Politecnico di Milano

Software Engineering II project:
PowerEnjoy

# Design Document

Gregori Giacomo and Ruaro Nicola

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**Abstract**

This document provides a more technical description about the PowerEnJoy system adopting the IEEE-1016 standard for DD documentation.
The scope of the Design Document is to discuss our architectural and algorithmic design choices and the user experience that PowerEnJoy should provide. It is based on the Requirement Analysis Specification Document presented in the previous delivery.

# Introduction

## 1.1 Scope of the System

PowerEnJoy is a car-sharing service based on mobile and web applications which should allow users to reserve vehicles and use them.
TODO: brief architecture/algorithms/UI description

## 1.2 Document Structure

**Introduction:** In this chapter an introduction to the system and the Design Document is given.

**Architectural Design:** In this section an overall description of the architecture is given, it is structured into N different parts: TODO

- part 1
- part 2

**Algorithm Design:** In this chapter the implemented algorithms are discussed and presented using flow-charts and pseudo-code in order to ease the comprehension and focus on the functionality.

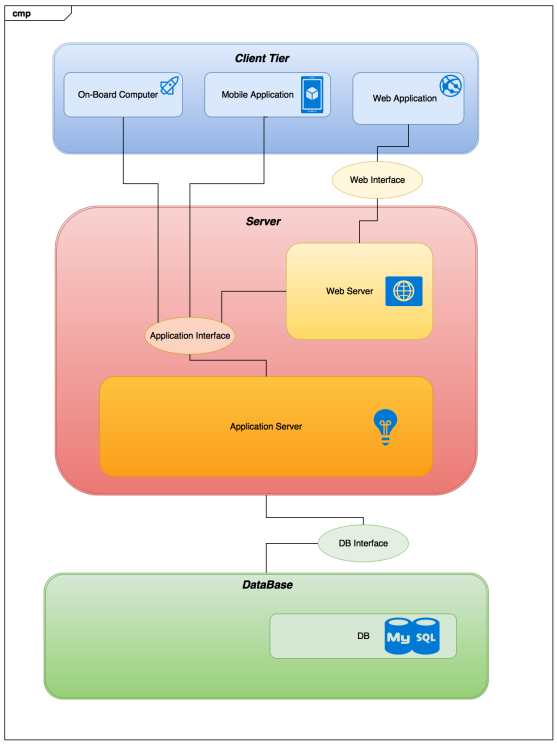
**User Interface Design:** In this section the main choices in User Interface and User Experience design are discussed.

**Requirements Traceability:** In this section a clear link between requirements specification (RASD) and design decisions (DD) is created.

# Architectural Design

## 2.1 Overview: High-level components and their interaction

Our system will be developed as a 4-tiered JEE application, divided as Client Tier, Web Tier, Business Tier and the EIS Tier. It is distributed between client machines, Java EE server machine and the database.
The diagram below provides a better understanding of the components of our system, highlighting the interactions among them:



## 2.2 Component view

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## 2.3 Deployment view

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## 2.4 Runtime view

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## 2.5 Component Interfaces

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## 2.6 Selected architectural styles and patterns

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## 2.7 Other design decisions

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# Algorithm design

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# User interface design

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# Requirements Traceability

| RASD Goals | RASD Functions | DD Component |
|---|---|---|
| G1, G2, G3 | Registration, Login, Account Management | UserController |

# Appendix A: Used Tools

## A.1 LaTeX

Used to format and redact this document

## A.2 *g*it

Used as version control system in order to lead development

## A.3 *d*raw.io

Used to draw mockups and diagrams

# Appendix B: Hours of work

These are the hours of work spent by each group member in order to redact this document:

- Ruaro Nicola: 0 hours
- Gregori Giacomo: 0 hours
- Total worktime: 0 hours

# Appendix C: Revisions

These sections will be eventually redacted during future post-release updates in order to approach the RASD modifiability providing a comfortable and higly effective way to trace changes:

# Glossary

**RESTful** A system adopting the REST approach..

# Acronyms

**ACID** Atomicity, Consistency, Isolation and Durability.

**DD** Design Document.

**RASD** Requirements Analysis and Specification Document.

**REST** REpresentational State Transfer.

# Bibliography

[1] IEEE Std 1016, *Recommended Practice for Software Design Specifications*, 2009

[2] Luca Mottola and Elisabetta Di Nitto, *Software Engineering 2: Project goal, schedule and rules*, 2016