



PowerEnJoy
Software Engineering II

Requirements Analysis and Specification Document

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Section 1

Introduction

1.1 Purpose

The Requirement Analysis and Specification Document for the *PowerEnJoy* digital management system is intended to describe the system itself, the functional and non-functional requirements, its components as well as its constraints and the relationship with the real world and the users by providing several use cases and scenarios. Furthermore part of the documentation makes use of Alloy, a language for describing structures and a tool for exploring them, and gives a formal specification of some features of the system to be.

This document establishes some baselines for the project planning, its estimation and evaluation and it may be legally binding; it is mainly addressed to developers and programmers, who have to implement the requirements, testers, who have to determine whether the requirements have been met, project managers, who control the development process and - last but not least - users, who validate the system goals.

1.2 Scope

The product is a digital management system to support a car-sharing service that exclusively employs electric cars.

The system consists of a back-end server that manages rental requests remotely, a front-end web application to provide the final user with a friendly interface to take advantage of the services of *PowerEnJoy* and a mobile application that allows the user to easily access the service anywhere.

The system is intended for only one type of user: drivers, who should be allowed to register and access the system via username and password, in

order to make the renting and payment processes easier and quicker to carry out. Moreover, the system aids the users by locating nearby available vehicles and keeps track of the distance driven, all while notifying them about the amount of money they are being charged. Predefined safe parking areas are signaled by an on-board computer.

Lastly, the system aims to motivate drivers to maintain a virtuous behavior providing discounts when it detects signs of responsible and ecologic actions.

In further detail, the goals of *PowerEnJoy* are the following:

1. Let the user register to the service and login via the provided credentials;
2. Let the driver find the location of nearby available cars;
3. Let him/her reserve a chosen car up to an hour before picking it up;
4. Improve the efficiency of the service by assuring that no car stays reserved if not actually in use;
5. Allow the user to easily access the cars by unlocking them once the driver is in proximity;
6. Actively keep track of the driver's current charges, continuously notifying it;
7. Let the user know which and where the pre-defined parking spots are, showing the nearest ones;
8. Incentivize responsible behaviors, providing discounts for the worthiest.