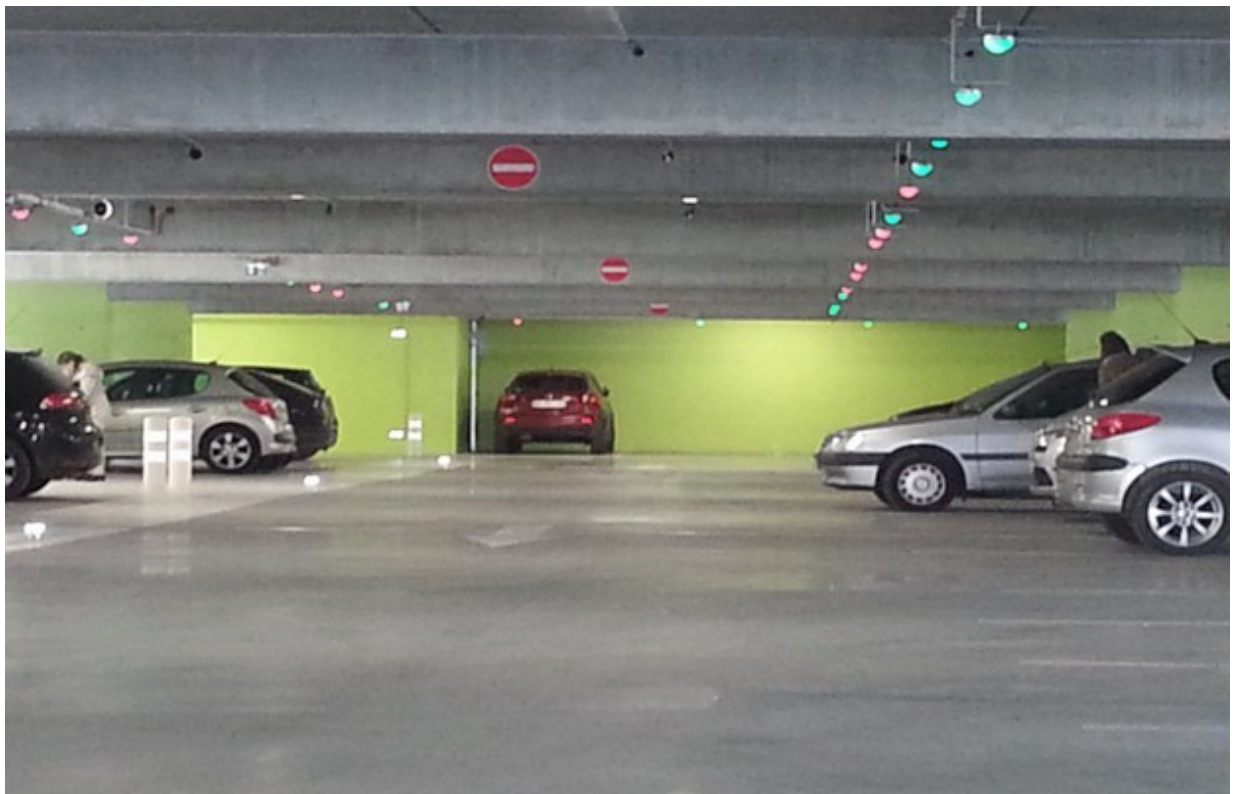


INNOVATIVE PARK

Dynamic Guidance System in car parks



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I. PRESENTATION

The parking lot is the first place where the user of a shopping center or an airport goes, and the felt impression must be at the height of the image of the expected quality and professionalism.

Customers are known to have limited average time spent on their purchases and any waste of time away from stores is detrimental to the mall's revenue.

That's why dynamic, real-time management guidance system can help operators increase sales significantly and strengthen their brand image.

Innovative Park is an integrated and dynamic park management system, able to inform and guide users to quickly find a parking space.

Innovative Park constantly analyzes its real-time database and offers a number of particularly advantageous features (zone filling statistics, counting, forecasts, location of suction cars, employee cars, etc.).

I.1 Features and benefits for users

- Area and real-time display of available places.
- Dynamic staking allowing to reach a free place as soon as possible.
- Analysis and display of the available places closest to the desired area (cinema, food trade, clothing trade, services ...).
- Help in finding your vehicle: Innovative Park can list the history of parking spaces possibly used in the given time range.
- Subscriber processing and anti-theft feature.
- Strengthen pedestrian safety by improving the flow of traffic.
- Comfort for the user who is guided to the best available space (close to the entrance of the level or zone).
- Reduction of pollution and fuel savings: the user reaches his parking spot more quickly.

The main advantage for the user is a gain in time and significant stress. He is constantly informed about the possibilities to quickly find a place:

- Display at the entrance of the parking lot of the total number of places available, by level, by zone ...

- Display at the entrance to the parking lot of the total number of places reserved for the disabled and by level.
- Display at the entrance of each level of available places with the possibility of displaying the numbers of the nearest available places.
- Management of disabled people with a specific display of reserved places.
- These displays are updated in real time as soon as a spot becomes free or occupied.

1.2 Features and Benefits for Parking Lot Managers

- Decrease the time required for the user to park, allowing an increase in the time spent in stores. The optimization of parking therefore allows sales optimization for shopping centers.
- Better image of the shopping center because of the informative service and dynamic staking.
- A fixed signage to direct customers towards the entrance to the shopping center closest to their needs (cinema, food, clothing, etc.), augmented by a variable and real-time signage indicating which room is the closest to the desired entry is a source of increased turnover for traders.
- Marketing tools related to the recognition of license plates of users' vehicles. (VIP customers with a loyalty card, statistics stamped parking area ...).

1.3 Features and Benefits for Parking Lot Operators

- Counting functions of vehicle entries and exits.
- Real time determination of the occupancy of all parking spaces, by zone and hour.
- Real-time and / or delayed information from operating statistics: fill rate and vehicle turnover rate.
- Comparison between the actual turnover rate and the accounting turnover rate.
- Real-time determination of available spaces in the car park, not only by counting entries and exits, but by the dynamic and real-time measurement of the actual occupancy of places.

- Determination of the evolution of the filling rate of the parking lot allowing a management of performance. Indication of a saturation trend and temporal prediction of saturation.
- Statistics on parking times at each place.
- Detection of car suction cups: alarm on the non-movements of vehicles with a configurable time per place (example: 1 day, 3 days ...).
- Acquisition and recognition of vehicle registration plates at the entrance to the parking lot to eliminate lost ticket fraud (optional).
- Resumption of technical and fire alarms from the existing PLCs on the site in order to have on a single supervisory station real information on incidents that may affect the car park.
- Transmission on request to an ERP of statistics of filling / turn-over of the car park to interested entities and for example: associations of co-owners, technical and financial managers, municipalities ...

