POLITECNICO
MILANO 1863

SafeStreets

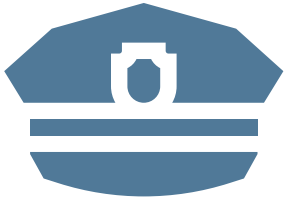
Software Engineering 2

Prof. E. Di Nitto

Amedeo Carrioli (866256)
Andrea Ceruti (945604)

Aim of the project

Violation **reporting** making



Collaboration with **authorities**

Keep **citizens informed** about violations and accidents

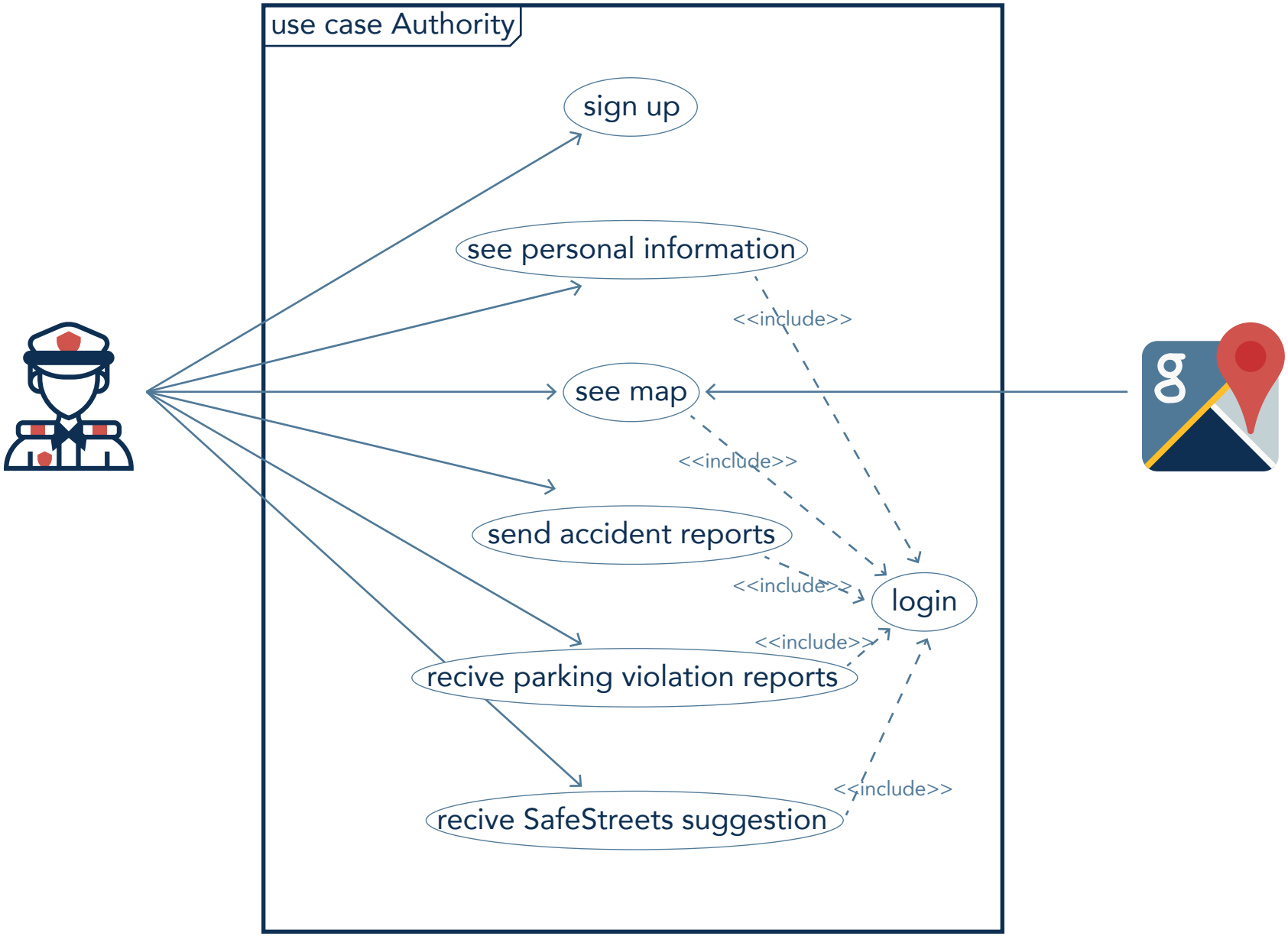
Goals of the project

1. Allow private users to **send reports** of street violations.
2. Allow both end users and authorities to **mine the information stored.**
3. The application must **send suggestions** to authorities.
4. The system **crosses data** with authorities.

