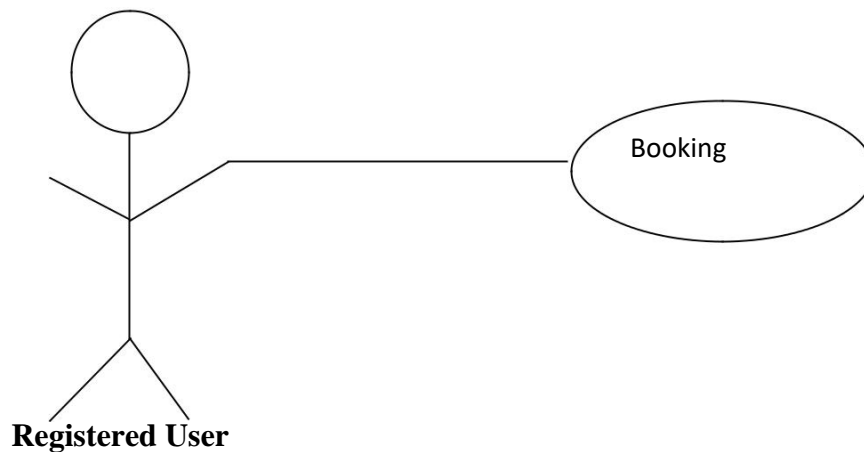
The user can directly proceed to booking instead of viewing its account.

Business Rules: (identified only)

- While editing
 - The name must be only in characters(No numbers or special characters)
 - The car no. must be correct format.
 - The mobile number must be of 10 digits.
 - The e-mail ID must be in the defined format of a valid domain name.
 - The number of cars must not be more than 3.
 - The edited data must not be the same as the current data.

Non-Functional Requirements:

- Performance: The user session must close immediately with no delay.
- Reliability: The data updation must be reliable
- Response Time: The process must respond quickly within the given time.
- Security: The editing must be authenticated.

Use Case Name: Booking**Use case Identifier: UC 05****Actor(s): Registered User**

Summary Description: The registered user books a parking slot

Priority: High

Risk Level: High

Status: High-level

Pre-Condition:

The user has logged in.

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Post-Condition:

The user can now proceed to the next step either booking, recharge or log out.

Basic Path:

1. The user clicks on book a parking area
2. A map of the parking area is displayed along with indication of free and occupied slots.
3. The user selects a free slot and clicks on next.
4. The user enters the estimated arrival time.
5. The user is then taken to the payment page where the credits are deducted from the user's account.
6. The database Manager manages the parking and user databases while the booking procedure occurs.
7. If the transaction is successful then the slot is successfully booked.
8. The booked slot is now considered occupied.

Alternative Paths: (identified only)

The user can directly proceed to booking instead of viewing its account.

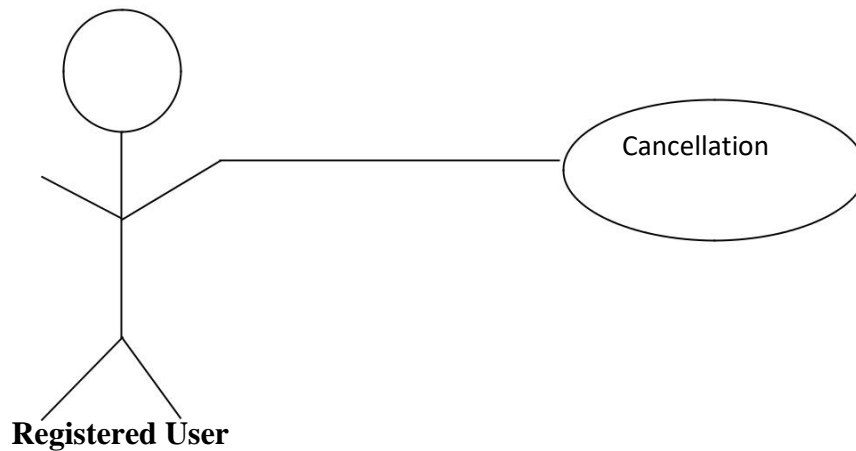
Business Rules: (identified only)

- The arrival time must not be before the current time.
- Booking can be done for the current day only.
- The user views his previous bookings and logs out.
- The user doesn't have sufficient credit so he moves to recharge.

Non-Functional Requirements:

- Performance: The user booking session must be active till the booking is done.
- Reliability: The data updating must be reliable.
- Response Time: The process must respond quickly within the given time.
- Security: The user details must be authenticated and secured.

Use Case Name: Cancellation



Use case Identifier: UC 06

Actors:

- Registered User
- Parking administrator

Summary Description: Once the booking is done, user can cancel its booking.

Priority: High

Risk Level: Medium

Status: High-level

Pre-Condition:

- The user will book the parking slot.

Post-Condition:

- The user has cancelled the booking.
- The record is updated accordingly.

Basic Path:

- The user clicks on cancel booking option.
- If he cancels the booking before parking slot time then user will get its refund.

Alternative Paths: (identified only)

- If the user doesn't confirm the cancellation then he is directed back to home page and no change is made in database.
- If the user cancels its booking after booking time slot then no refund will be given.