II. GENERAL ARCHITECTURE:

Innovative Park is an integrated parking management system that consists of:

- Vehicle presence detection devices, equipped with signaling LEDs informing the users of the free or occupied state of the parking spaces installed above the parking spaces or on the ground in the case of parks on-street parking and allowing the determination of the availability of parking spaces.
- Dynamic displays to inform users during the different phases of their journey in the car park. It should be noted that dynamic displays incorporate a data base, which
- A dynamic management supervisor of the availability of parking spaces and guidance for users. The operation is performed on local machines or remote in Web Server mode.
- Connectivity to back-office and building management systems.

The system architecture consists of a hardware platform client / server running on PC and Linux server, and communication gateways connected to the site's equipment:

- vehicle detection devices in structures, surface parking lots or roads,
- dynamic displays, information totems, various traffic signs, traffic flow displays,

All these equipments are connected by bus on the Innovative Park network. The various buses making up the system are interconnected via communication gateways and connected to the server.

II.1 Server / Supervisor Architecture

- A server connected to a local network and the Internet,
- Customer stations for guiding the guiding system instead of users. These posts may be local or deported,
- Communication with the remote maintenance server Innovative Technologies.

II.2 Software architecture

The software architecture of the system consists of a client / server platform running on a Linux server and management stations running on Windows PC.

The server makes the operating information of the system available to clients. Customers are supervisory machines. The supervisor (s) are machines running Windows. They can be either local or deported via a local network and / or via the Internet for remote operation (remote management). This architecture also allows remote maintenance of equipment.

The system was also developed with the aim of creating an interoperable multi-platform system, ie an open and multi-protocol system allowing the recovery of information from several subsystem suppliers such as vehicle counting. , Technical Building Management or various technical equipment (CO analyzers, CO2 ...). The system integrates the following communication functions:

- Communication to an ERP or a proprietary application of the alarms and statistics of parking operation via network.
- Remote management: management of the operator position by external administrator,
- Remote maintenance,
- Relocation or duplication of the parking application on a central site (web server mode),
- Communication with the Building Management System (protocol conversion) and / or alarms from local PLCs (smoke detection, CO detection, CO2).

The site's equipment is connected to the server. This server has the following functions:

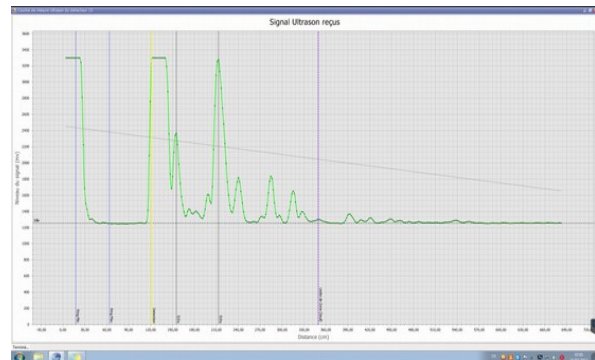
- provide users, on their workstations, with real-time or non-real-time information (back-office management) from the system via the Internet or a local network,

- transmit to the Monitoring Server Innovative Technologies any malfunctions of all or part of the installed system,
- enable Innovative Technologies to remotely perform maintenance, support and troubleshooting.

Thanks to this remote management, Innovative Technologies' technical department is able to communicate with all the site's equipment, ie the server, the communication gateways, the digital displays and the detectors.

It is then possible to modify settings and settings of all these equipments, and by example of setting the distance of detection

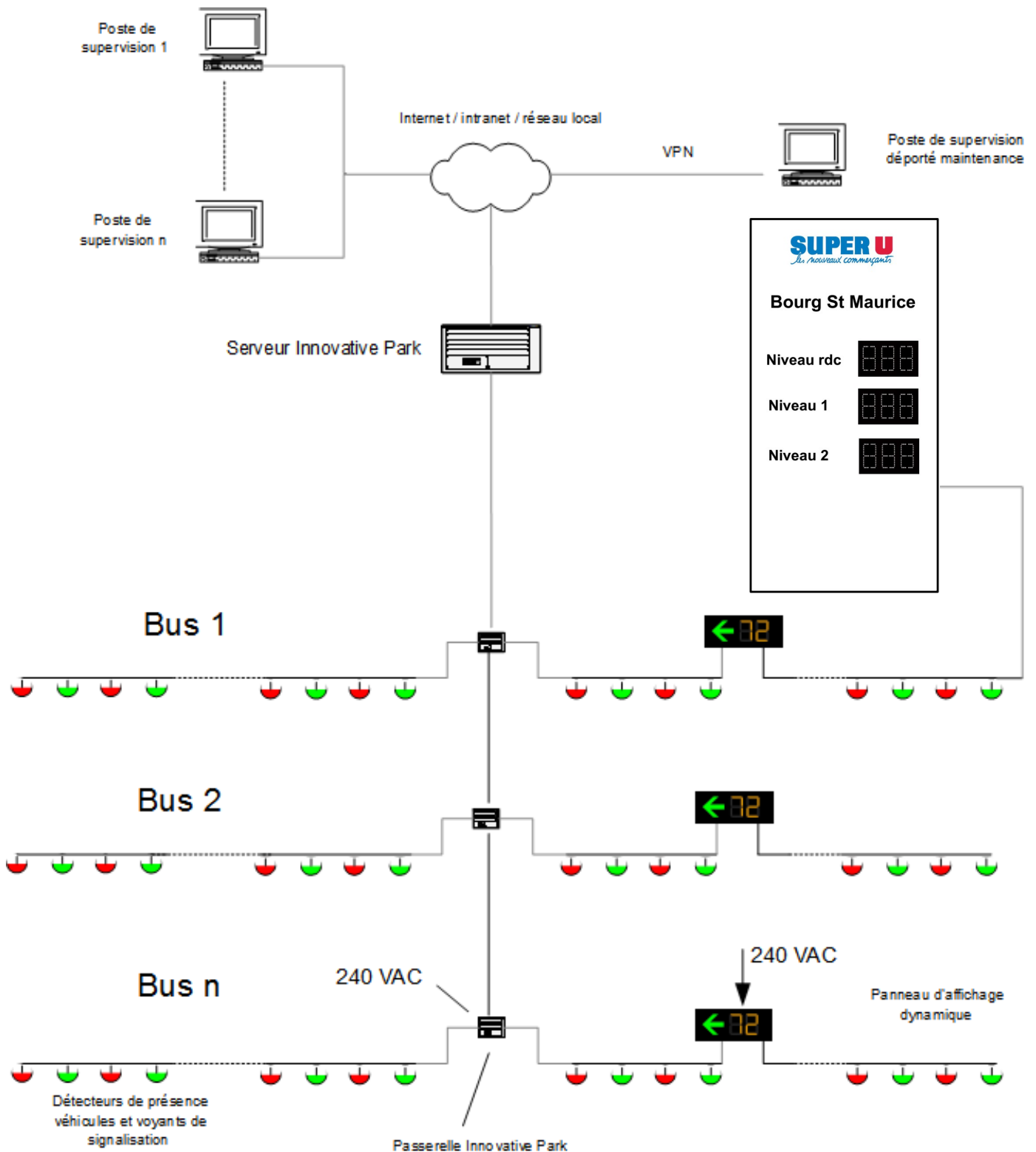
The system also allows replace or upgrade the micro-software.