Phenomena table

Phenomena	Shared	Who controls it
Citizen notices a street violation and wants to reports it	N	W
Citizen wants to check the violations occurred in a specific area	N	W
Citizen takes a picture of the street violation	N	W
User confirms the anonymity request	Y	W
Authority downloads data from SafeStreets	Y	W
User checks his reporting history and personal information	Y	W
User wants to check a specific type of street violation that occurred in a specific area	Y	W
User allows SafeStreets to use his geographical position	Y	W
SafeStrees updates the map after every reporting received	Y	M
SafeStreets makes suggestions to send to authorities based on reliable parking violations received	Y	M
SafeStreets stores the information sent from authorities	Y	M
SafeStreets shows to the user the map filtered by type of violation and interval of time chosen	Y	M
SafeStreets recognizes the license plate from picture	N	M
SafeStreets stores all data received in its database	N	M

Use cases


use case Authority
sign up
see personal information
<<include>>
see map
<<include>>
send accident reports
<<include>>
login
<<include>>
recive parking violation reports
<<include>>
recive SafeStreets suggestion

Requirements

R3 The system must allow the user to compile the reporting form with all the information required.

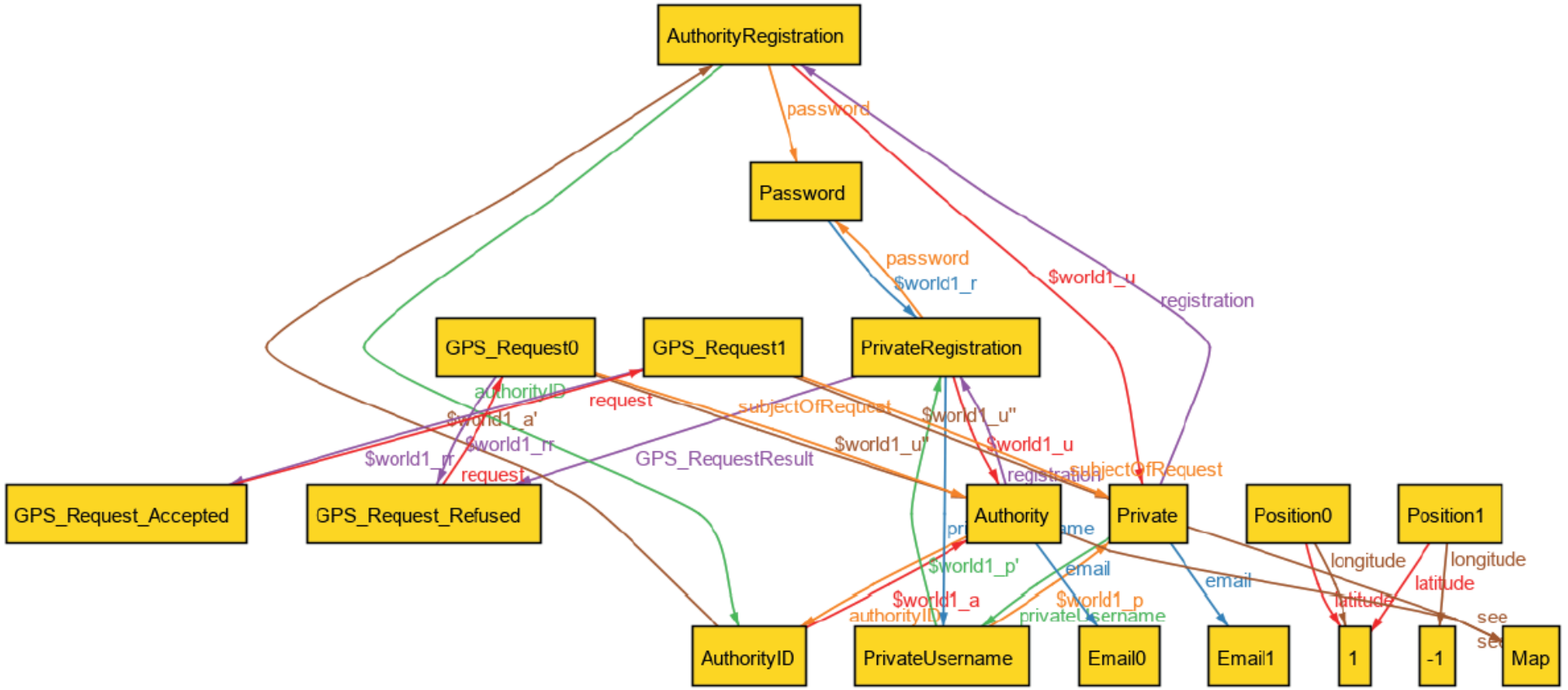
R5 The system must allow the user to choose to remain anonymous after every reporting.