Business Rules: (identified only)

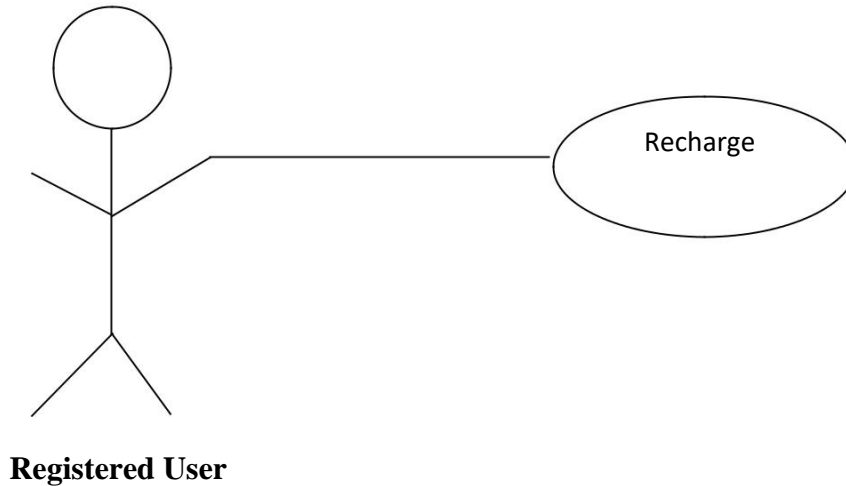
No refund is provided after the booking slot time.

Non-Functional Requirements:

- Reliability: The data updation must be reliable.
- Response Time: The process must respond quickly within the given time.

- Security: The user details must be authenticated and secured.

Use Case Name: Recharge



Use case Identifier: UC 07

Actor: Registered User

Summary Description: The user has to recharge his account to increase the credits available in the account.

Priority: High

Risk Level: High

Status: High-level

Pre-Condition:

The user has less credits in his account

At the time of booking the credits are less than the booking charge.

Post- Condition:

The user's account has been recharged.

Basic Path:

- 1.The user clicks on recharge account option.
2. The Third party application opens up.
3. The user selects the payment type: Cash, E-wallet, Credit/Debit card, Net banking.
4. If the payment type is cash, the user directly pays to the Parking Administrator.
Else the payment is guided by the third party application.

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5. After successful payment, the user's account gets credits based on the amount recharged.
6. A successful transaction message is displayed.
7. The user is redirected to the previous use case.

Alternative Paths: (identified only)

The user directly pays to the parking guard instead of using online payment procedure.

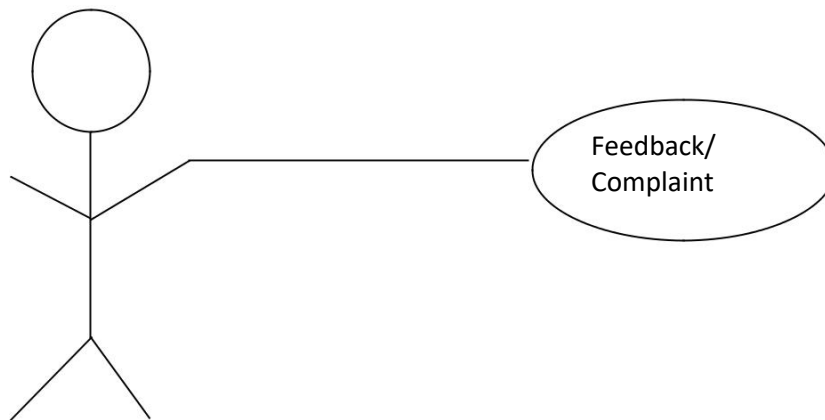
Business Rules: (identified only)

- Dealing with the third party application.
- The card details must be correct and in the correct form

Non-Functional Requirements:

- Performance: The user payment session must be active till the recharge is done.
- Reliability: The data uploaded must be reliable
- Response Time: The process must respond quickly within the given time.
- Security: The user details must be authenticated and secured .

Use Case Name: Feedback/complaint



Registered User

Use case Identifier: UC 08

Actors:

Registered User
Customer support manager

Summary Description: A user can share any feedback or report any issues

Priority: High

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Risk Level: low

Status: High-level

Pre-Condition:

The user has registered and used the application atleast once.

Post-Condition:

The user has submitted his Feedback/Complaint.

Basic Path:

1. The user clicks on Feedback.Complaint
- 2.The user is directed to the feedback/complaint page.
3. The user directly interacts with the Customer Support Manager .
4. The user types his Feedback/Complaint and submits it.
5. These user Complaints are handled by the Customer Support Manager

Alternative Paths: (identified only)

- 2.a.The user doesn't complete the form and press back button.

Business Rules: (identified only)

- The feedbacks should be seen time to time so as to improve the functionalities of the site .

Non-Functional Requirements:

- Response Time: The process must respond quickly within the given time.
- Performance: The form must be submitted and sent to the customer care support on time
- Reliability: the customer support manager must be available to handle the complaints and query.