



Accademic Year 2016/2017

POWER ENJOY

RASD Presentation
Politecnico di Milano
Software Engineering 2

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INTRODUCTION 1

- The goal of our project is to design and develop a digital management system for **car-sharing service**.
- This system employs exclusively **electric cars**.
- The system should provide classic functionality provided by generic car-sharing service, like car's **reservation** or **payment**
- User can **register** into the system (through APP or web) by providing personal information
- Through mobile application, registered user should be able to **find a car** within a certain distance from current location or from a specific address
- The system provides also the possibility to **reserve** a single car

INTRODUCTION 2

- Car-sharing system initiates the **charging of money** as soon as the engine ignites, and the system starts charging the user for a given amount of money per minute
- The user is **notified** of the current charges through a screen on the car
- The system **stops charging** the user as soon as the car is parked in a safe area and the user exits the car
- The set of **safe areas** for parking cars is **predefined** by the management system
- The system should **apply discounts** on the trips

ACTORS

- ✓ **Guest:** a guest is a person who is not registered in the system yet. He cannot use features of the system until he/she sign up.
- ✓ **User:** a user is a person that has already **signed up** into the system. When a user logs in, we consider him/her as a **LOGGED USER**. The logged user can take advantage of every features of our system, and depending on what his actions are he/she can be a **simple user** or a **driver**.

ASSUMPTION AND DEPENDENCIES 1

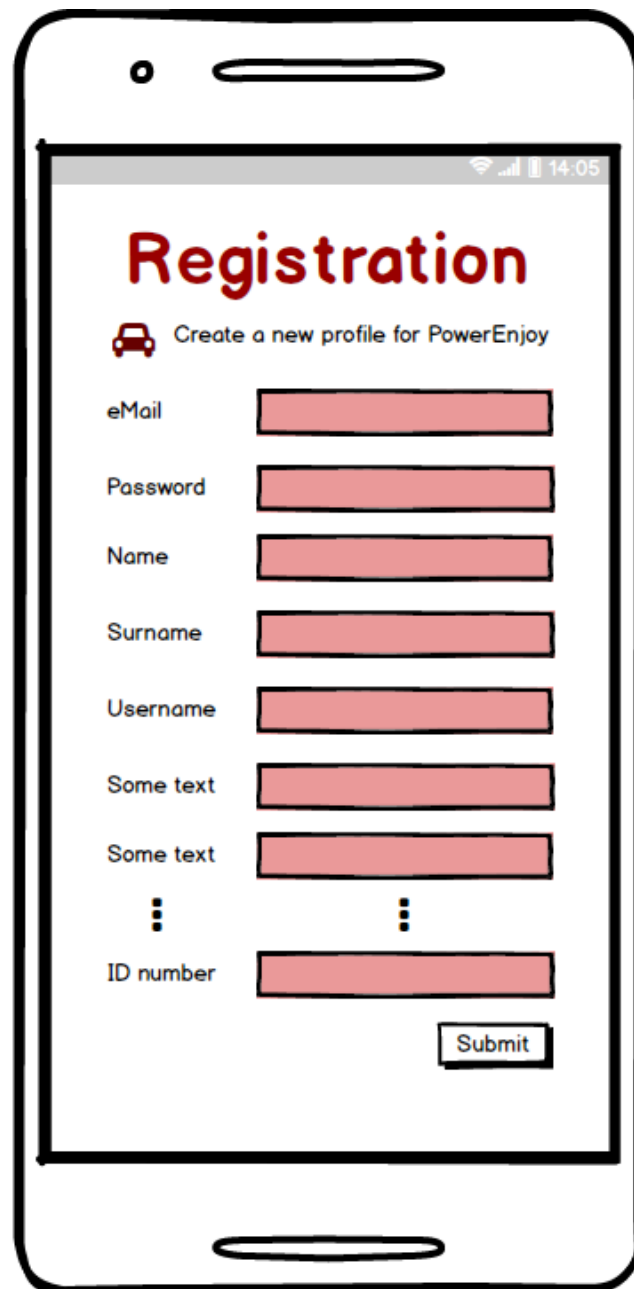
- We deliver **payment management to an external system**, that manages exceptions such as user without enough money for the payment.
- We assume that the **fee is immediately payed** as soon as the reservation expires
- The **payment of the trip** is made as soon as the user leaves the car. It's postponed whether user select the possibility to plug the car.
- Since “the user leaves the car” and “the user is near the car” are ambiguous, we assume that a user is near the car or is leaving it if the **distance** (calculated from the two **GPS**) between them is smaller/bigger than a certain amount.

ASSUMPTION AND DEPENDENCIES 2


- We assume that the **charging stations** are always perfectly **working** or eventually immediately repaired.
- Since we exactly know, thanks to Placemeter, how many people are actually in the car we assume **discount** of 10% will be **applied only to part of the trip** where the passengers were at least 2.
- We assume that if one car's charge is **less** than 5%, then it encourages the user to stop the trip as soon as possible. The car is **charged by an employee** of the system and then it's available again for the users.