R8 The system colors the map based on the number of violations occurred for each zone.

R10 The system crosses information received by the municipality with its own data.

R11 The system generates suggestions based on reliable parking violations and sends them to authorities.

Alloy


AuthorityRegistration
password
Password
password
$world1_r
$world1_u
registration
GPS_Request0
GPS_Request1
PrivateRegistration
authorityID
request
subjectOfRequest
$world1_a'
$world1_rr
$world1_r'
request
GPS_RequestResult
$world1_u''
$world1_u'
$world1_u
registration
subjectOfRequest
GPS_Request_Accepted
GPS_Request_Refused
Authority
Private
Position0
Position1
$world1_p'
email
email
longitude
latitude
longitude
latitude
$world1_a
authorityID
$world1_p
privateUsername
see
AuthorityID
PrivateUsername
Email0
Email1
1
-1
Map

Domain assumptions

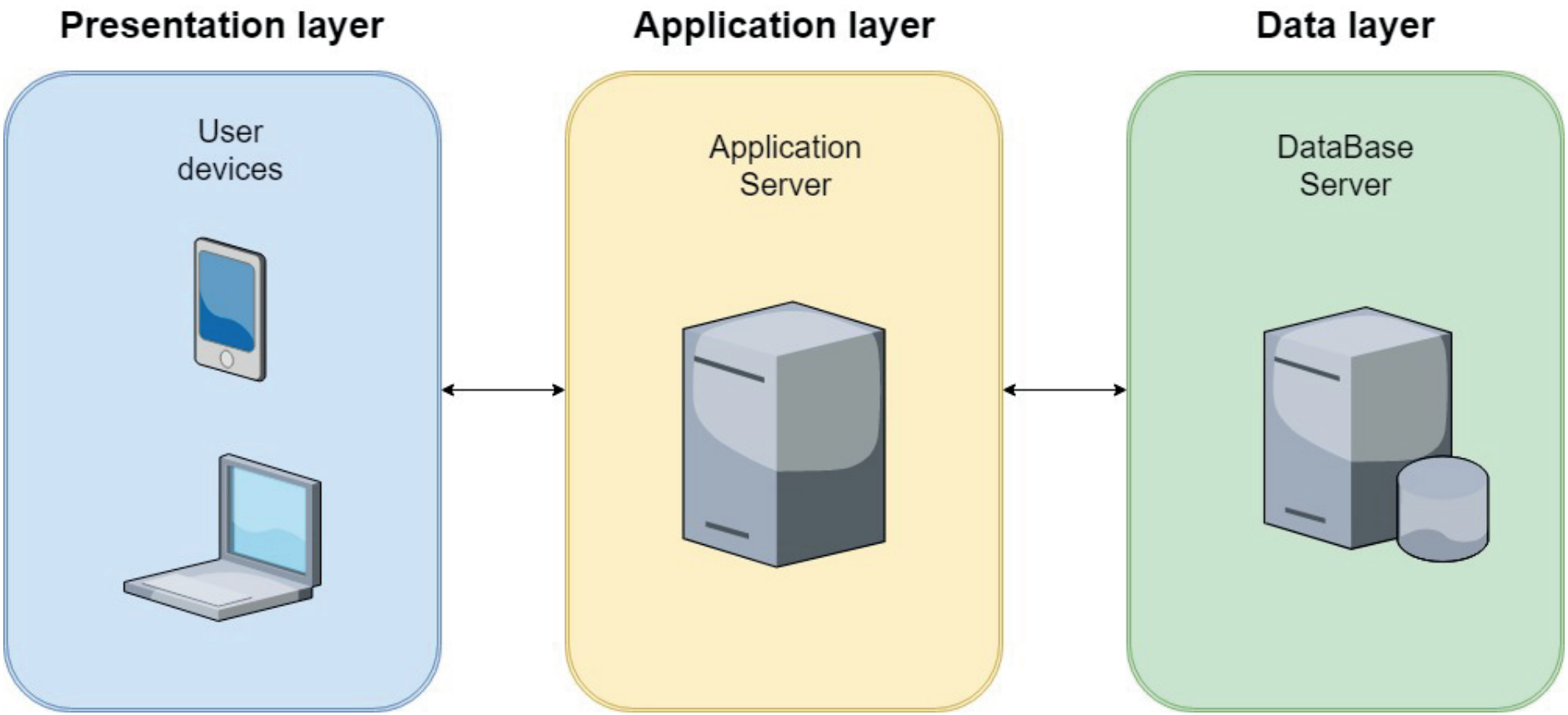
D3 Devices used by users must provide an accurate GPS signal.

