

Software Engineering 2 - Mandatory Project

AY 2019/2020

Immagine che contiene serviziodatavola

Descrizione generata automaticamente

RASD

Version 1.0 – 10/11/20

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**1. Introduction**

1.1 General Purpose

Safe Streets is a software application with the main aim of providing end users with the possibility to report to the authorities traffic violations (in particular parking violations). Another aim of the system is allowing both end users and authorities to get information mining the received notifications.

The deepest purpose of the application is to provide authorities a way to know where road works (clearer traffic signals) or municipality interventions are necessary with the aim of improve street safety (in particular from the point of view of pedestrians and bikers).

A detailed description of the functionalities offered to end users and authorities is provided in Section 2.2.

1.2. Goals

* [G1] – Allow the end users to report to the authorities traffic violations.
* [G2] – Allow the end users and the authorities to visualise which are the streets with the highest frequency of violations.
* [G3] – Allow the authorities to know the vehicles that commits one or more violations.
* [G4] – Allow the authorities to delete incorrect violations reported by end users.

1.3. Scope

Safe Streets is a software application thought to improve road safety. Using Safe Streets, common people can notify authorities when they see traffic violations only taking and sending a picture of that and specifying the type of violation (e.g. abusive bike lane or sidewalk parking, double parking, parking in disabled reserved spaces…) from their mobile devices. Authorities, on the other side, after the run of an algorithm that reads the license plates from the picture, can check the reported violations and delete from the Database the incorrect ones (e.g. misunderstanding of traffic signals by the user, special permits, special events occurring in that areas…).

From their devices, both end users and authorities can also see which are the streets and areas with a high number of traffic violations. In addition, authorities are allowed to see a list of the vehicles (identified by the license plates) which commit traffic violations.

1.3.1. World and shared phenomena

The following table illustrates some of the world and shared phenomena related to the use of Safe Streets, referring to the Jackson & Zave distinction.

|  |  |
| --- | --- |
| **Phenomenon** | **Shared or not** |
| End user sees a traffic violation | No |
| End user takes a picture of the violation | Yes |
| End user fills and sends the “Traffic violation form” | Yes |
| End user/Authority searches the highlighted streets | Yes |
| Authority wants to know the vehicles that committed the most violations | No |
| Authority investigates the list of vehicle plates | Yes |
| Authority deletes a certain violation report | Yes |

The 2nd phenomenon “*End user takes a picture of the violation”* is shared because the picture is taken using the application (when the user chooses to report a traffic violation.

1.4. Definitions, acronyms and abbreviations

1.4.1. Definitions

* *Authority*: public institution related to street safety (e.g. municipality, local police).
* *End user*: people (unrelated with authorities) using Safe Streets application with the aim of report traffic violations and know the streets where the most violations occur.
* *Traffic violation form*: it’s the form that an end user must fill in the app on his device when he wants to notify a violation.

1.4.2. Acronyms

* RASD: Requirement and Analysis Specification Document
* GPS: Global Positioning System

1.4.3. Abbreviations

* [Gn]: n-th goal
* [Dn]: n-th domain assumption
* [Rn]: n-th requirement

1.5. Revision History

* 10/11/19: Version 1.0
  + First Release

1.6. Reference Documents

* Specification Document “*SafeStreets mandatory Project Assignment*”

1.7. Document Structure

This RASD is composed by 6 macro sections:

**Section 1** is an introduction illustrating the general purpose, the goals and the scope (underlining the world and shared phenomena) of Safe Streets application.

**Section 2** is a more detailed overall of the application. The first subsection *Product perspective* includes further details of the shared phenomena, class diagrams and state-charts. Furthermore, a summary of the major functions of the system and the description of the user’s characteristics are shown. Finally, constraints and domain assumption are listed to have a complete view of the world domain of the application.

**Section 3** is

**Section 4** is

**Section 5** gives information about the time spent to realize the entire document.

**2. Overall description**

2.1 Product perspective

UML Class diagram

State chart diagrams

2.2 Product functions

In this sub-section are listed and descripted the functions that SafeStreets users must be allowed to exploit.

2.2.1 Registration and login

2.2.2 Reporting a traffic violation

2.2.3 Visualizing the highlighted streets

2.2.4 Visualizing the most reported vehicles

2.2.5 Deleting a traffic violation instance