Communication between the site server and the Innovative Technologies server is done via a virtual private network (VPN).

The supervisor (s) operating in web server mode and the resident applications on the client computers are automatically installed via ClickOnce deployment technology.

II.3 Typical diagram of the general architecture



III. DETECTION OF VEHICLES AND SIGNALING LIGHTS

III.1 Vehicle detection device technology and signaling lights

Each device for detecting the presence of vehicles makes it possible to define whether a place is occupied or not. The device incorporates a sensor that is an ultrasonic rangefinder.

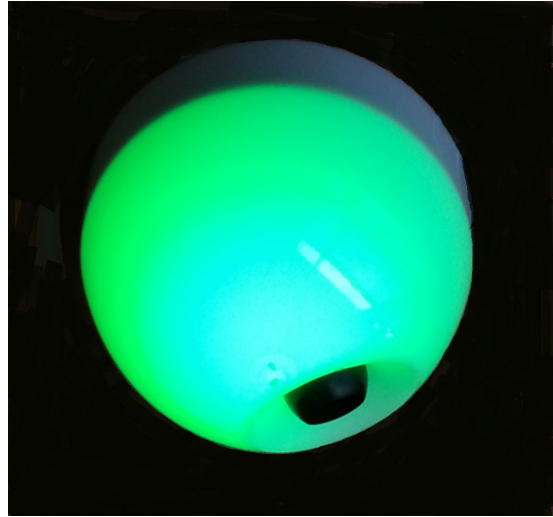
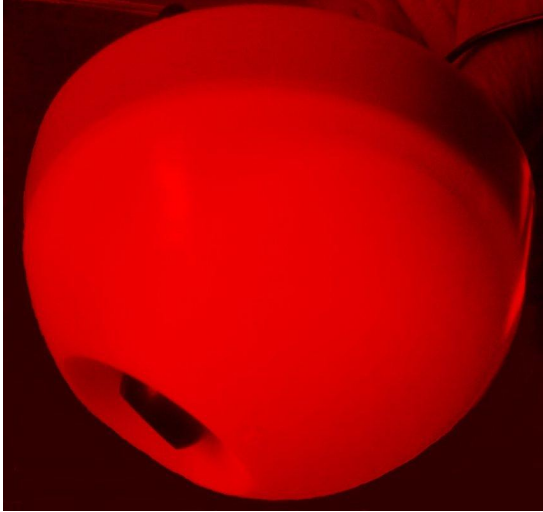
The detection device incorporates a green (free space) and red (occupied space) occupancy indicator light.

The positioning of the detectors can be carried out indifferently above the parking space of the vehicle or at the entrance of the place to be more readable from the driveway. A ball joint makes it possible to position the detector optimally.

III.2 Indicator lights

The light is a luminous globe allowing a 360 ° uniform light diffusion.

This technology will thus make it possible to realize the traditional red and green displays for the standard places and red and blue for the places for disabled people, but also the yellow colors (electric vehicles), violets (family places) or any other color for specific categories as reserved places,



Standard lights

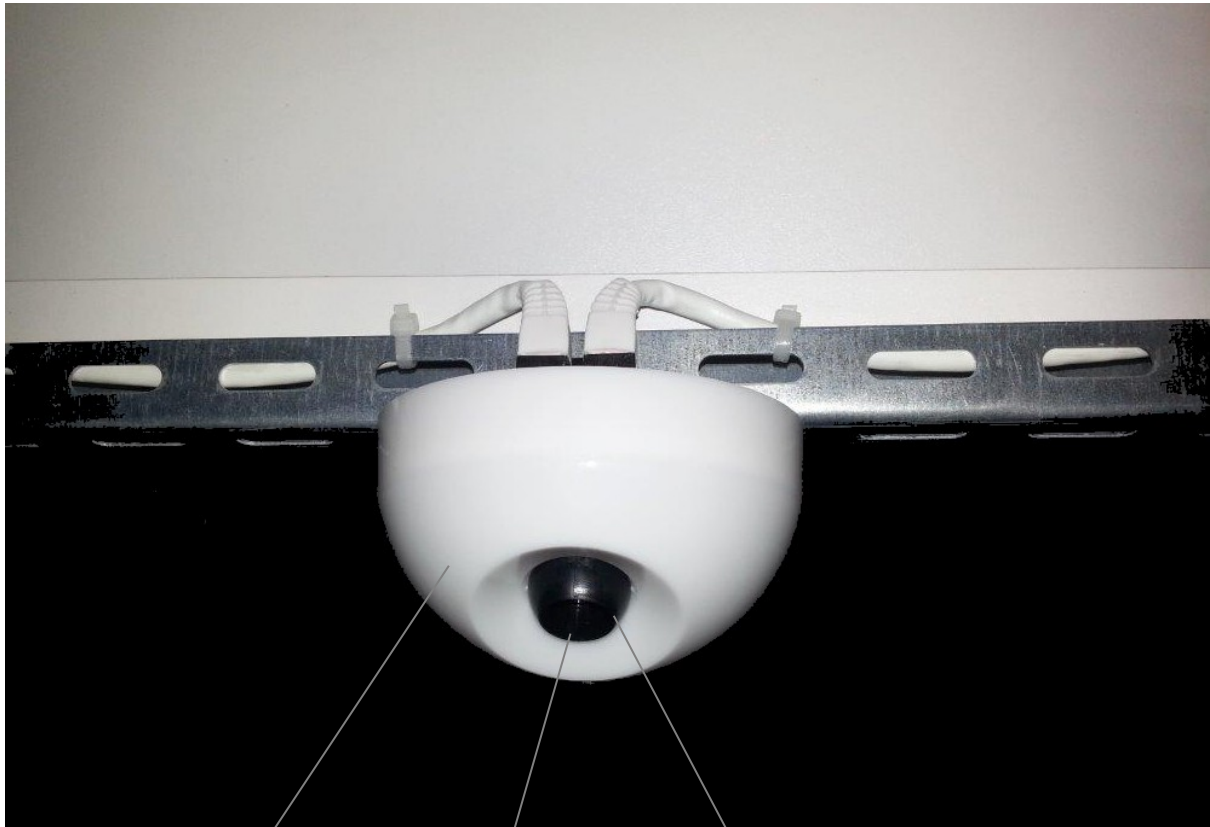


Disabled people lights

III.3 Detail of a VDML :

Detail showing:

- the diffusing globe,
- the ball joint for adjusting the inclination of the ultrasonic detector,
- the ultrasonic detector.