The user uses the applicaiton properly. Not making fake violations. **D6**

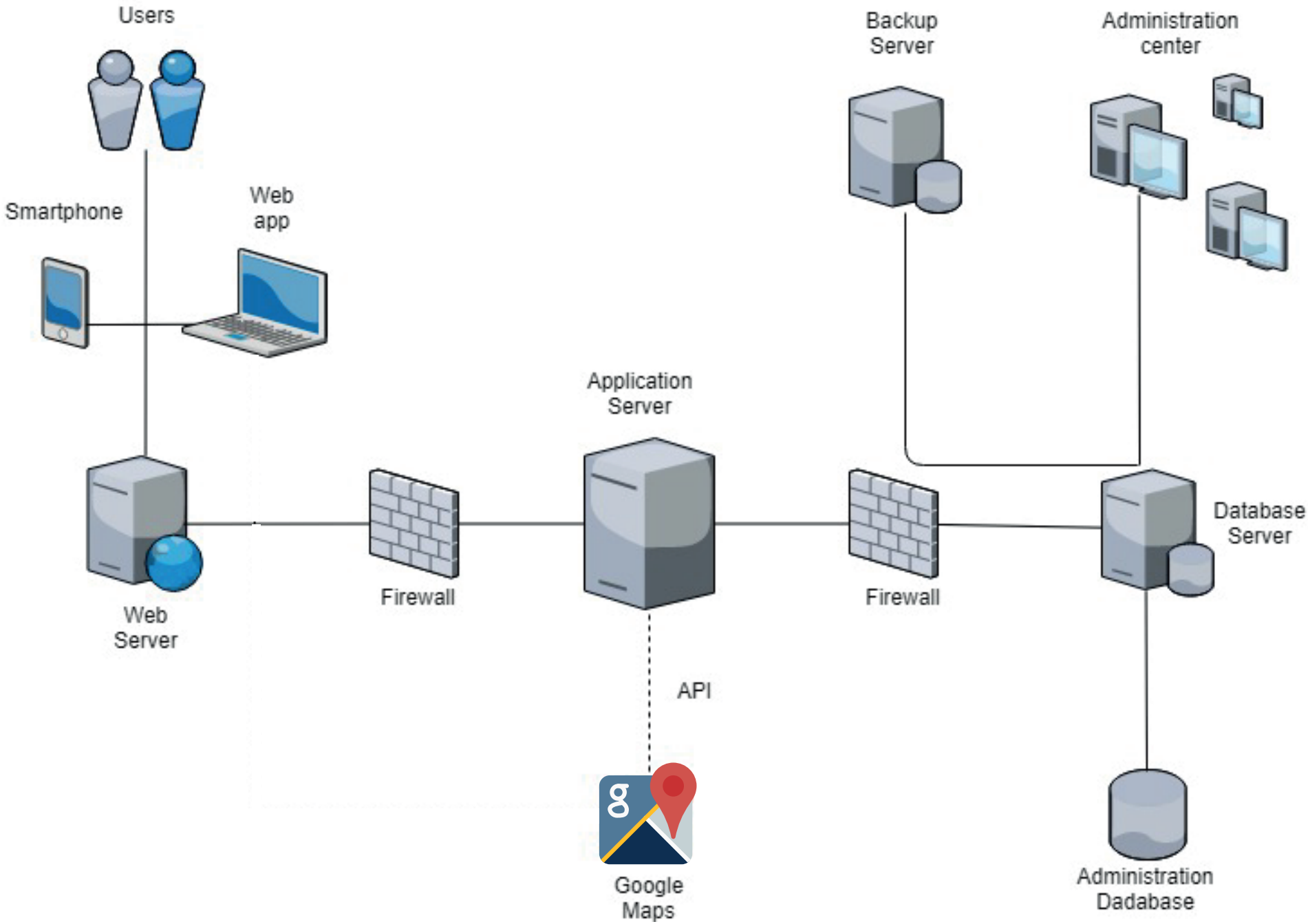
D9 Authorities send reliable data.

