

FIWARE for Smart Cities

City of Ancona – Parking Advisor

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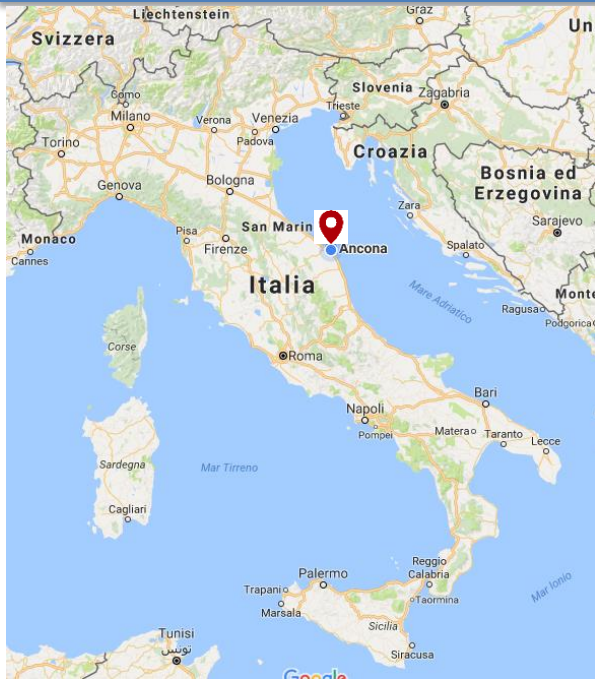
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Traffic congestion is one of the main challenges towards Smart Cities and, more generally, towards the improvement of urban sustainability and urban quality of life

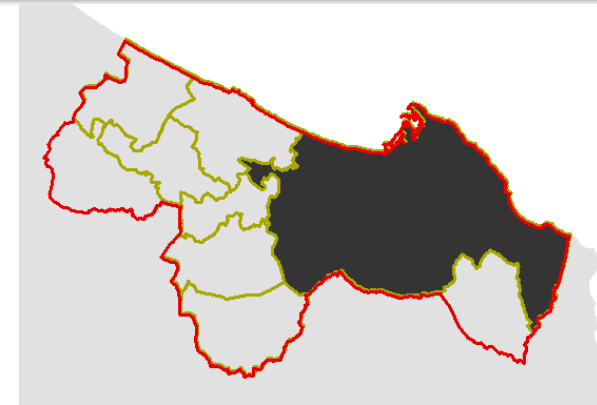
Traffic congestion, jointly with energy and buildings, is one of the fields that can benefit to a greater extent from **the use of ICT**



Ancona Parking Advisor



- City of Ancona (black area): 100.000 inhabitants
- 177.000 considering its Functional Urban Area (red border area)
- City-port and service-led economy (mainly public services)



The Functional Urban Area of Ancona

Traffic congestion is one of the main problems the city suffers from.

- ✓ During working days, nearly 19.000 workers from the municipality of Ancona drive their car in order to reach the working place within the municipality
- ✓ 24.000 workers commute outward by car
- ✓ Other 18.000 commuters from the surrounding municipalities daily inflow into the city of Ancona – always by car
- ✓ In addition we have to consider the traffic generated by the port:
 - First Italian port in term of passengers (1,5 million) and cars (about 0,5 million of cars)
 - 200.000 TIR yearly = 550 TIR daily

In-out traffic congestion



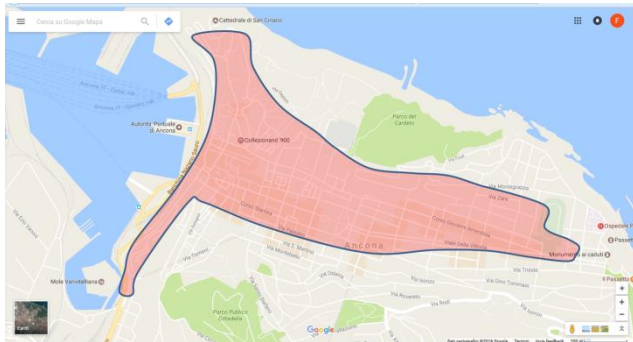


OPEN & AGILE SMART CITIES

Ancona has recently joined the

Among the different possible actions, the parking issue has been chosen

Time spent in finding a parking spot may be significant, mainly in the Ancona Center area



What is the “Ancona Parking Advisor”?

