Optimize your mobility
Improve your parking guidance

Traffic

Innovation

Smart City

Intelligent Traffic

Software

P **PGI**

Pulsar Parking Guidance and Information System

P-PGI

Europe and Road Traffic Mobility

In the frame of the European regulations, several concerns are covered related to road traffic mobility in densely populated area like capitals and big cities. For instance, easy access by car to urban area, decongestion of most crowded streets and zones, and reduction of CO_2 emission. One of the domains to be managed in this respect is the access of cars to available parking zones.

> *« Parking guidance and information (PGI) systems, or car park guidance systems, present drivers with dynamic information on parking within controlled areas. The systems combine traffic monitoring, communication, processing and variable message sign technologies to provide the service. »*
>
> (reference: Wikipedia)

The **P-PGI system**, as a product, supports different types of on-street displays. It is designed to be extensible in functions, adaptable to different devices, maintainable over years, manageable by non-IT people, pluggable into complex infrastructures, and connectible with the client's infrastructure.

It processes different types of inputs, from parking lots or other data originators.

Regarding its functions in parking lots, it is able to manage different types of related devices like parking lots traffic lights, access control points and payment terminals; and to communicate with external world through several means like email, SMS, mobile devices notifications. A complete web application allows to manage the parts of the **P-PGI system**, and provides various roles and users with qualified information they need to manage the system, like reports, statistics, geolocalization, etc.

> *« PGI systems are designed to aid in the search for vacant parking spaces by directing drivers to car parks where occupancy levels are low. The objective is to reduce search time, which in turn reduces congestion on the surrounding roads for other traffic with related benefits to air pollution with the ultimate aim of enhancement of the urban area. »*
>
> (reference: Wikipedia)

Advantages of a Parking Guidance System

• Drivers easily visualize in real time the various closest parking lots and their availabilities
• Operators optimize the fill rate of their parking lot
• Reduced road congestion and pollution
• Reduced time and travel distance for drivers looking for a parking spot
• Improved attendance of transit parkings
• Improved attendance of all parkings by optimizing a transfer between different parking lots.

Services
- Basic license for core functions
- Data Migration and load
- Customization (see opposite)
- Tailor Made Extensions (see below)
- Support contract
- Preventive and Evolving Maintenance

Customization (Look & Feel)
Beyond the core functions of the **P-PGI** tool, you can customize certain elements according to your look and feel:
- Application adapted with your colors
- Display of your logo in the banner
- Custom profiles and access rights
- Different kind of data input
- Different kind of displays
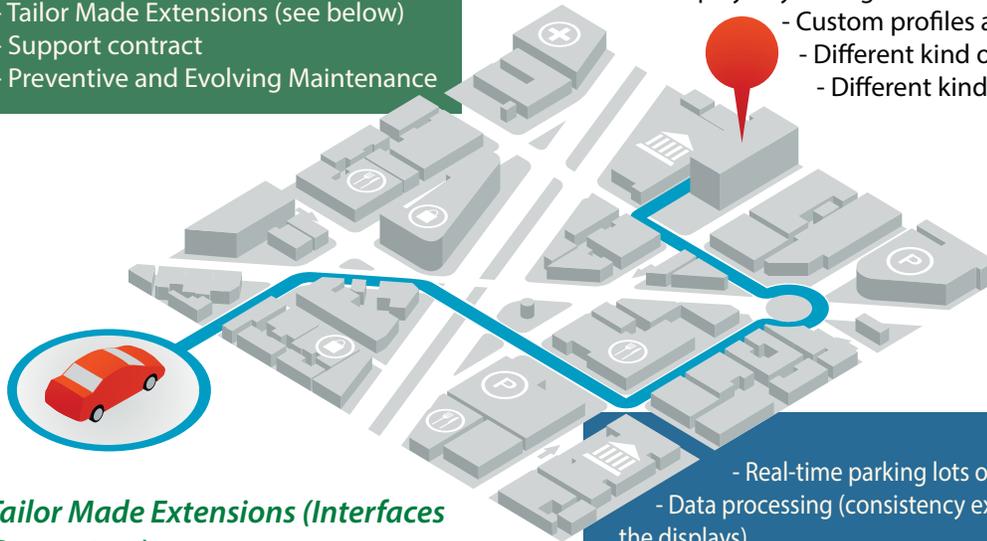
Tailor Made Extensions (Interfaces Connectors)