Internet connection stability. **D11**

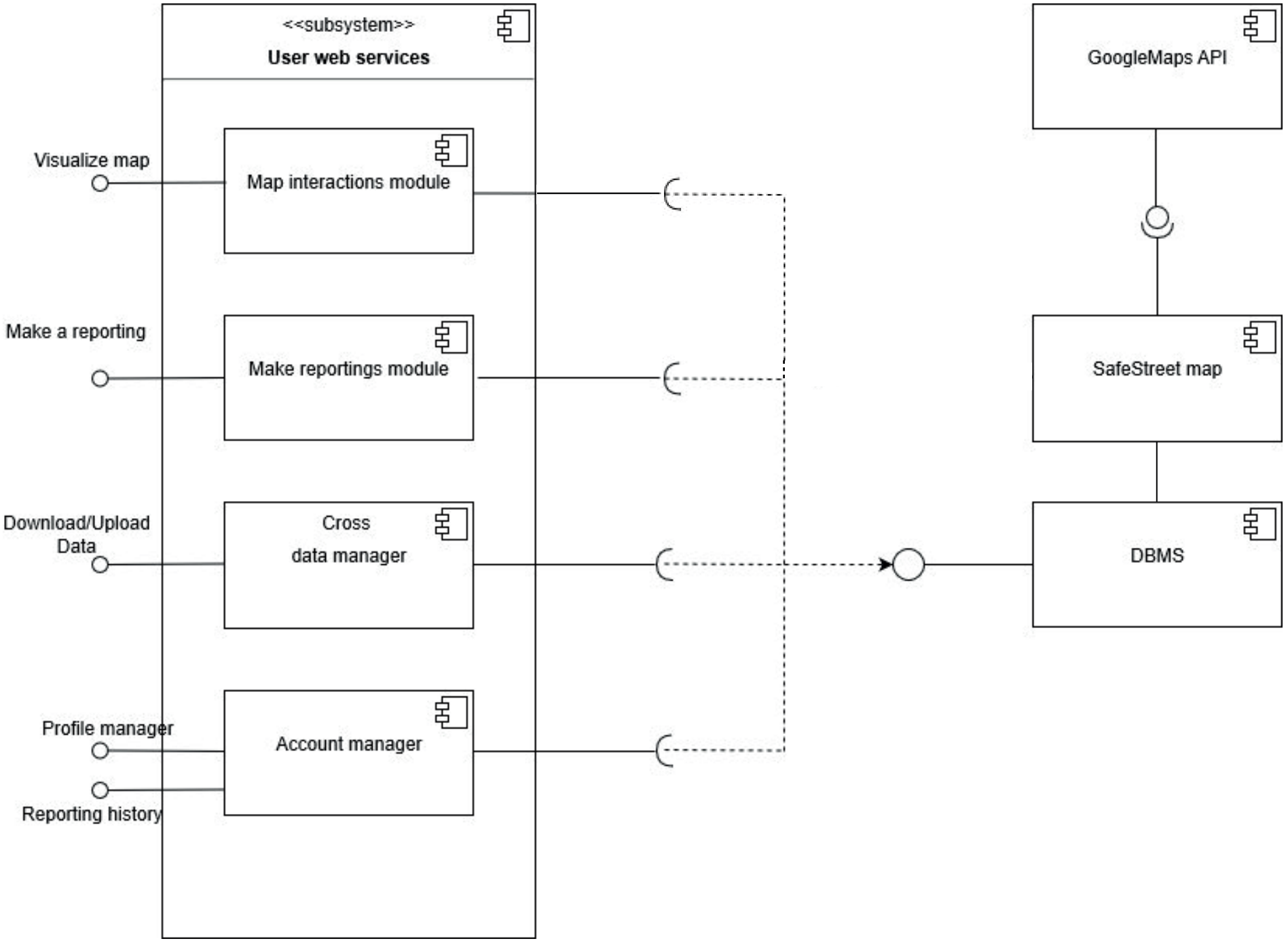
Layers


Presentation layer
Application layer
Data layer
User devices
Application Server
DataBase Server