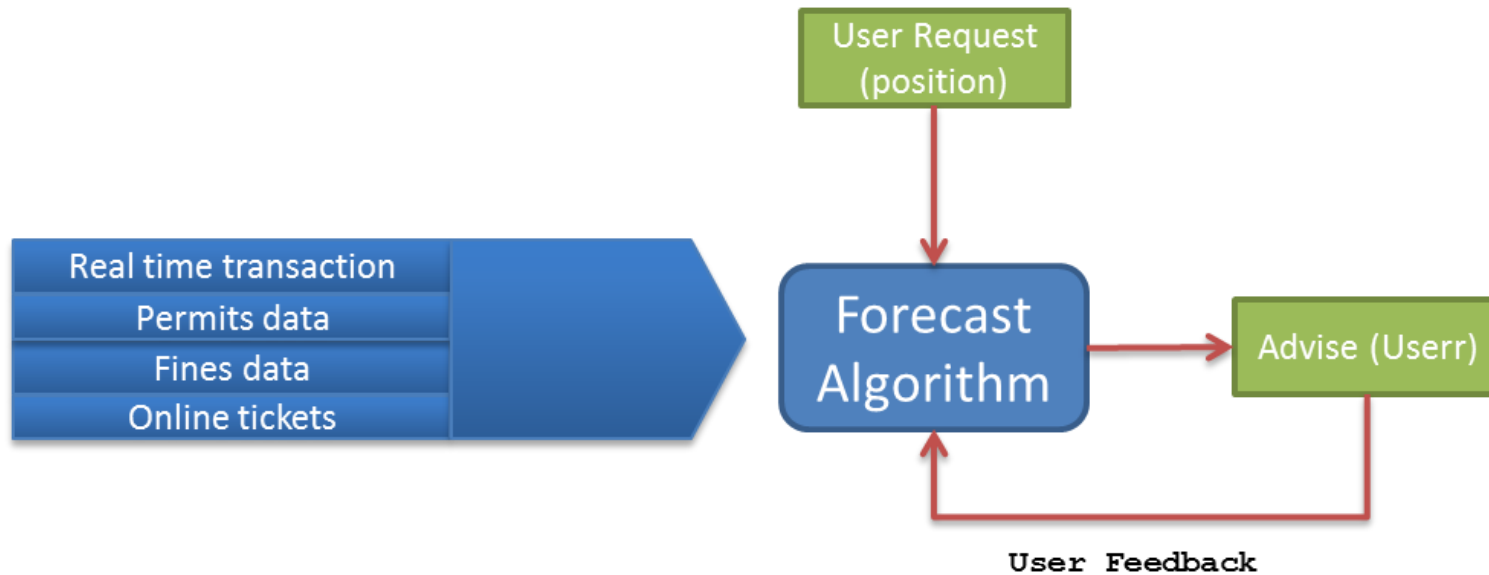
- ✓ Mobile APP helping citizens to park as near as possible to their destination

Why a “Parking Advisor”?