MOCKUPS

► Registration and login



Registration

 Create a new profile for PowerEnjoy

eMail

Password

Name

Surname

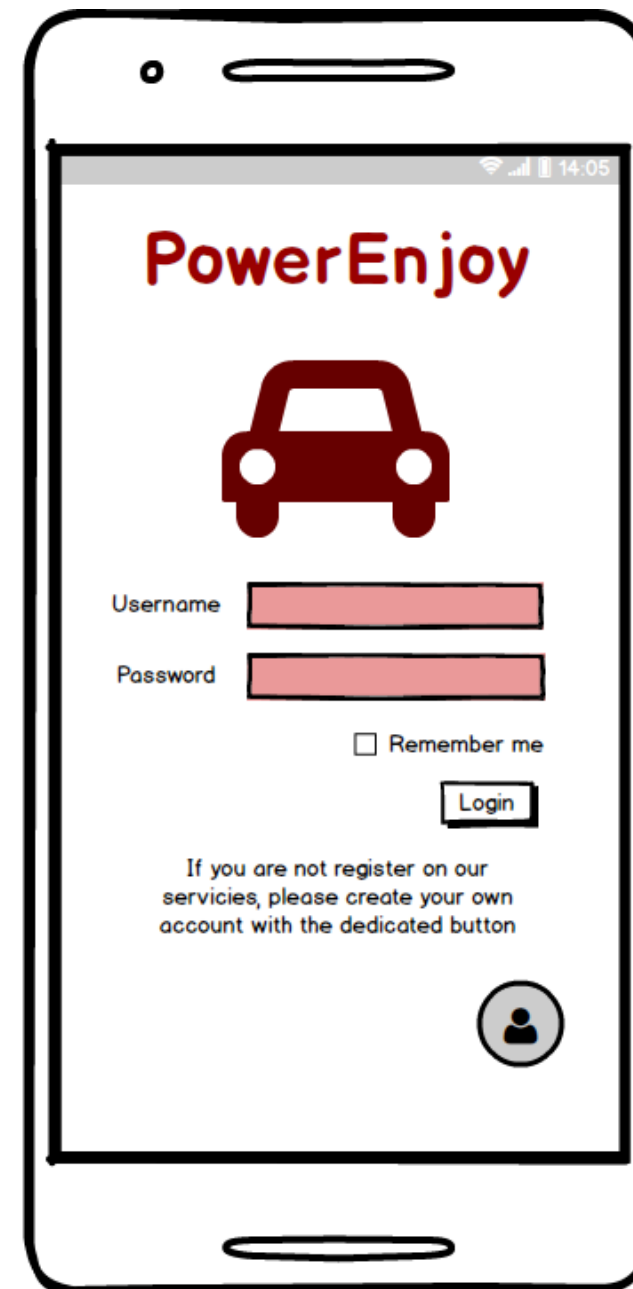
Username

Some text


Some text

⋮

ID number



PowerEnjoy




Username

Password

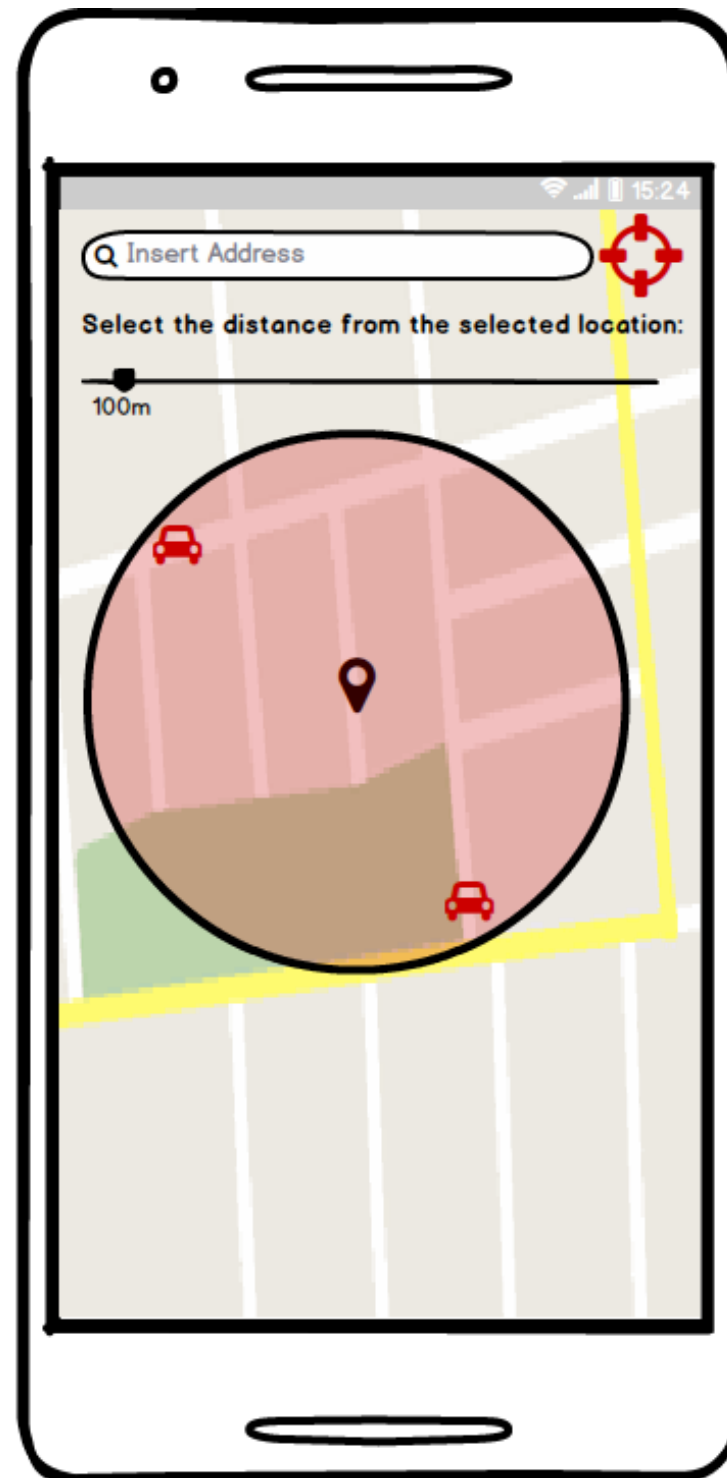
☐ Remember me

If you are not register on our
servicies, please create your own
account with the dedicated button