Diffusing globe,

Ultrasonic detector

Ball joint for adjusting the inclination of the ultrasonic detector



Exemple of detectors / lights – Parking Némausus - Nîmes



Exemple of detectors / lights – Parking Cassis

IV. COMMUNICATION NETWORK - WIRED COMMUNICATION TECHNOLOGY

The architectural concept of the network is based on the principle of "Infrastructure as a system" IaaS of Cloud Computing.

Vehicle Detectors (VDML) and Dynamic displays are connected on the same network and process information in the center of functional interests. The functional center of interest is a logical grouping of equipment, detectors and dynamic displays, in the same functional zone.

The Vehicle Detector Communication Network (VDML), digital signage and communication gateways use Bus Can technology, which is a high-speed industrial fieldbus. This technology ensures a high communication rate without risk of electromagnetic disturbance.

The BusCan network is an industrial field network developed by Bosch in 1980 and is standardized according to ISO 11898. The communication speed on the network is between 100 and 500 Kbps depending on the lengths of the branches.

The advantages of the BusCAN network are:

- insensitivity to electrical noise,
- detection and automatic correction of transmission errors (lower residual error probability $4.6 \cdot 10^{-11}$).

This network is widely used in the industrial and automotive world. It is the embedded network that equips almost all current vehicles.

A global network consists of several branches that each include 100 detectors and dynamic displays.

The operating principle is as follows:

- Each digital display panel has a database that integrates the state of all the detectors of its functional center of interest, that is to say of all the detectors from which it must take the information of occupation or not of the corresponding place.

- Each detector provides the network with the status information of the parking space it manages.

- The information of the taking or the release of a place, transmitted on the network is recovered by the dynamic displays (s) forming part of the functional center of interest.

- The corresponding displays (s) indicate to users the number of places available.

Advantages :

- Very short processing time, of the order of 200 ms between a take / release of a place and the effective display of the number of places available on the displays,
- Possibility of managing detectors that are not wired on the same network as the digital display panels (facilitates wiring),
- The supervisor is only used for back office functions, ie an HMI (Human Machine Interface) for statistics management and configuration. If the supervisor stops, the counting and guidance system will continue to work.

The information on the network is transmitted to the supervisor via inter-network gateways.

Communication gateways are the interfaces between VDMLs, dynamic displays, and the server. They also supply power to detectors and signaling LEDs.

A communication gateway is required for powering and communicating 100 VDMLs and dynamic displays. Communication gateways are wired to the server via a Can Bus network.

The response time of a detector until the color change of the signaling LED is configurable from 0.1 to 5 seconds. This makes it possible to integrate, if the operator wishes, the stop of the maneuvers of the user but also the pedestrian passages under the detectors.

V. COMMUNICATION GATEWAYS

The communication gateways allow the connection between two half buses of 50 devices each (detectors and displays) and the link between all the gateways and the server.

The communication gateways are integrated into housings to be installed in technical rooms.

The housing also incorporates the 48 VDC power supply for powering the detectors.



V.1 Technical characteristics

Operation	
Processor	PIC32MX775L256L, PIC32MX775L512L, ou PIC32MX795L512L - Cœur Mips M4K, 80Mhz, 124 DMips,
Memory	de 256 à 512 K Flash, 64 à 128 Ko Ram
Interfaces	Bus Can, TCP/IP via un serveur Raspberry

Electrical	
Power supply	110 -240 VAC
Electrical consumption	25 W
Communication network	BusCan
Connectors	RJ45

Caractéristiques mécanique	
Dimensions (W x H x P) version coffret	450 x 450 x 250 mm
Material	ABS gris
Weight	5 kg

Ambient conditions	
Operating temperature	-10°C à 50°C
Storage temperature	-20°C à 60°C
Étanchéité version coffret	IP67
Sealing	IP44
Impact resistance	N/A

Reglementation	
FCC emissions	CE (EN55013)
Conducted emissions	NF-EN 55022 (1998)
Immunity	CE (EN50130-4)
Radio fréquence Immunity	NF-EN 61000-4-3 (1995).
RF common mode immunity	NF-EN 61000-4-6 (1994)

VI. SERVER

The server has several functions:

- the acquisition of data from metering sensors, displays, PLCs or any equipment on the bus via the communication gateways
- the transmission of counting information to the supervisor for the compilation of statistics,
- the provision of counting information, statistics and equipment settings for local supervisors, web server applications and remote maintenance.

VI.1 Technical characteristics

Operation	
Processor	Gigabyte GA-C1007UN (Intel Celeron 1007U, 2x LAN, Win8 ready)
Memory	RAM 4096MB DDR-III 1333
Hard disk	Scandisk 2.5" SATA SSD 64GB
Power supply	picoPSU-160-XT DC/DC (160 Watt) [24pl ATX]
Operating system	Linux Ubuntu

Electrical	
Power supply	110 -240 VAC
Consumption	25 W
Communication network	BusCan - Ethernet
Connectors	RJ45

Ambient conditions	
Operating temperature	-10°C to 50°C
Storage temperature	-20°C to 60°C

Reglementation	
FCC emissions	CE (EN55013)
Conducted emissions	NF-EN 55022 (1998)

Immunity	CE (EN50130-4)
Radio frequency Immunity	NF-EN 61000-4-3 (1995).
RF common mode immunity	NF-EN 61000-4-6 (1994)

VI.2 Casing :

The server is available in two casings:

1. Rackmount 19 " rack version:



Mechanical features rack version	
Dimensions	19", 2U 88 x 483 x 350mm
Material	steel
Weight	6 kg
Sealing	IP30
Impact resistance	N/A
Ventilation	N/A

2. Cabinet version:



Mechanical features cabinet version	
Dimensions	400 x 300 x 165 mm
Material	ABS
Weight	5,5 kg
Sealing	IP65
Impact resistance	N/A
Ventilation	Natural

VII. DYNAMIC DISPLAYS

The dynamic displays at different stages of its progression in the parking lot will help the user in his process of choosing a zone and a place. Visual element and key of the system, it is essential that the displays integrate perfectly in their environment.

The information given by the dynamic displays is updated in real time as soon as a place becomes vacant or becomes occupied.

The park entrance display (totem) indicates to the users the number of places available in the parking lot by level and by category (normal places and PMR places).

The level meters show users the number of places available at each level and at the following levels.