Our IT engineers can develop tailor made modules so that the application fits at best to your business.
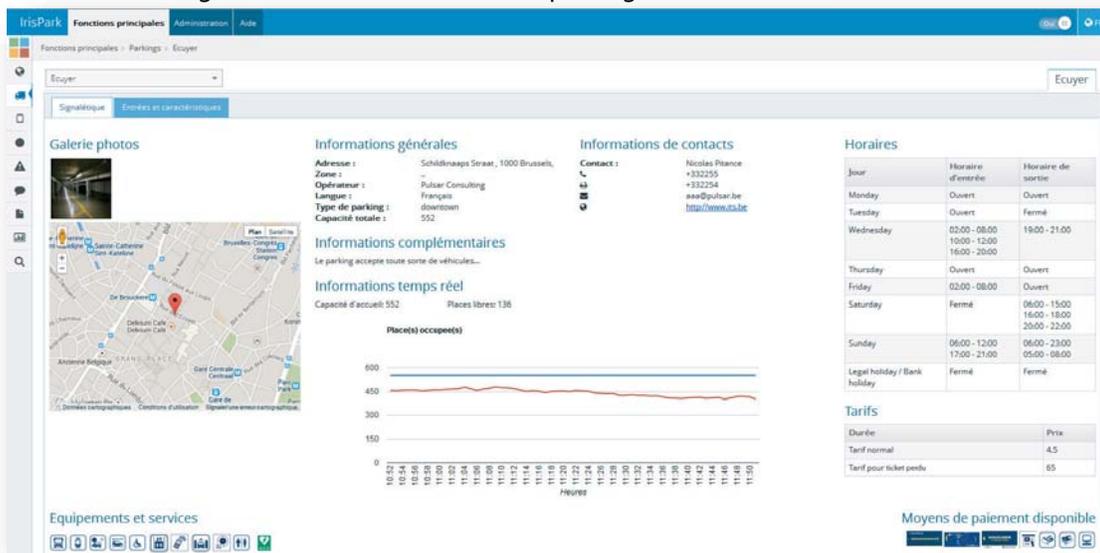For example:
- Custom reports and statistics
- Smooth integration into your own infrastructure (hardware & software)
- Custom data input
- Connection to your existing softwares (data interfaces)
- Integration of new hardware

Core Functions
- Real-time parking lots occupancy data gathering
- Data processing (consistency examination, allocation among the displays)
- Data transfer to displays
- Data dynamic display based on distance and occupancy criteria ; drivers guidance
- Possibility to relief routes by zones, preferential guidance
- Alarms management raises errors in parking lots communication and in the data content
- Displays monitoring : communication and functioning of software and hardware
- Parking lot and displays static data management
- Users profiles management, access rights (2-level security)
- Displays maintenance supported by the supplier Implementation of Datex standard
- Extensible modular architecture

Screenshots

Parking lot Visualization : general information about the parking lot infrastructure

Zones Management:
Zones mapping
&
list of parking lots located
within the zones

Display panels Management:
User friendly
geolocalization
of display panels

Monitoring of a Display

Users Management:
According to their role, different kind of
information is provided

Standards & Compliance : Datex format

DATEX II is a European data standard that facilitates the exchange of information between the different actors of traffic management. This standard was developed by the European Commission, following its ITS Action Plan.

P-PGI data structure was initially based on ITS model. Today, with the replacement of ITS by DATEX II approved extension on parking publications, our P-PGI product will make use of exchange formats fully compatible with DATEX II model.