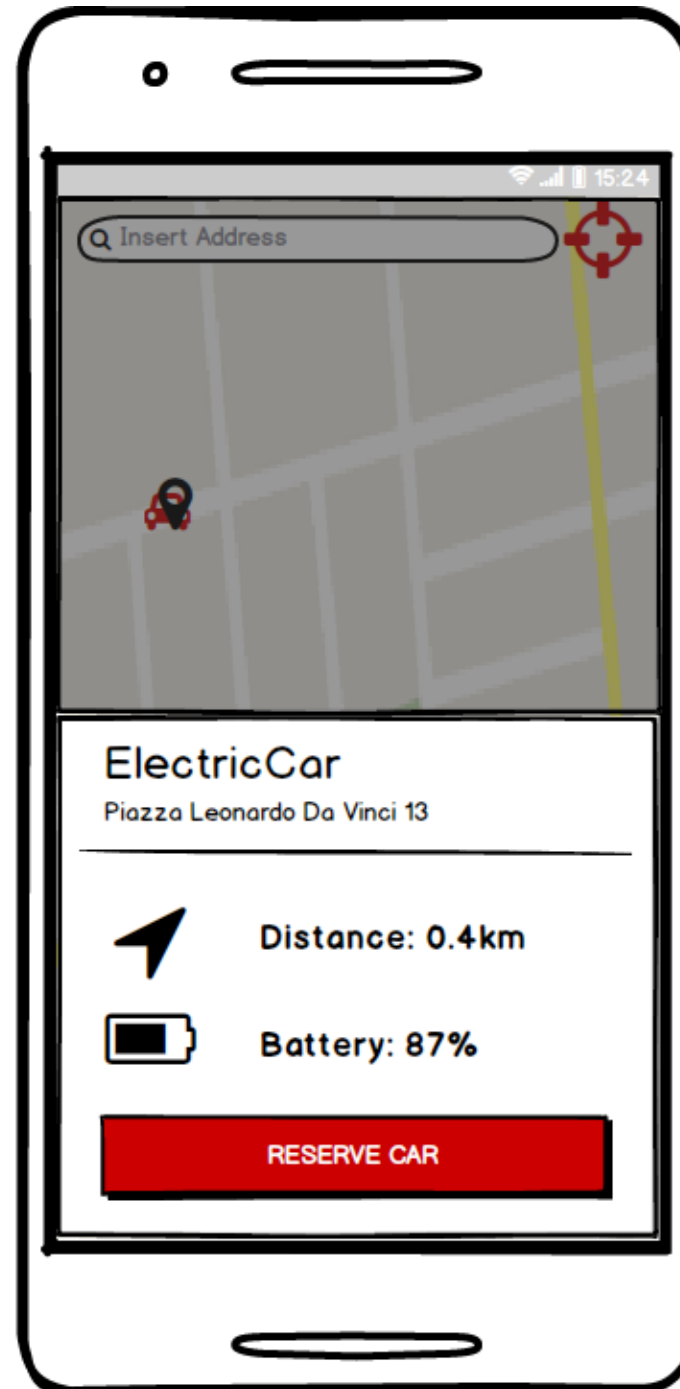
MOCKUPS

➤ Research a car



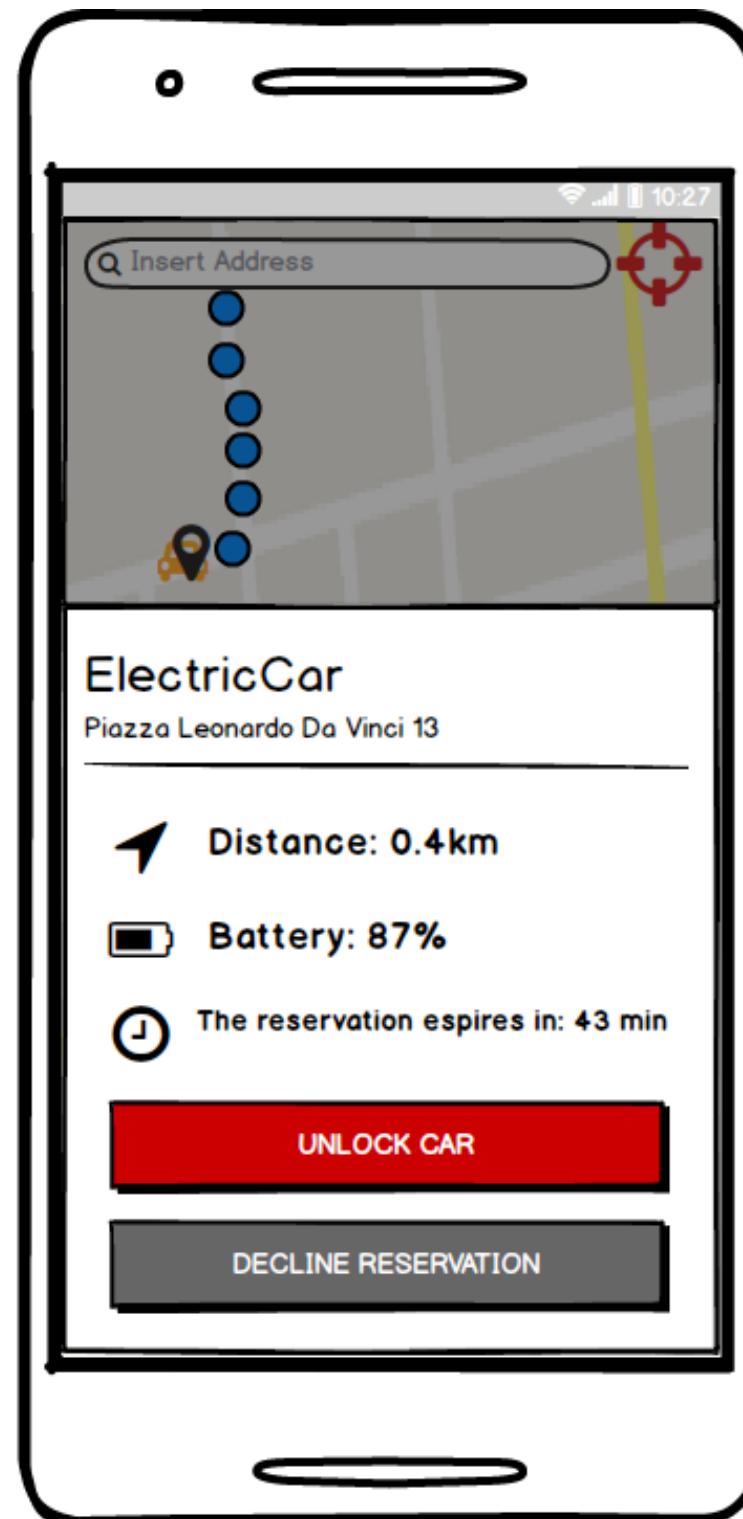
MOCKUPS

- Select a car, view status and reserve it