The aisle displays show users the number of places available in each level. These indications are given at the points of choice, ie at intersections and junctions in the parking lot.

VII.1 Driveways and level displays

The level displays show users the number of places available in each driveway / level. These indications are given at the points of choice, ie at intersections and junctions in the parking lot.

The functional principle is to provide the user with clear information by using the green arrow and red cross pictograms associated with the number of places available.



Example of level display



Exemple of double display



VII.2 Technology of the dynamic displays

The technology of dynamic displays installed in buildings is based on the use of integrated LEDs in a tunnel of light. This technology, patented by Innovative Technologies, offers the advantage of not creating a dot effect even at a short distance and therefore being very comfortable for the eye of the user.

The color complies with the color C1 defined by DIN EN 12966 and the Decree of 28 June 2006 on the performance and commissioning rules for variable message signs subject to the CE marking requirement.

The front side incorporates a film diffusing the light creating a homogeneity in the display of the digits. The unpowered segments, thus extinct, are invisible.



VII.3 Caractéristiques générales des panneaux d'affichage dynamique

Operation	
Display	Numeric 2 to 5 digits ; Alphanumérique up to 12 caractères ; Height of digits / characters: 130 mm, 180 mm. Color: amber. Autres colors available; Module cross - arrow; Optionnal backlight.
Processor	PIC32MX775L256L, PIC32MX775L512L, ou PIC32MX795L512L - Core Mips M4K, 80Mhz, 124 DMips,
Memory	256 to 512 K Flash, 64 to 128 Ko Ram
Interfaces	Bus Can, TCP/IP

Paramétrages	
Setting	Light intensity ; Control of the backlight; Blinking or not digits; Flashing speed; Blinking or not the cross symbol if it is displayed in steps of 1/100 of a second; Blinking or not the arrow symbol if it is displayed in steps of 1/100 of a second; Flashing or not digits if it is displayed in steps of 1/100 of a second (example if display = 00).

Electrical	
Power supply	110 -240 VAC
Electrical consumption	25 W (2 digits + flèche – croix + rétroéclairage)
Network	Réseau de communication BusCan (réseau EPARK) ou RS 485 (réseau hôte). Vitesse de communication BusCan : 125 kBits/s à 1 Mbits/s en fonction de la longueur du bus. Protocole Bus CAN ISO 11898;
Connexion	Data : RJ45 Power supply: 1 câble 3 x 1,5 mm ² ;

Mechanical	
Dimensions (W x H x P)	440 mm x 200 mm, 660 mm x 200 mm, 800 mm x 200 mm, 1200 mm x 300 mm. Custom sizes
Material	15 / 10th steel sheet, laser cut, folded and welded;
Coating	Epoxy AKZO NOBEL POWDER COATING structurée.
Front face	PMMA 4 mm printed
Color	Black satin RAL 9005 (standard). All RAL colors available
Weight	7,5 kg (2 digits + cross - arrow)
Installation	Ceiling on brackets adjustable in height; applied.

Conditions ambiantes	
Température de fonctionnement	-10°C to 50°C
Température de stockage	-20°C to 60°C
Étanchéité	IP54
Résistance aux chocs	NFEN 50102 : IK08 (front face)

Sécurité	
Fire classification: cabinet	M0 (steel)
Fire classification: paint	M1 Fire comportement: A2 Smoke: s1 Drops or burning particles: d0 NF EN 13501 - 1
Fire classification: PMMA front face	M4 Auto-ignition temperature: 450 ° Decomposition temperature:> 250 ° C At a temperature above 250 ° C: Thermal decomposition into flammable and irritating products: Methyl methacrylate On combustion, formation of toxic products: Carbon monoxide, Carbon dioxide

Reglementation	
FCC emissions	CE (EN55013)
Conducted emissions	NF-EN 55022 (1998)
Immunity	CE (EN50130-4)
Radio frequency Immunity	NF-EN 61000-4-3 (1995).
RF common mode immunity	NF-EN 61000-4-6 (1994)

VII.4 Examples of achievements of dynamic displays



Totem : CHU de Saint Etienne



Totem : Centre commercial Leclerc – Pau



Totem : Parking Mimosas - Cassis



Centre commercial Parly II



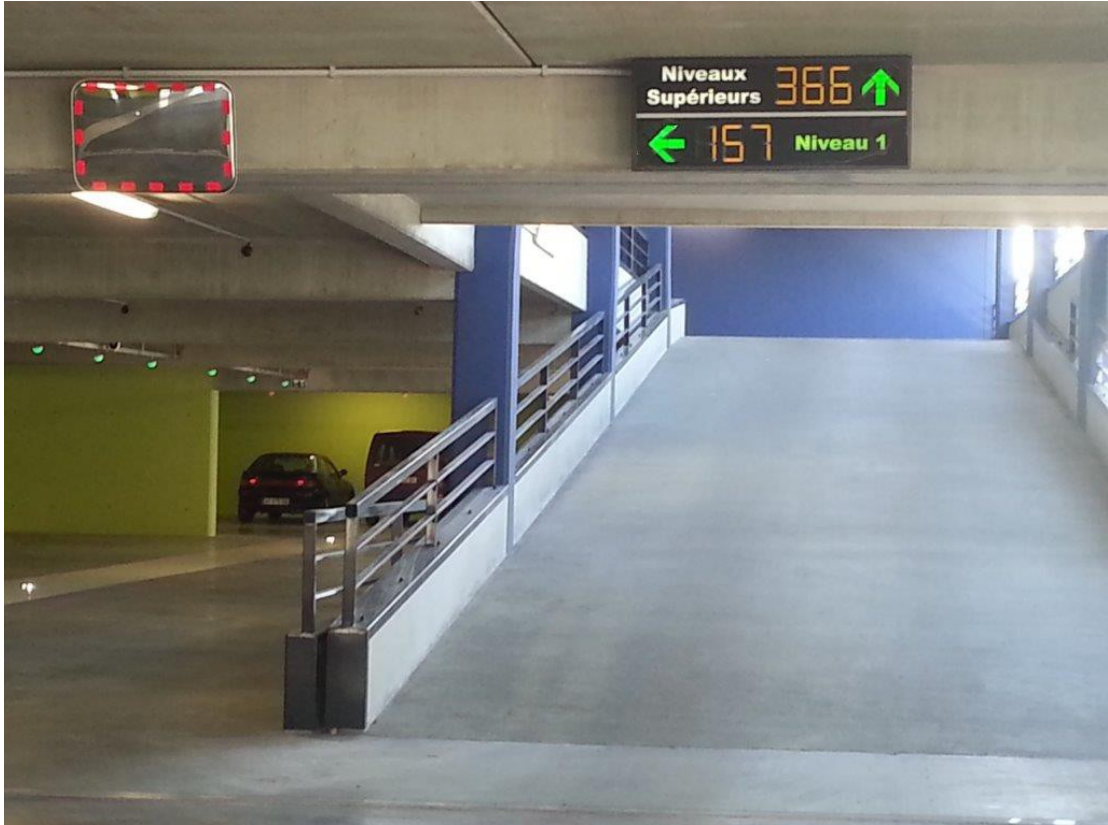
Parc de stationnement Beaubourg (Paris – VinciPark).