Pulsar has developed specific expertise with DATEX II model. Moreover, with a tool developed by Pulsar which allows to read and "understand" a model and generate related code, we generated our own HTML publication of DATEX II model.
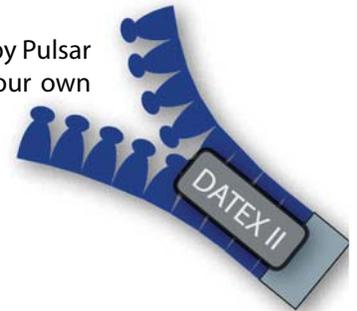
P-PGI Architecture
The **P-PGI system** is composed of 2 main parts, namely the Front-end and the Back-end.
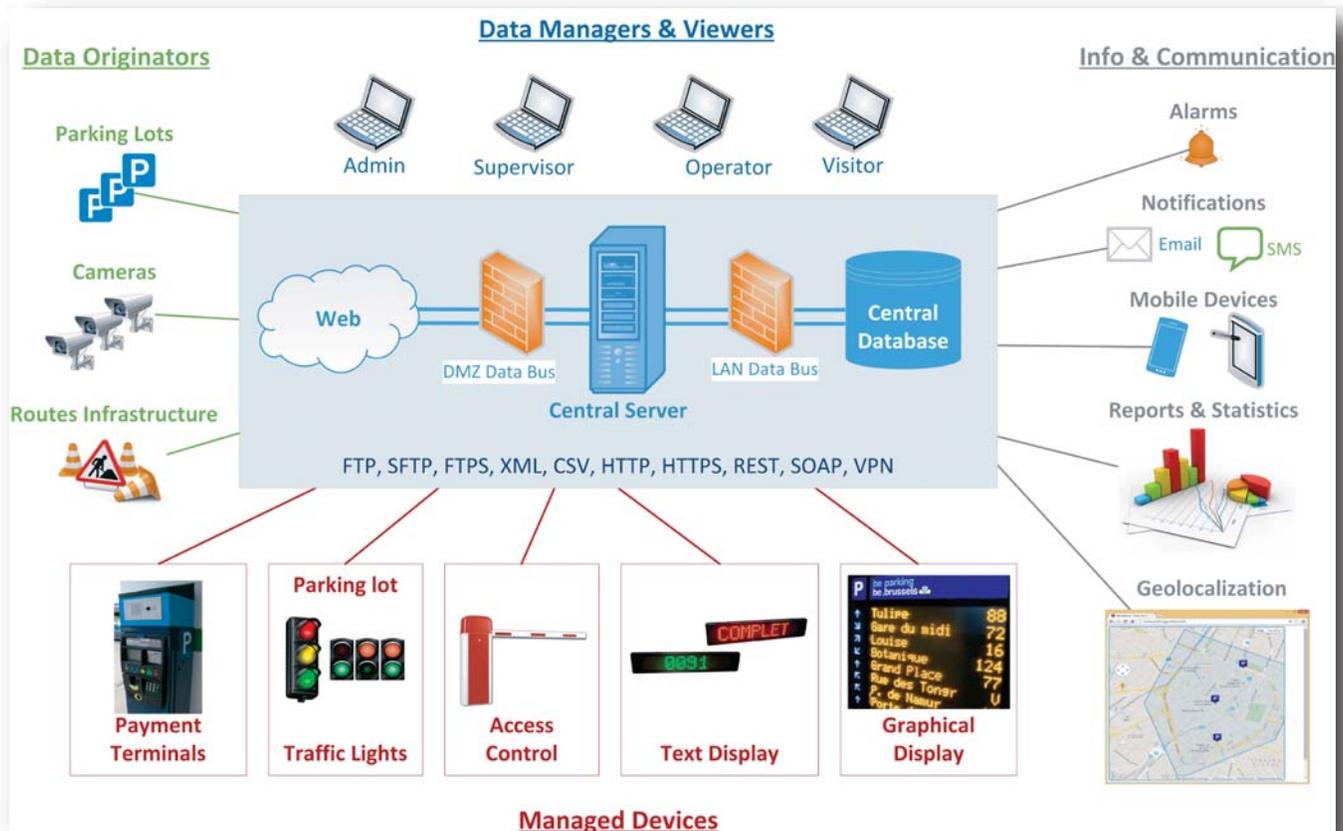### The Front-end is in charge of:
• collecting parking lot data
• processing data (validation, error detection, notifications) and sending data to Back-end for long term storage
• distributing data to display panels and to city website
The Back-end is in charge of:
• storing data collected by the front-end
• providing data to external actors at demand
• hosting a web site used by operators and administrators to manage the systems, including parking definitions, panel definitions, system parameters, alarms,…
The back-end website can be visited using a recent version of most of the standard browsers.
Valid credentials are required.

P-PGI Architecture diagram: Data Originators (Parking Lots, Cameras, Routes Infrastructure), Data Managers & Viewers (Admin, Supervisor, Operator, Visitor), Central Server with Web, DMZ Data Bus, LAN Data Bus, Central Database. Protocols: FTP, SFTP, FTPS, XML, CSV, HTTP, HTTPS, REST, SOAP, VPN. Managed Devices: Payment Terminals, Traffic Lights, Access Control, Text Display, Graphical Display. Info & Communication: Alarms, Notifications (Email, SMS), Mobile Devices, Reports & Statistics, Geolocalization.