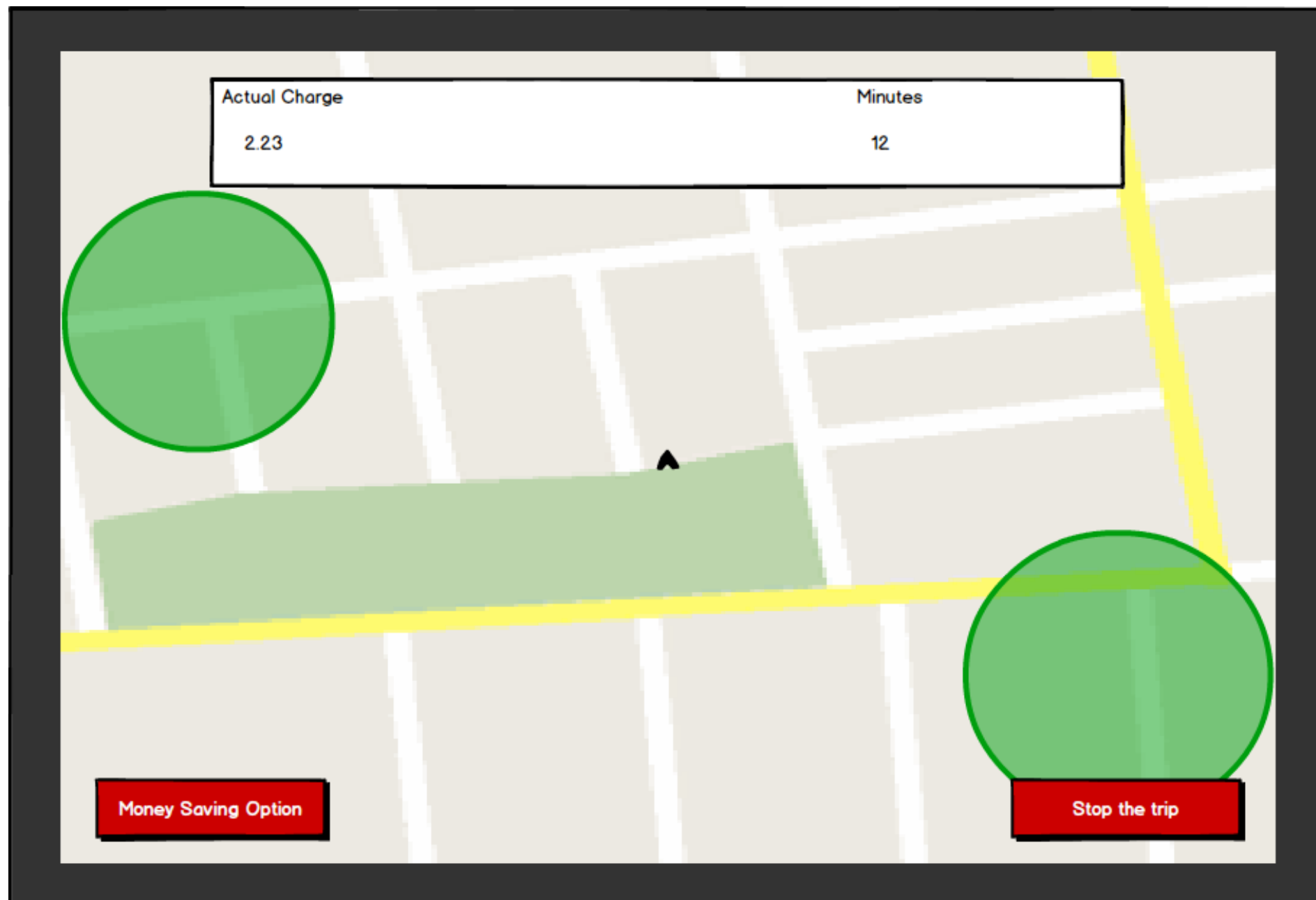
MOCKUPS

- Unlock the car



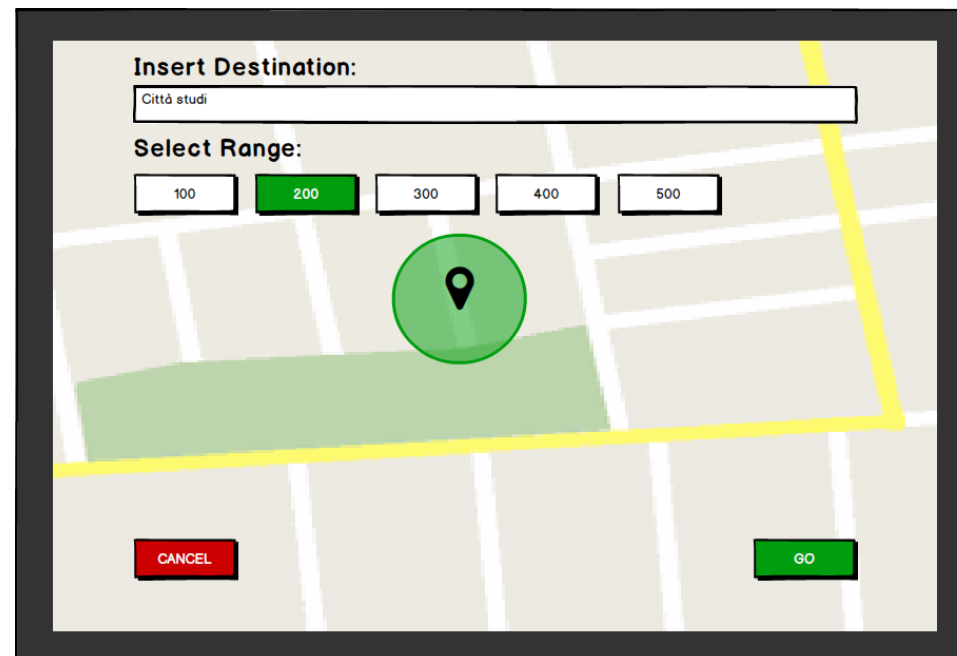
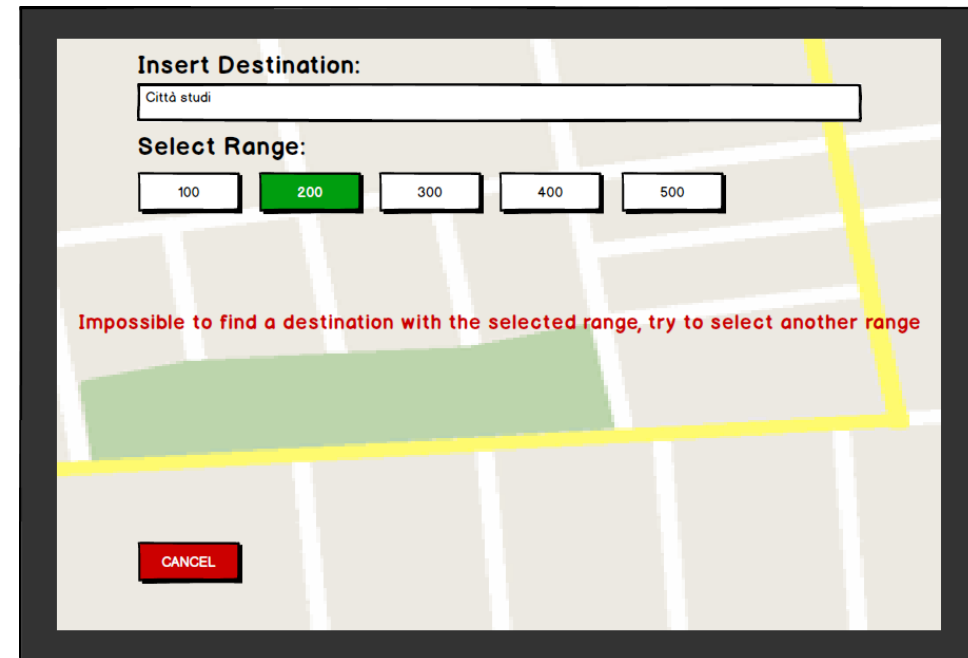
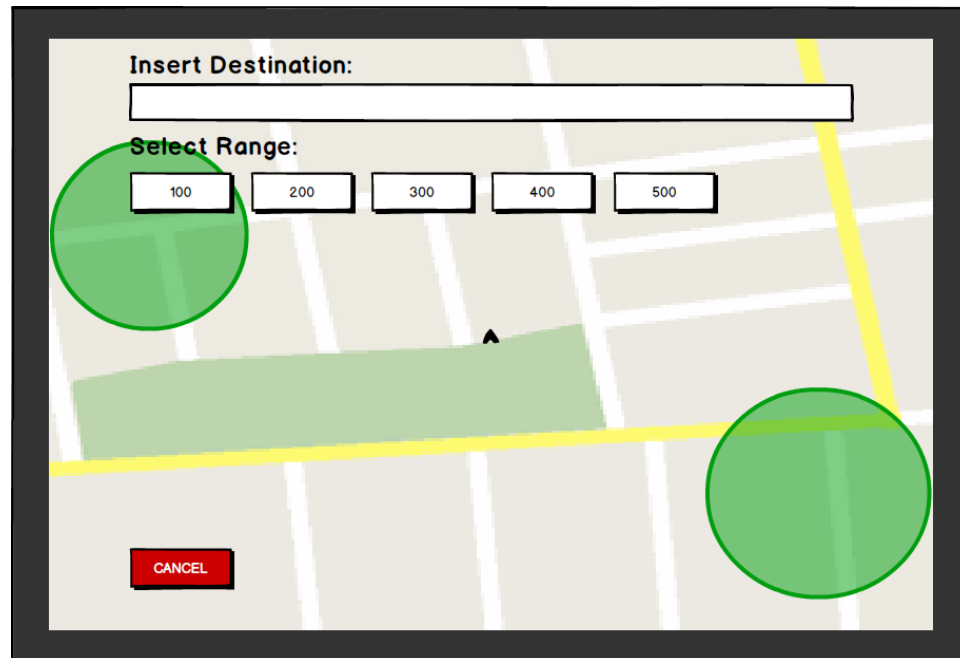
MOCKUPS