Exemple de panneau d'affichage dynamique en situation, ici avec rétro éclairage (centre commercial Vélizy II).



Parking Némausus - Nimes



Centre commercial Leclerc - Pau

VIII. SUPERVISION - EXPLOITATION

Innovative Park is a metering system instead and guiding users in parking lots.

The Innovative Park supervision and operating system has two main functions:

- Communication server with the equipment of the site,
- Supervision, ie a man - machine interface with the operator enabling him to efficiently operate his parking lot.

The supervision and exploitation system is a set of applications allowing:

- visualize in real time the operation of the car park,
- inform operators of the occurrence of incidents that may affect the park,
- provide the operator with statistics on the operation of the parking lot,
- Set up deployed hardware and monitor their operation

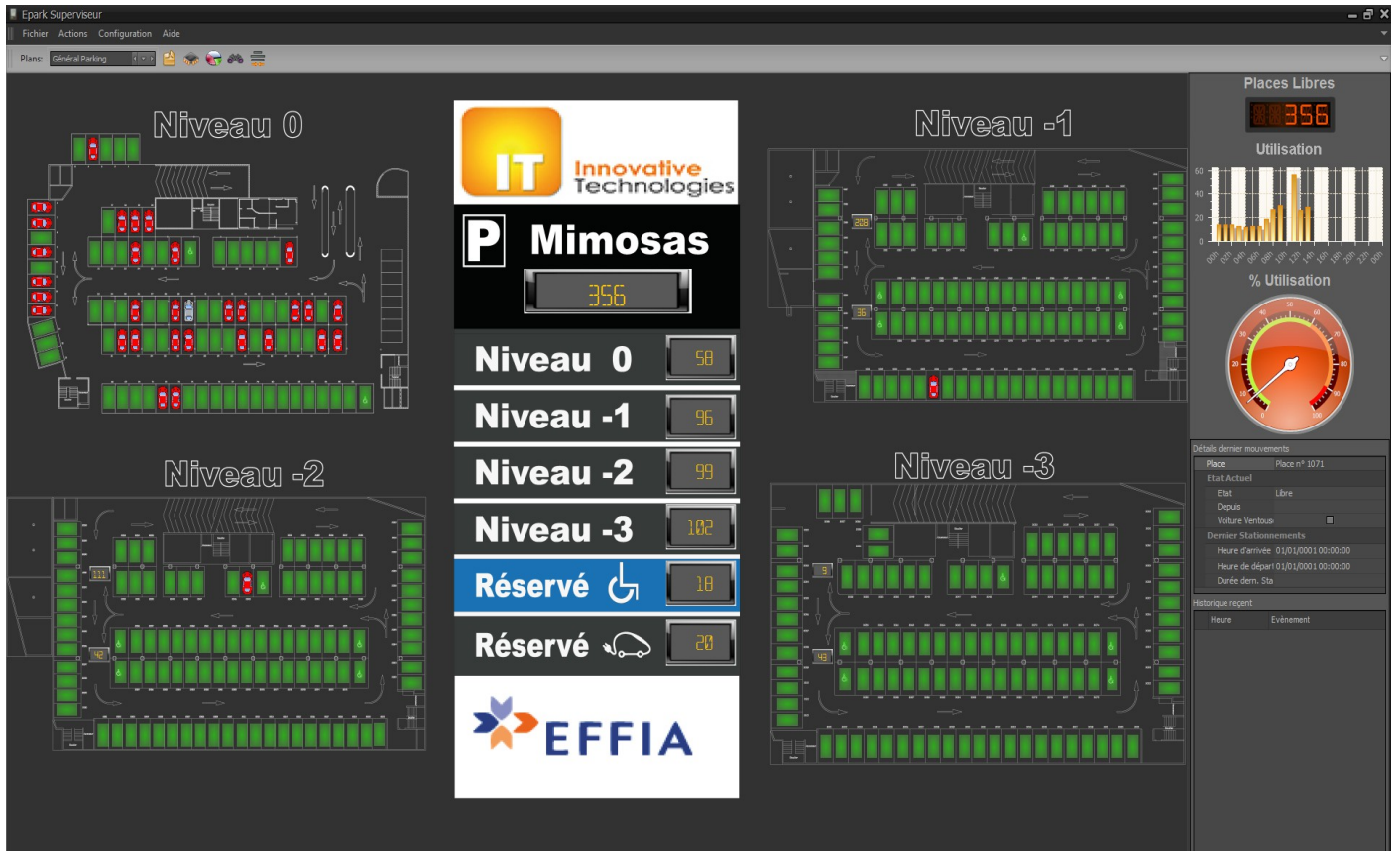
VIII.1 Real-time visualization features

The supervisor allows the operator to visualize in real time the information related to the operation of the car park:

- Overall plan of the car park, by level, zone and aisles with graphic representation of the occupation of the parking spaces.
- Location of dynamic displays, information totems, various traffic signs, traffic flow displays, and visualization of displayed data,
- The occupancy rate of the parking lot, that is to say the display of the number of places available and the number of places occupied for the entire parking lot, by level and by zone and the reminder of this rate of occupation for the current day,
- The trend of the evolution of the filling of the park and the prediction of saturation,
 - Location of the suction cars (whose duration exceeds a pre-set threshold),



Sample screen page - real-time visualization



Sample screen page - real-time visualization

VIII.2 Statistical features

The occupancy statistics can be consulted at any time and provide per day and per month:

- The number of entries and exits,
- Parking time based on arrival times,
- The history of vehicle movements by place and by type (arrival or departure),
 - The use, ie the occupancy rate of the car park giving the free places and the places occupied as well as the cupping cars by time slot of the day,
 - The use, ie the occupancy rate of the parking giving the free places and the places occupied as well as the suction cars per day for one month,
 - Traffic, ie vehicle entries and exits per hour of the day,
 - The traffic, ie the inflow and outflow of vehicles per day of the month,
 - The profitability of the car park, ie the cumulative duration of occupancy of the places and the utilization ratio corresponding daily over the period of one month,
 - Attendance at the parking lot showing the number of visits and the average number of visits per hour during the day,
 - Attendance at the parking lot showing the number of visits and the average duration of visits per month.

VIII.2.1 History of vehicle movements between 2 dates / hours

This screen shows the timestamped history of vehicle movements for each parking space.

