RASD

Introduction

SafeStreets is a crowd-sourced application whose intention is to notify the authorities when traffic violations occur. The system should provide the possibility for users to give all needed information for authorities to take actions against the violations and improve the service provided by authorities taking care of violations notification from the user notifying it until the violation is resolved.

The sources of notifications are the citizens which takes photos of violations and sends them to the authorities through the application.

The information provided by users are integrated with other suitable information and are stored by the service.

The system also runs an algorithm to read the license plate of the vehicle in the photos. All collected data can be mined by citizens and authorities to find which streets are the safest. Users can have different levels of visibility authorities must be able to know the license plates of vehicles in the photos while normal users can only see data in the form of statistics.

Moreover, data is sent to the municipal district so that important information can be extracted through statistics in order to make decisions to improve the safety of the area.

Ultimately, the system will have to be easy to use, reliable and highly scalable to fit perfectly with the mutable context in which it will end to be used.

Current System poliziamunicipale online

SafeStreet aims to become the smartest and quickest way to report violations in Italy. The current systems are phone calls which can take lot of time, take up the phone lines for more critical events and lacs evidence of the violation or other system like the site www.poliziamunicipale-online.it which is similar to phone calls , is more strict , the interface is not user friendly and it lacs possibility to give evidence of violations too. The idea of our service is not unique there are already similar services in other countries, like in India they have “Public Eye. OFFICIAL BTP APP”

GOALS

USER:

G1) Notify authorities about traffic violations

G1-1) Send picture of violation

G1-2) Send Position of the violation

G2) Allow authorities to reserve an assignment

G3) allow authorities to report a finished assignment

SafeStreets:

G4) Allow a User to join the system registering him/herself to ensure reliability of the information provided by them

G5) Store information provided by users:

G5-1) Complete it with metadata

G5-2) Mine information

G6) Identify potentially unsafe areas:

G6-1) Suggest possible interventions

G7) Allow municipality to register Authorities to the service

Security Goals:

S1) Offer different levels of visibility to different type of users

S2) Personal data of users are stored respecting current security standards

SCOPE (TODO order to be fixed)

World phenomena:

1)Violation

2)Intervention of authorities

3)Municipality put into effect interventions to improve safety

Machine phenomena:

1)Shortest path calculation for authority’s intervention

2)the creation of an object of type violation

3)run algorithm to identify the license plate/s in the photos

4)database queries

5)schedule most efficient path to look up the notified violations

6)periodically run algorithm to suggest possible interventions to municipality

Shared phenomena:

1)user notify the system about violation (observed by the system controlled by the world)

2)send notification to authorities (controlled by system observed by world)

Definitions

-User: term used to identify any possible person which uses our application and has registered to our service:

- Citizen: our source of information and main contributors to the service. They provide information about violations with photos and possibly some notes.

-Municipality: people managing local systems in a given area. Those users should be able to take decisions to change unsafe areas thanks to their //TODO carica istituzionale

-Authority: police agents. They are invited to use the service by municipality users who can ask creation of their account.

-Violation: parking violations which can be notified by citizens to authorities

-Mapping System: external software that provides maps and directions to reach the position of a violation

ACRONYMS

RASD: Requirement Analysis and Specification Document.  
API: Application Programming Interface  
GPS: Global positioning system

ABBREVIATIONS

• [Gn]: n-th goal.

• [Dn]: n-th domain assumption.

• [Rn]: n-th requirement.

1.4. References

• Specification Document: “Assignments AA 2016-2017.pdf”.

• GPS Performances: “http://www.gps.gov/systems/gps/performance/accuracy/".

• Alloy Dynamic Model example: “<http://homepage.cs.uiowa.edu/~tinelli/classes/181/Spring10/Notes/09-dynamic-models.pdf> "

• IEEE Std 830-1993 - IEEE Guide to Software Requirements Specifications.

• IEEE Std 830-1998 - IEEE Recommended Practice for Software Requirements Specifications.

OVERVIEW //TODO when everything else is done

Domain Assumptions

D1) For each notification data and metadata about the violation are correct

D2) Accounts are personal and login credentials never gets stolen

D3) Each fiscal code number is unique

D4) Authorities always intervene in case of a notified violation

D5) Information about authorities’ location are always available through GPS

D6) Only agents close to the violation area are notified //TODO check this

D7) User sends only clear photos( if it is not clear he/she would retake the photo)