- View charge during the trip



MOCKUPS

► Enable “money saving” option



MOCKUPS

➤ Conclude the rent and pay

TRIP REVIEW

Total minutes:

23 m

Number of Kilometres:

4.2 Km

Bonus:

1. minimum 3 person in the car

-10%

✓

2. park near the charging station and user plug the car

-30%

✓

3. park with no less than 50% of battery

-20%

✗

4. park more than 3km away from charging station or less than 80% of battery

+30%

✗

5. money saving option

-30%

✗

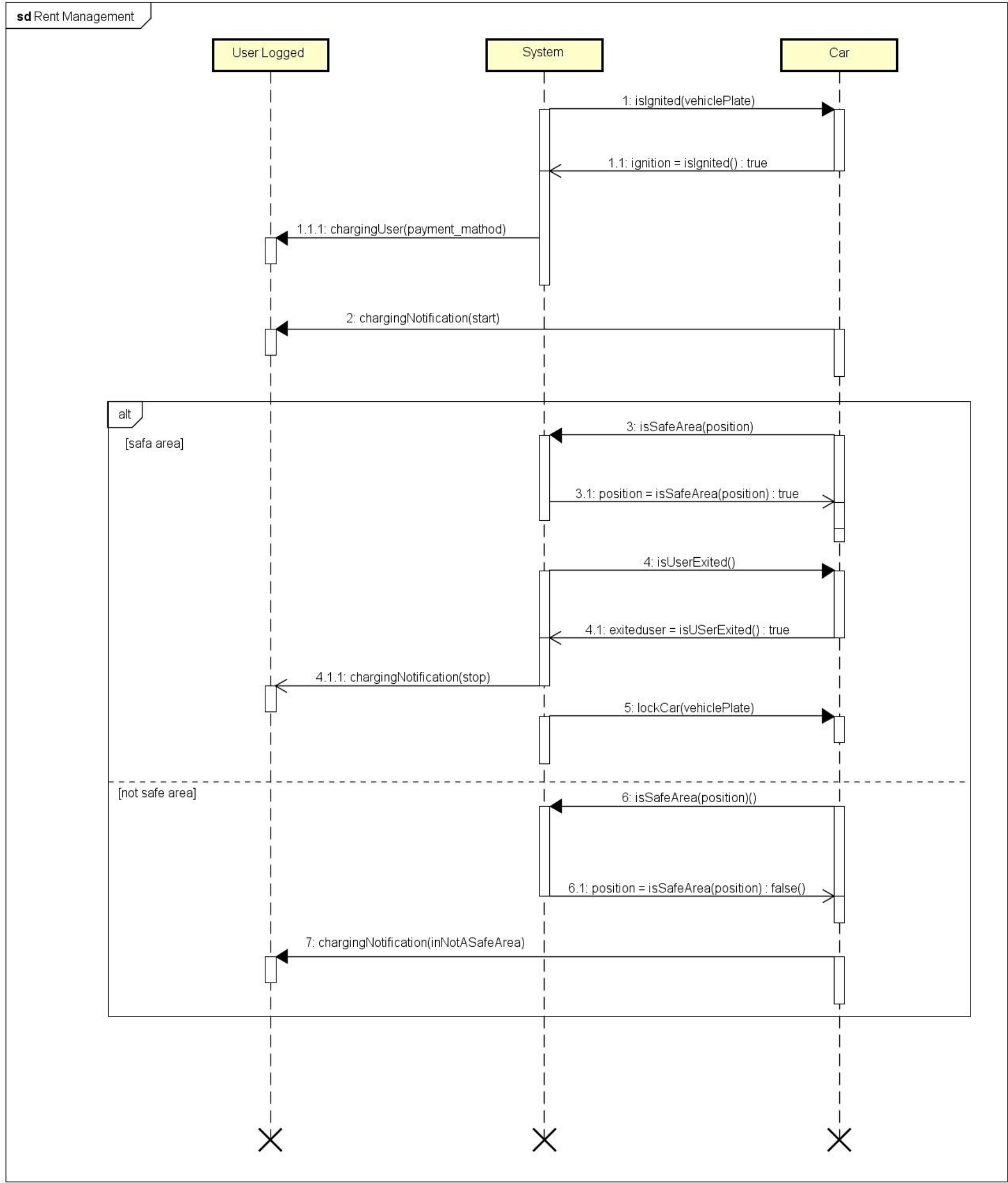
TOTAL:

5.6 €

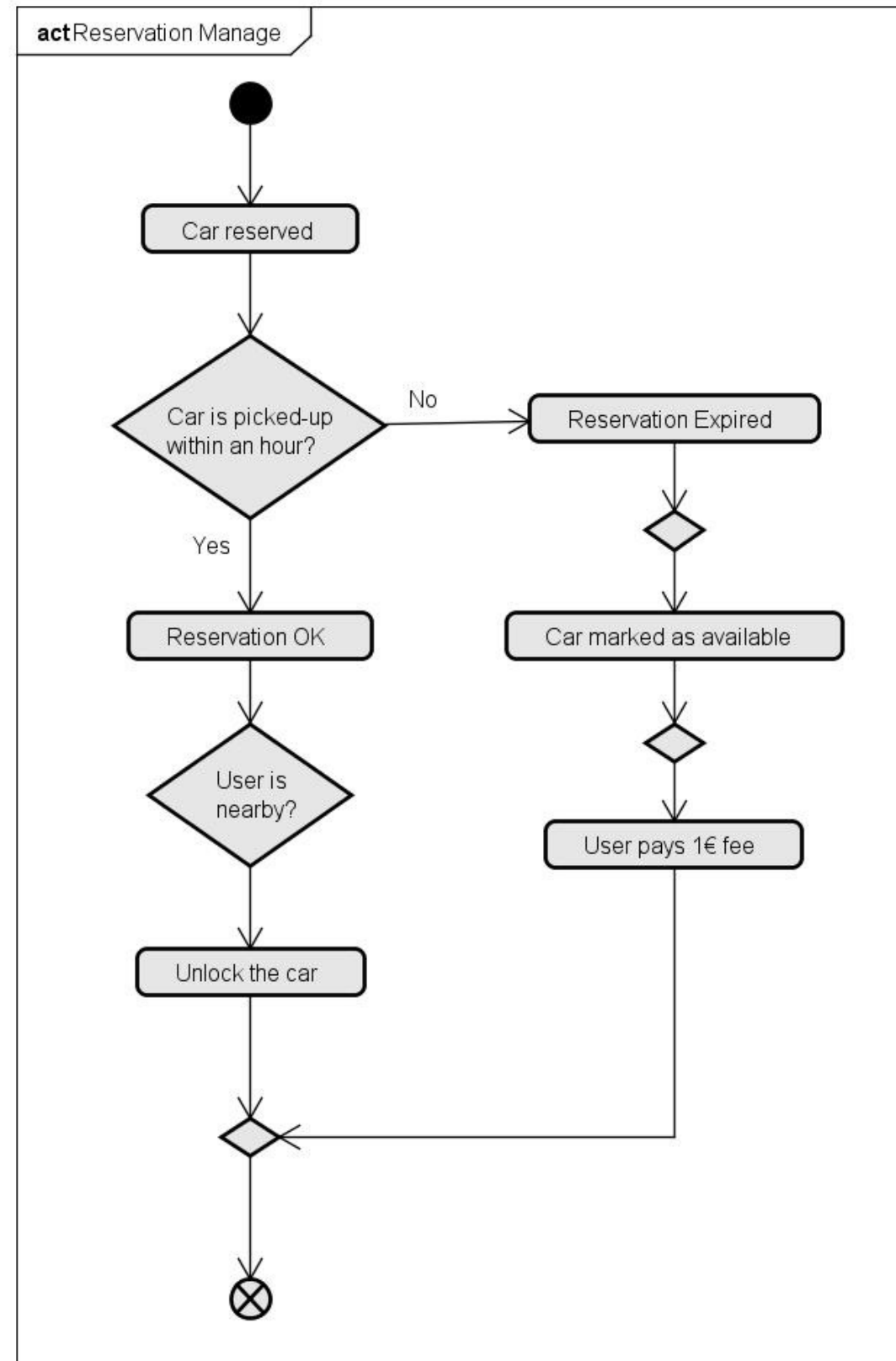
PLUG THE CAR

EXIT AND PAY

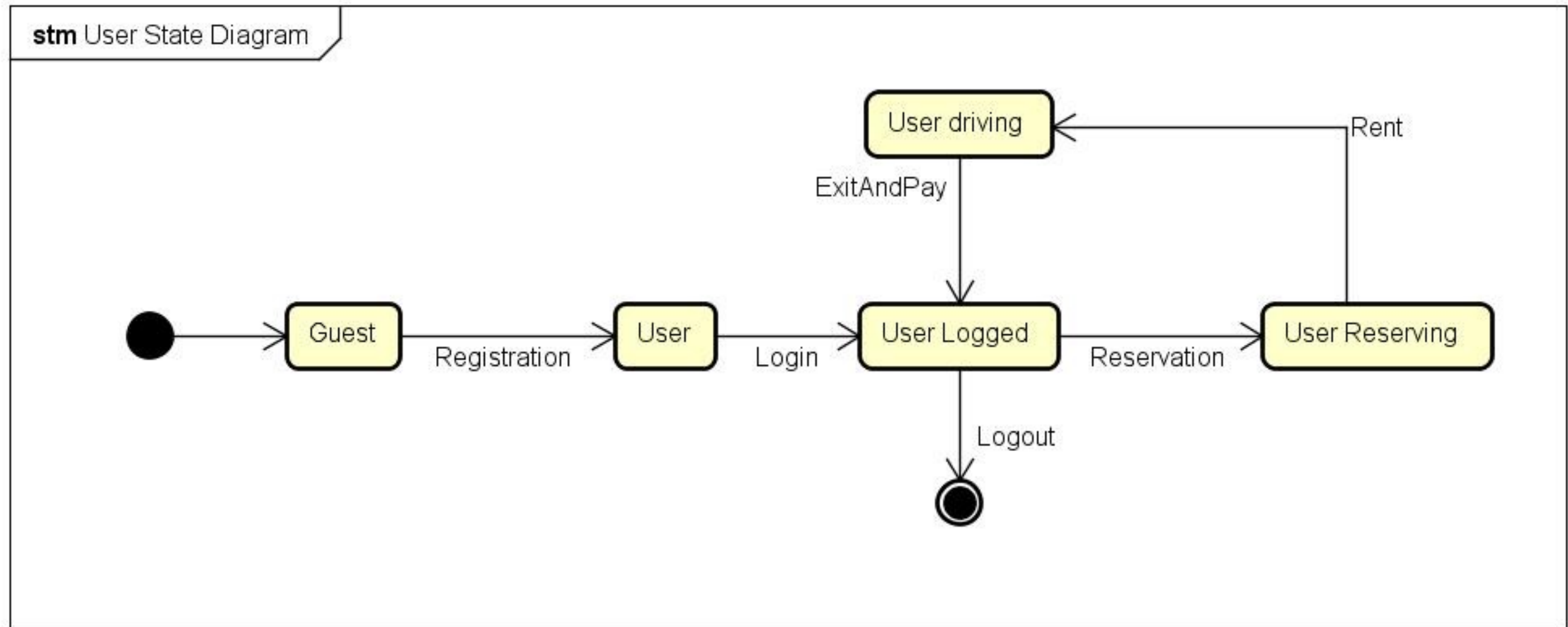
SEQUENCE DIAGRAM