Historiques des mouvements de véhicule

Date de Début 01/12/2012 00:00:00 Date de fin 29/12/2012 00:00:00 Rechercher

Mouvements

Date	Place	Evènement	Arrivée	Durée
28/12/2012 12:00:14	1392	Arrivée d'un véhicule	28/12/2012 12:00:14	
28/12/2012 11:59:42	1392	Départ d'un véhicule	27/12/2012 17:21:19	00j 18h 38m 23s (18,64h)
28/12/2012 11:59:38	1391	Arrivée d'un véhicule	28/12/2012 11:59:38	
28/12/2012 11:58:56	1391	Départ d'un véhicule	28/12/2012 09:14:51	00j 02h 44m 05s (2,73h)
28/12/2012 11:56:47	1390	Arrivée d'un véhicule	28/12/2012 11:56:47	
28/12/2012 11:55:46	1390	Départ d'un véhicule	28/12/2012 08:03:38	00j 03h 52m 08s (3,87h)
28/12/2012 11:55:44	1371	Arrivée d'un véhicule	28/12/2012 11:55:44	
28/12/2012 11:54:26	1371	Départ d'un véhicule	28/12/2012 09:58:46	00j 01h 55m 40s (1,93h)
28/12/2012 11:52:39	1404	Arrivée d'un véhicule	28/12/2012 11:52:39	
28/12/2012 11:51:49	1404	Départ d'un véhicule	28/12/2012 07:37:03	00j 04h 14m 46s (4,25h)
28/12/2012 11:50:51	1370	Arrivée d'un véhicule	28/12/2012 11:50:51	
28/12/2012 11:50:42	1370	Départ d'un véhicule	28/12/2012 11:33:56	00j 00h 16m 45s (0,28h)
28/12/2012 11:33:56	1370	Arrivée d'un véhicule	28/12/2012 11:33:56	
28/12/2012 11:33:41	1370	Départ d'un véhicule	28/12/2012 11:22:46	00j 00h 10m 54s (0,18h)
28/12/2012 11:32:55	1368	Arrivée d'un véhicule	28/12/2012 11:32:55	
28/12/2012 11:31:16	1368	Départ d'un véhicule	28/12/2012 11:19:30	00j 00h 11m 45s (0,20h)
28/12/2012 11:28:17	1393	Arrivée d'un véhicule	28/12/2012 11:28:17	
28/12/2012 11:28:11	1393	Départ d'un véhicule	28/12/2012 11:11:48	00j 00h 16m 22s (0,27h)
28/12/2012 11:26:30	1377	Arrivée d'un véhicule	28/12/2012 11:26:30	
28/12/2012 11:24:44	1377	Départ d'un véhicule	28/12/2012 10:59:24	00j 00h 25m 19s (0,42h)
28/12/2012 11:22:46	1370	Arrivée d'un véhicule	28/12/2012 11:22:46	

61694 mouvements affichés

Filtrer les battements des detecteurs

Fermer

VIII.2.2 History of vehicle movements for a parking space

This screen shows, for a defined parking space, arrivals and departures time stamped.

Historiques des mouvements de véhicule

Date de Début 01/12/12 00:00:00 Date de fin 29/12/12 00:00:00 Rechercher

Mouvements

Place ▾ Evènement ▾

Date	Place ▾	Evènement ▾	Arrivée	Durée
+ Place: 1365 (Nbre=611)				
+ Place: 1367 (Nbre=288)				
- Place: 1368 (Nbre=227)				
+ Evènement: Arrivée d'un véhicule (Nbre=113)				
- Evènement: Départ d'un véhicule (Nbre=114)				
03/12/2012 10:25:00	1368	Départ d'un véhicule	29/11/2012 18:38:18	03j 15h 46m 42s (87,78h)
03/12/2012 11:52:27	1368	Départ d'un véhicule	03/12/2012 10:25:56	00j 01h 26m 30s (1,44h)
03/12/2012 12:10:16	1368	Départ d'un véhicule	03/12/2012 11:53:13	00j 00h 17m 02s (0,28h)
03/12/2012 18:29:37	1368	Départ d'un véhicule	03/12/2012 12:11:35	00j 06h 18m 02s (6,30h)
03/12/2012 21:35:42	1368	Départ d'un véhicule	03/12/2012 19:38:13	00j 01h 57m 29s (1,96h)
04/12/2012 10:51:59	1368	Départ d'un véhicule	04/12/2012 09:38:17	00j 01h 13m 42s (1,23h)
04/12/2012 11:30:59	1368	Départ d'un véhicule	04/12/2012 10:52:43	00j 00h 38m 15s (0,64h)
04/12/2012 12:34:13	1368	Départ d'un véhicule	04/12/2012 11:32:16	00j 01h 01m 57s (1,03h)
04/12/2012 14:14:29	1368	Départ d'un véhicule	04/12/2012 12:51:21	00j 01h 23m 07s (1,39h)
04/12/2012 16:26:12	1368	Départ d'un véhicule	04/12/2012 14:15:27	00j 02h 10m 45s (2,18h)
04/12/2012 18:30:06	1368	Départ d'un véhicule	04/12/2012 16:27:35	00j 02h 02m 30s (2,04h)
04/12/2012 18:35:03	1368	Départ d'un véhicule	04/12/2012 18:34:56	00j 00h 00m 06s (0,00h)
04/12/2012 21:36:52	1368	Départ d'un véhicule	04/12/2012 18:35:39	00j 03h 01m 13s (3,02h)
05/12/2012 16:56:13	1368	Départ d'un véhicule	05/12/2012 10:05:56	00j 06h 50m 17s (6,84h)