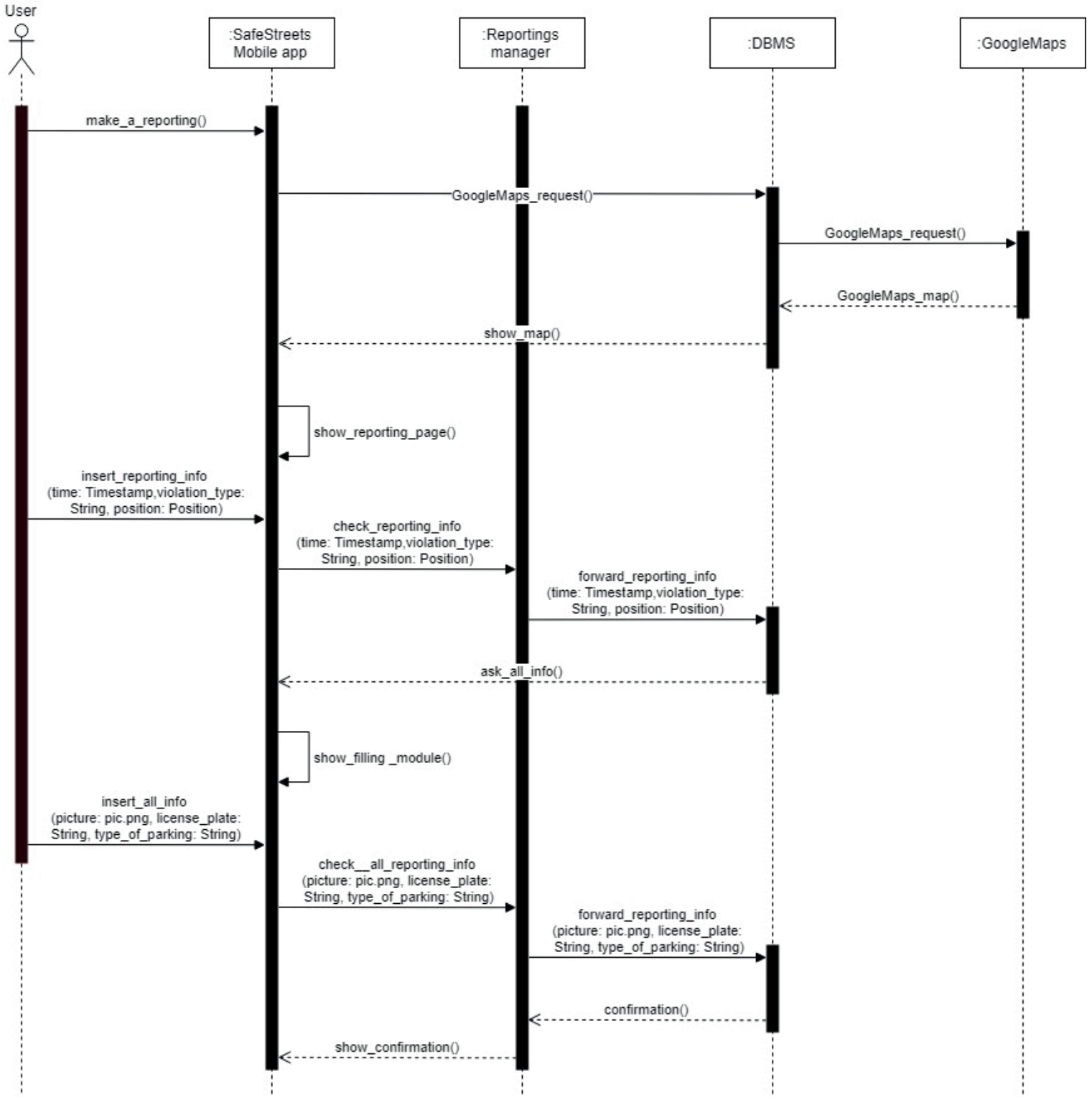
Architectural style



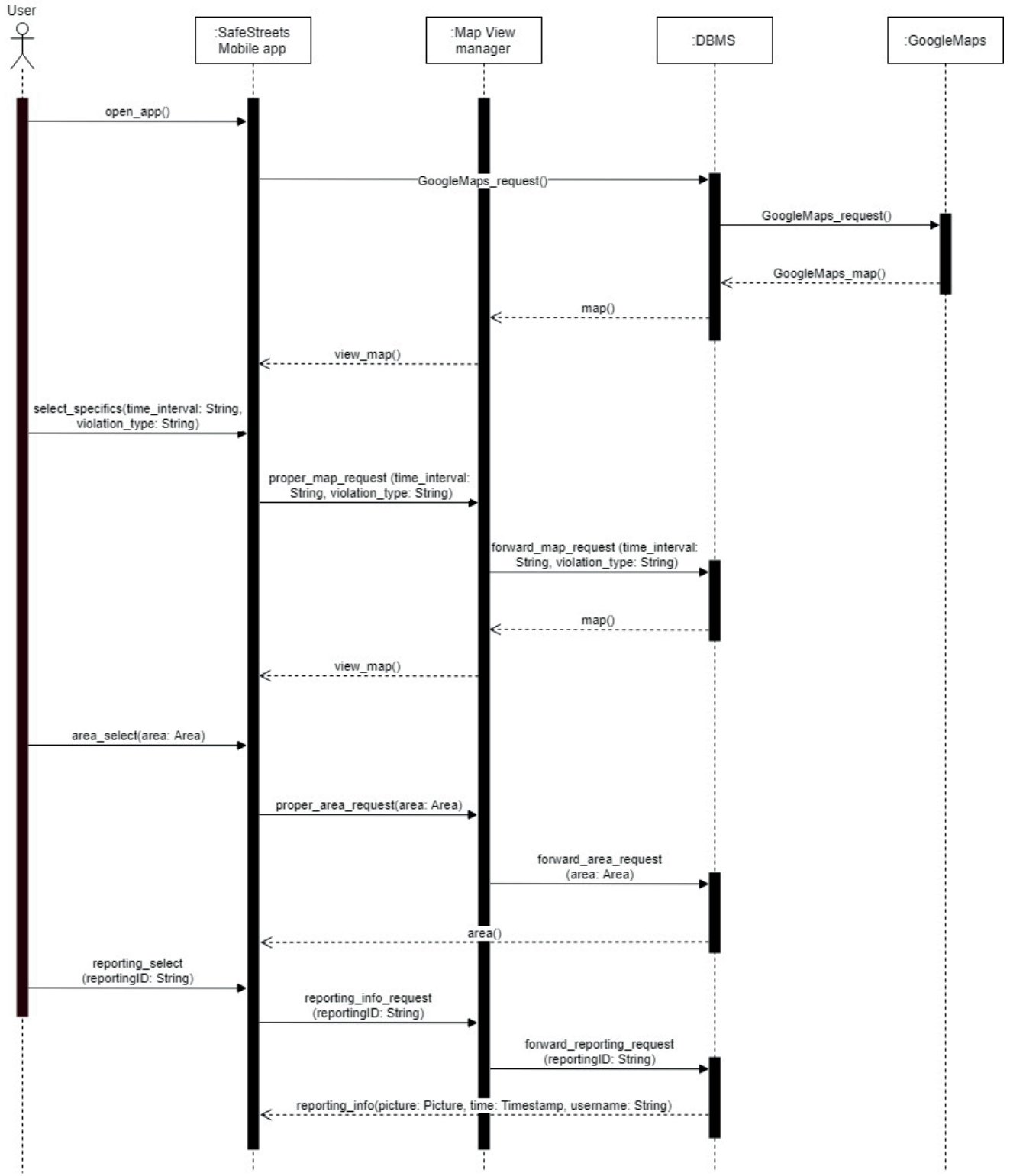
Components diagram



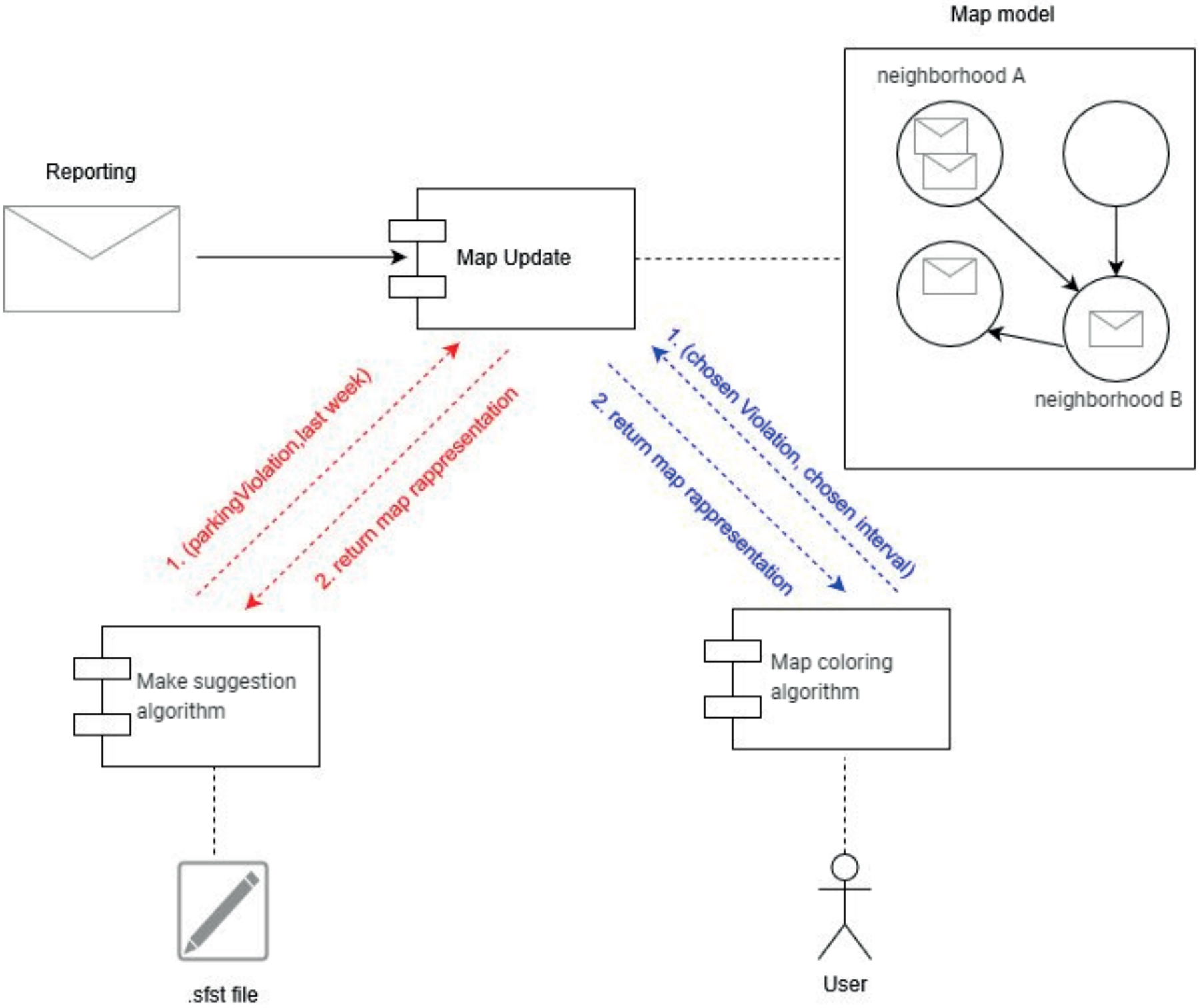
Runtime view - reporting making

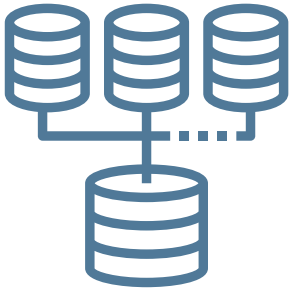


Runtime view - map functionalities



Map update algorithm





Bottom up strategy

Incremental **integration**

Incremental **testing**

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Thank you for your attention