Politecnico di Milano 1863

Software Engineering 2 Project

Requirement Analysis and Specification Document (RASD)

SafeStreets

Version 1.0

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Download page: https://github.com/TiberioG/GalbiatiRezaei.git

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[G6] have at least two different priviledge for mining data

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1.3.1 Definitions

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add here class diagram + verbal description

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D the device should acquire position with an accuracy of enouth meters in order to univocally determine the road (e.g. 5 meters)

D the device should take pictures with enouth resolution to be able to read the licence plate using the external software

D in every picture the licence plate should be visible and the kind of violation

D the number and kind of violation should be finite (defined by the law)

D every authority account is verified and it's not possible to be created using the frontend

The app will be dependent on a third-party service to read the licence plate of the cars. (For example `http://www.openalpr.com`)

The app will be dependent on a smartphone, which has to provide the following features:

1. Internet connection, possibily using 2G/3G/4G in order to be available where there is no WiFi, considering the use case "on the road"

2. GPS sensor

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

3.1.2 Hardware Interfaces

3.1.3 Software Interfaces

3.1.4 Communication Interfaces

3.2 Functional Requirements

1 Allow users to notify authorities about traffic violations. 1 2 Allow users to send pictures of violations. 2 Images should be clear so that the license plate can be readen easily. 3 The type of violation should be clear in the picture. 3 Be sure every information uploaded is never altered 4 Automatically add metadata to the reported pictures 5 allow users to mine information recorded All individual users who have signed up for mining the information 6 have at least two different priviledge for mining data 7 generate traffic tickets 8 Autorities can see the the licence plates of violators, regular users cannot

think about use cases @both

3.2.1 Use Cases

This section contains all the use cases initially described with the use cases UML model, then the most important Use Case have their own table which provide further details such as: involved actors, entry conditions, ow of events, exit conditions and exceptional conditions.

User Page use cases

Reporting Violation use cases

3.2.2 User

3.2.3 Third party

3.2.4 Requirements

Requirements in order to satisfy the goals

[R1] test

3.3 Performance Requirements

3.4 Design Constraints

3.4.1 Standards compliance

The app shoudld be available for the two main operating systems of smartphones: Android Os and Apple iOS.
The traffic violations which can be reported should be compliant to the local traffic code where the app will be used.
For an use in Italy the app should be compliant to the "Codice della Strada", in particular parking violations are reported in Art. 157.

3.4.2 Hardware limitations

The app will have a server side and a client side (smartphone). On server side limitations can be the size of available storage and the bandwidth. On smartphone side we have the network connectivity (3G/4G connection) and GPS limitations in some areas.

3.4.3 Any other constraint

Application should be compliant to European GDPR and don't track users.

3.5 Software System Attributes

3.5.1 Simple User Interface

The user interface has to be as simple and intuitive as possible, the application should allow an average user to set up an account and start using the application understanding its functionality in no more than a dozen minutes. In addition there should be a complete tutorial to makes it easy using the application.

3.5.2 Reliability

The application provides a reliable service in which individual users can easily log in and report the violations in the most optimal way. Furthermore it Warranties that the chain of custody of the information coming from the users is never broken, and the information is never altered. This would provide a secure and reliable system. In addition, if the license plate is not readable from the picture the application should warn the user to send an other photo.

3.5.3 Availability

The application must offer the maximum availability, granting its service every day at any time (24/7). The lack of service must be minimal.Reporting violation and taking the information about the vioalation coming from SafeStreets must be active every day at any time. The lack of service is acceptable only if it is due to maintenance. In this case, users must receive a warning 48 hours before.

3.5.4 Security

The application need to be safe and it does not have particular security concerns except the ones related to unauthorized login. The login of Users and especially of authorities must be very safe to avoid reporting. Moreover, the means of communication must be encrypted to save the confidentiality of information sent to SafeStreets.

3.5.5 Maintainability

The application will be maintained and designed in such a way it makes it easier to maintain and it shoul be understandable for both the users and the authorities. Furthermore, the system will put eort in keeping the live data services (such as highlighting the streets with the highest frequency of violations or the vehicles that commit the most violation) always online.

3.5.6 Portability

Portability of user data from a device to another is possible by entering personal login data. Also the application will be able to run for devices with different operating systems. Trackme wants to focus on the both Android iOS market and Apple iOS , because Android is the largest OS in the world and it is expected that the market share of Apple iOS will increase in the coming years.

4 Formal Analysis Using Alloy

5 Effort Spent

References