Design **D**ocument

Version 1.0

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Contents

1 Introduction

1.1 Purpose

This document represents the Design Document(DD). The purpose of the Design Document is to provide a medium/base level description of the design of MyTaxiService in order to allow for software developers to proceed with an understanding of what is to be built and how it is expected to be built.
The main goal of this document is to completely describe the system-to-be by:

- Detecting high-level components of the software to be
- Describing how these components communicate and interact with each other
- Describing how software components are distributed on the architecture's tiers
- Motivating and describing the adopted architectural style

1.2 Scope

The aim of this project is to develop MyTaxiService, a web/mobile application that makes easier and quicker taking taxies within the city's borders. Thanks to MyTaxiService, anyone can request or book a taxi and get realtime information about how long it will take to be picked up or about the taxi's current position and identification code. In addition to that, MyTaxiService provides an efficient way to allocate taxies by dividing the city in zones and using a queue based allocation system, in order to reduce the average waiting time and city's traffic.
This Software Design is focused on the base level system and critical parts of the system.

1.3 Terms Definition

1.3.1 Glossary

- **Tier:** Refers to a possible hardware level in a generic architecture
- **Layer:** Refers to a possible software level in a generic software system
- **Mtaxi:** A taxi that joined MyTaxiService

1.3.2 Acronyms

- **DD:** Design Document
- **MVC:** Model View Controller
- **FIFO:** First In First Out
- **API:** Application Programming Interface

- **GUI:** Graphic User Interface
- **GPS:** Global Positioning System

1.4 Reference Documents

- RASD version 1.1

1.5 Document Structure

Introduction
This section provides a general description of the Design Document by clearly stating purpose an aim of the project. It also includes a disambiguation section to help the reader in the process of resolving the ambiguity generated by the use of natural language

Architecture Design
The first part of this section provides a detailed description of the high-level components of MyTaxiService and of how these components interact. The second part introduces the architectural style chosen for MyTaxiService. The focus is on motivation, advantages and possible disadvantages of the chosen architecture.

Algorithms Design
The section aims to provide a very medium/low level description of some routine functionalities of MyTaxiService. Some code is included.

User Interface Design
In this section are provided some mockups describing the requirements of the user interface to-be

Requirements Traceability
This section provides a matrix of traceability that allows the reader to map functional requirements on the previously defined software components

2 Architectural Design

2.1 Overview

The architectural design section is divided into two main parts:

Software components description and interaction
: In this section is provided a detailed description of the main components of the software system and of their interactions. To exemplify the above mentioned description a set of UML diagrams(Component, Deployment, Sequence diagrams) is included.

Architectural styles and patterns
: In this section the software system architecture is illustrated using a schematic diagram. In addition to that all the architectural choices, patterns and styles considered are motivated and described.

2.2 High level components and their interaction

2.3 Component View

2.4 Deployment View

2.5 Runtime View

2.6 Components Interface

2.7 Selected architectural styles and patterns

3 Algorithms Design

3.1 Overview

4 User Interface Design

No new useful user interface needs to be specified in this section.
For a detailed description of the user interfaces, please refer to section 2.2.2 of the RASD v1.1 document.

5 Requirements Traceability