- Given that fostering faster, greener, and cheaper transportation options should be a shared goal in urban planning...
- ...reducing the time spent on finding a parking spot could contribute to :
 - ✓ decrease pollution
 - ✓ decrease congestion
 - ✓ decrease wasted time

...finally improving the quality of the “urban lived experience” and, as a consequence, cities’ attractiveness

“Ancona Parking Advisor”: the architecture



Ancona Parking Advisor

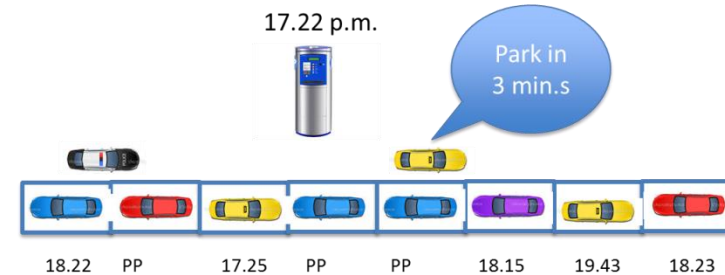
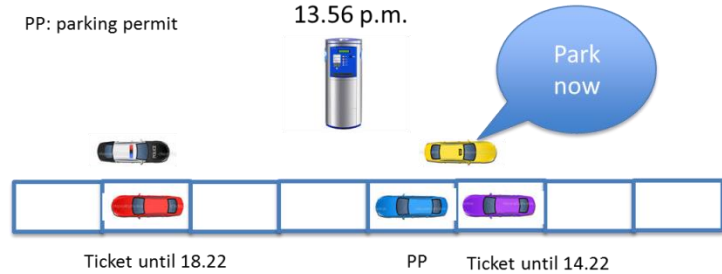
“Ancona Parking Advisor”:

Forecast
Algorithm

IM&P MOBILITÀ & PARCHEGGI s.p.a.



Times series data + just-in-time data



“Ancona Parking Advisor”: data models

On Street Parking*



FIWARE data model aimed at representing on street parking meters belonging to a given area. Among the available variables, we considered:

id, **location**, **name**, **total Spot Number**: **available Spot Number** (estimate), **area Served** (name of the served macroarea – central area, coastal area, etc.), **ref. Parking Meters** (parking meters list belonging to the area)