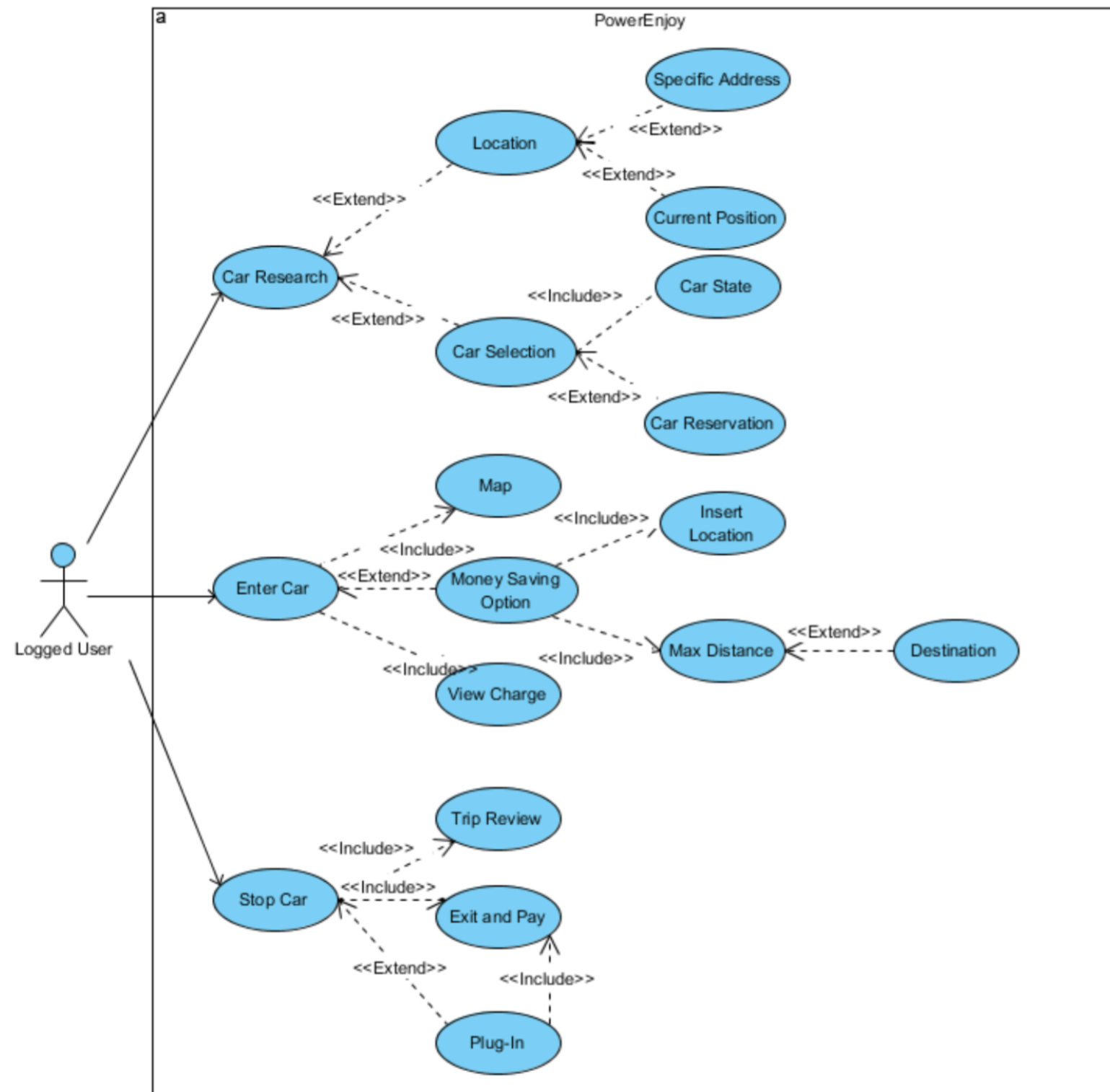
ACTIVITY DIAGRAM



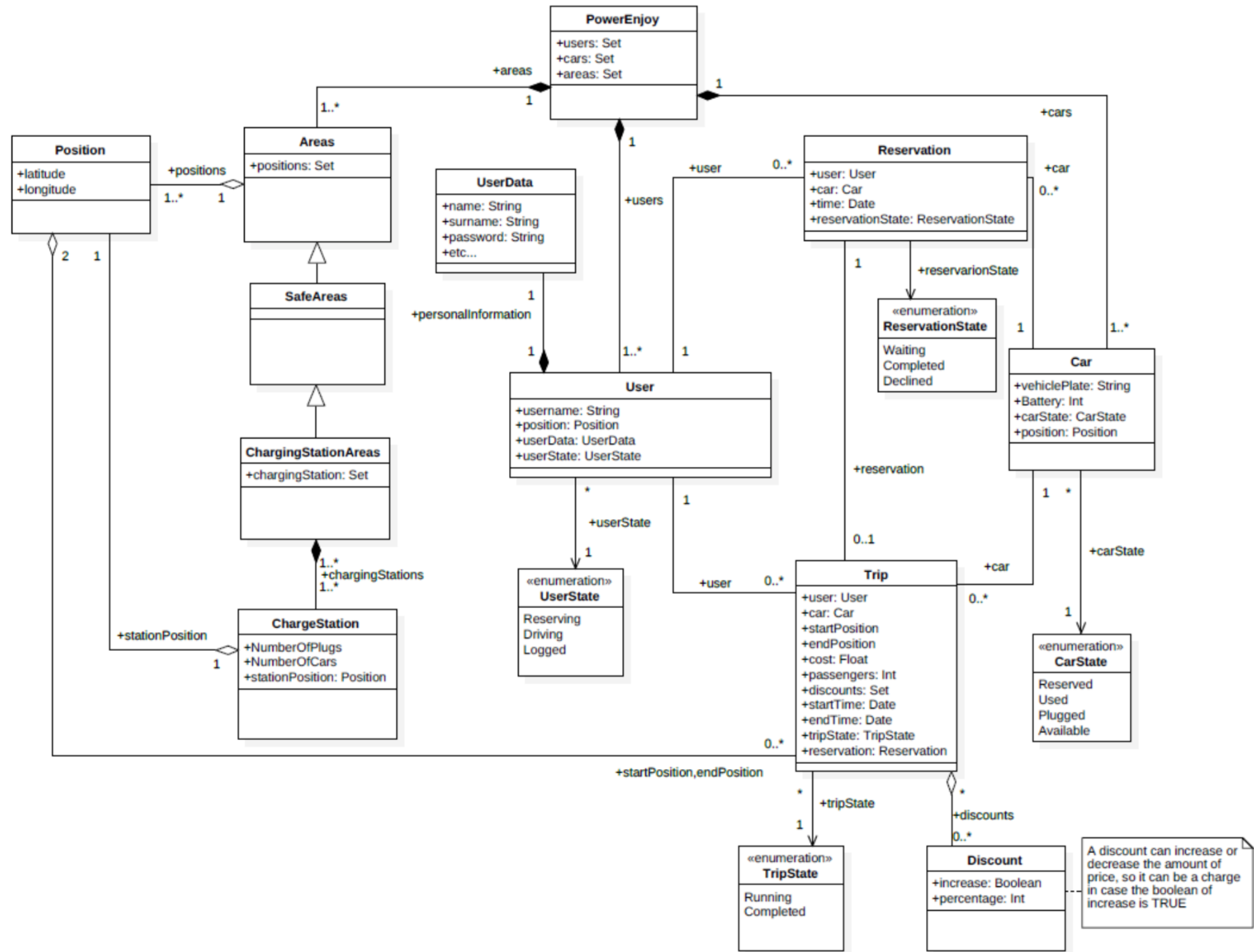
STATE DIAGRAM



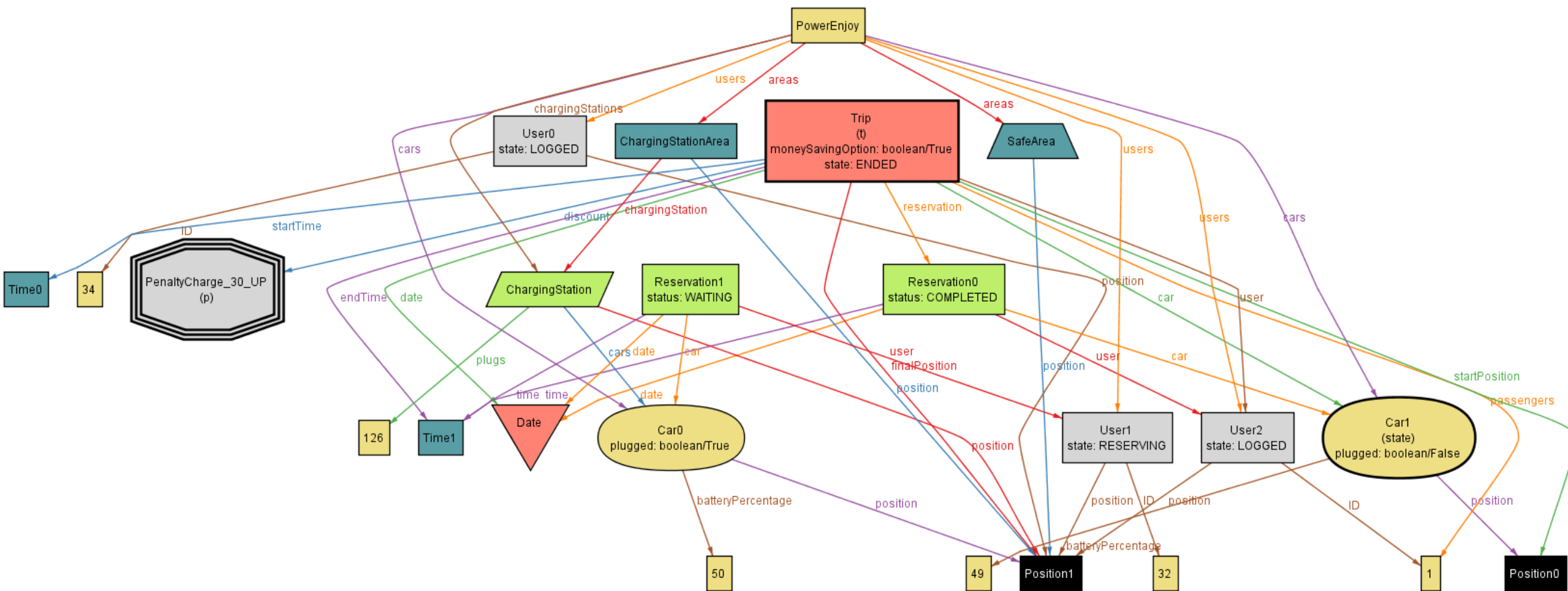
USE CASE DIAGRAM



CLASS DIAGRAM



Trip ended with charge



ALLOY MODEL 2

Trip running