ParkingMeter

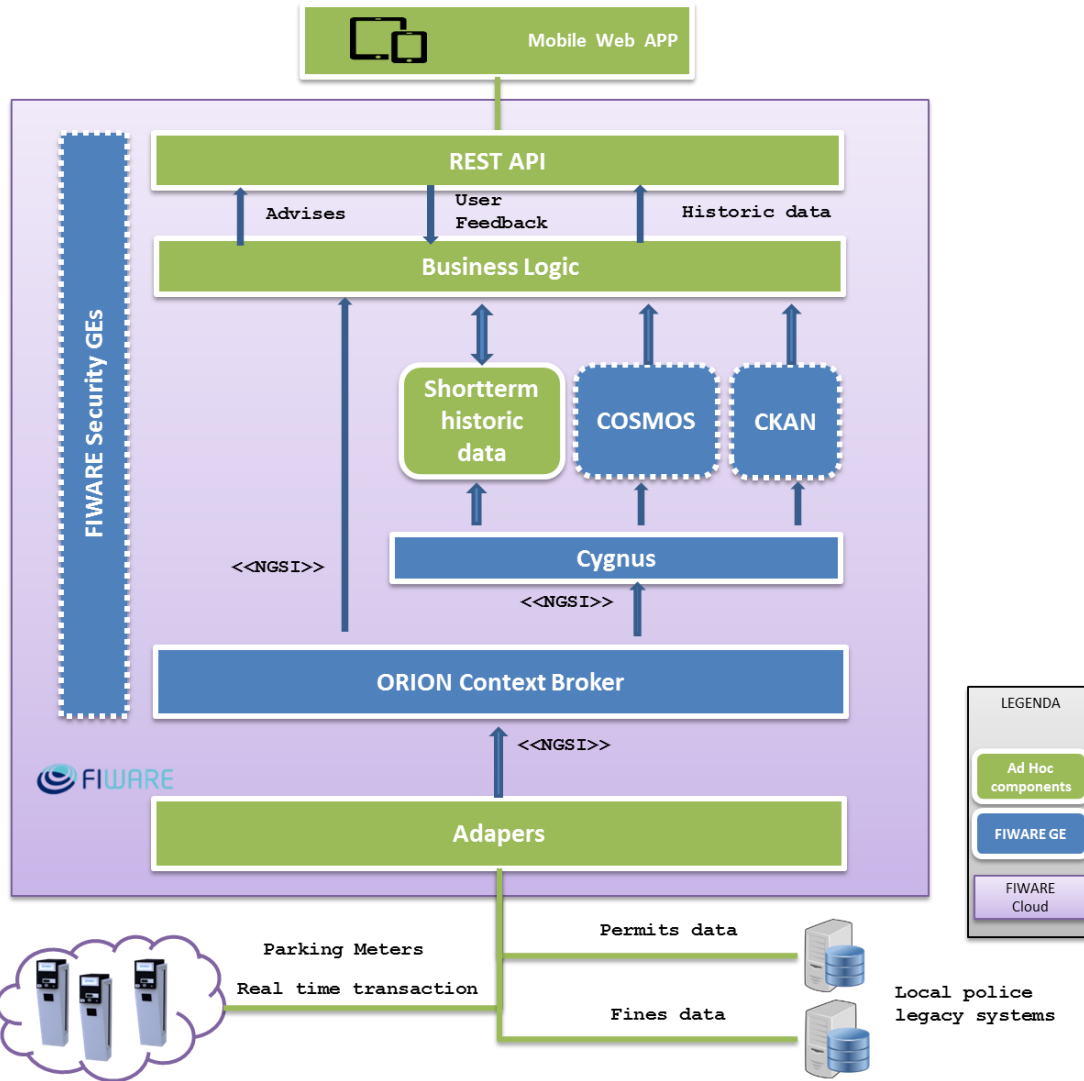


Ad hoc data model aimed at describing each single parking meter located in a given area

Variables related to a given parking meter:

Id, **location**, **total Spot Number**, **available Spot Number** (estimate). **Ref. On street Parking** (reference to the area including the parking meter)

Ancona Parking Advisor



A mix of FIWARE (blue) and «ad hoc» (green) models

Description of demo (end user perspective):

The user will query the mobile app that will provide a colored map according with:

- the different parking areas
- the different likelihood of finding a free parking slot in the different areas



Ancona Parking Advisor

The application will provide the list of the parking meters within the selected area, signaling the related likelihood to find a free slot with different colors:

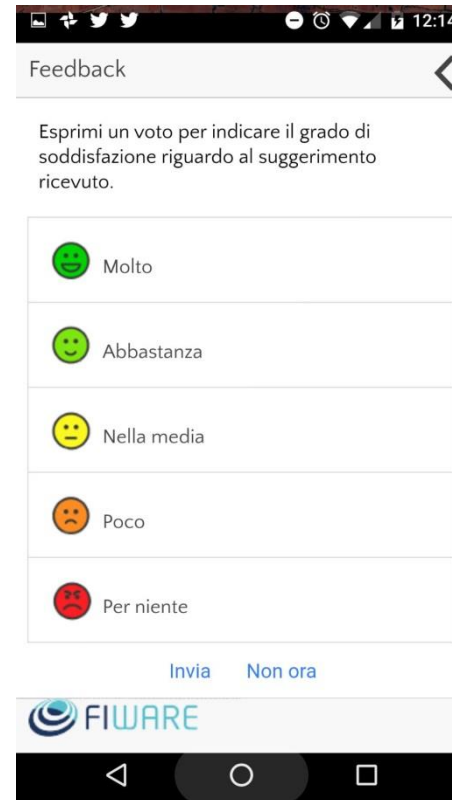
high: green

medium: orange

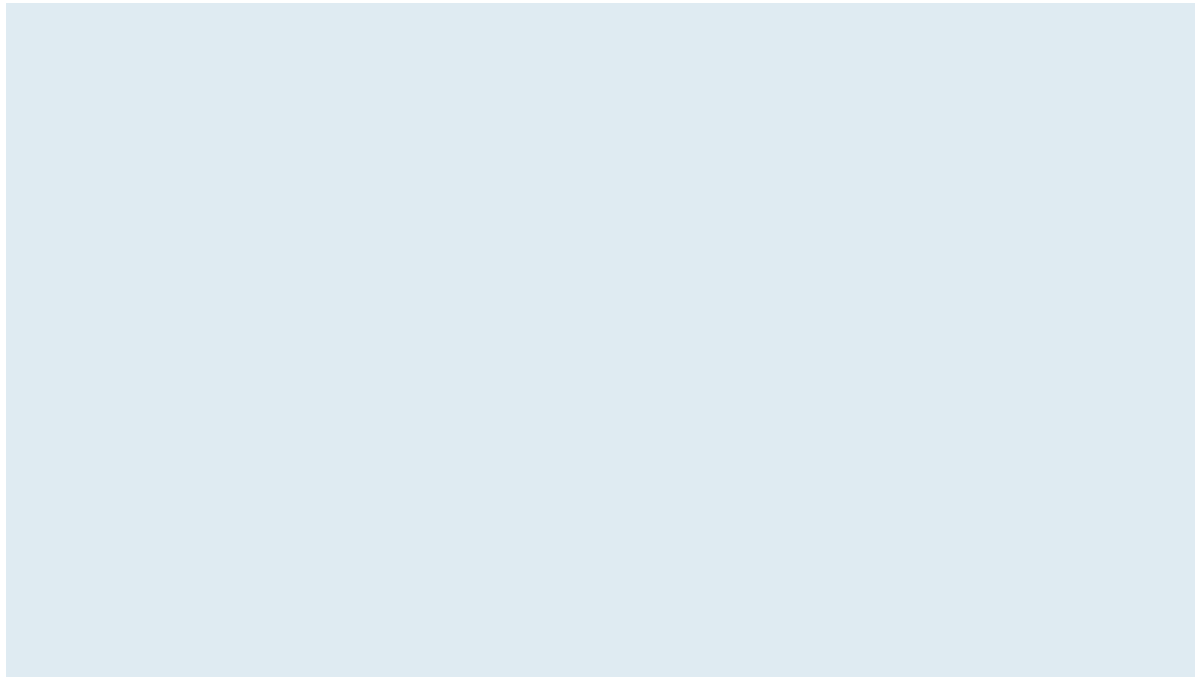
low: red



The user can send a feedback about its satisfaction in using the app



Ancona Parking Advisor



“Ancona Parking Advisor”: main strengths

- ✓ It is cost saving:
 - It doesn't need infrastructural investments (no sensors)
 - It processes available data :
 - on time data (parking tickets sold)
 - time series data (percentage of free parking slot in the same day in t-1, t-2 years)
 - additional info (number of special permits, rate of non paying cars)
- ✓ It is based on the FIWARE platform which allows:
 - Working on shared and common models
 - Interoperability
 - Exportability of best practices

“Ancona Parking Advisor”: main strengths

- ✓ It increases local institutions’ contextual knowledge
 - by better understanding person-place relationships
 - ...finally improving their urban planning capabilities

- ✓ It boosts the working of the Quadruple Helix Model, involving:
 1. Local institutions (Ancona Municipality – data provider)
 2. Private partners (Engineering – algorithm definition and app development)
 3. Research centers (Univpm - algorithm definition)
 4. Citizens (passive role - sensors; active role – feedbacks providers)



Enhancing PPP

Next steps:

- The gradual process of replacing former parking-meters with on-line parking meters is still on-going (40 new on-line parking meters planned for the next year)
- Times series data from tickets issued will be provided and processed in order to improve the estimates
- On the ground observations will be provided by traffic wardens via tablet (number of special permits, non paying cars, empty slots)
- Integration with MyCicero and with Local Public Transport timetable

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