61694 mouvements affichés

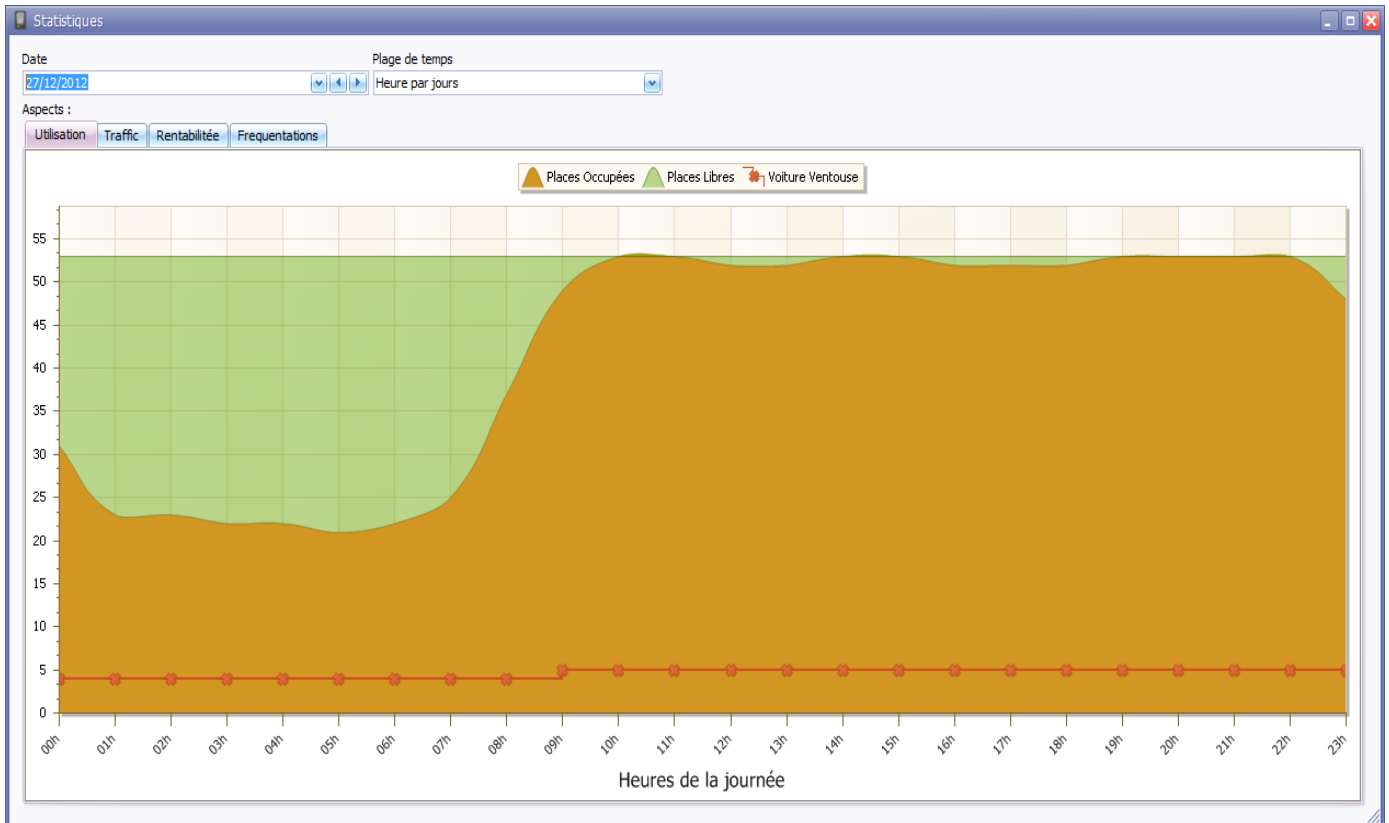
Filtrer les battements des detecteurs

Fermer

VIII.2.3 Parking occupancy statistics per day

This screen shows, for a defined period, the occupation of the car park:

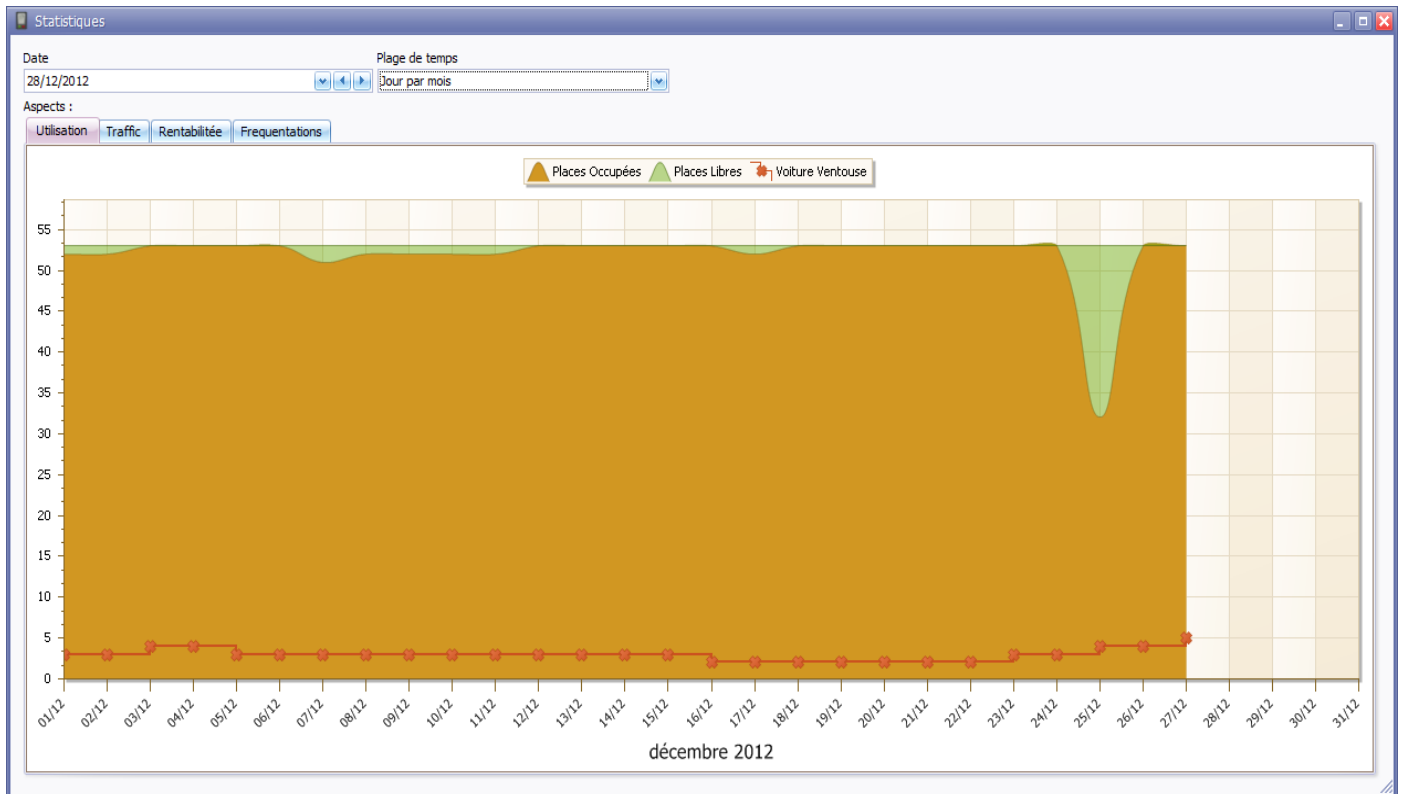
- the number of places occupied,
- the number of free places,
- the number of suction cars.



VIII.2.4 Parking occupancy statistics per month

This screen shows the occupation of the parking lot, daily and over a monthly period:

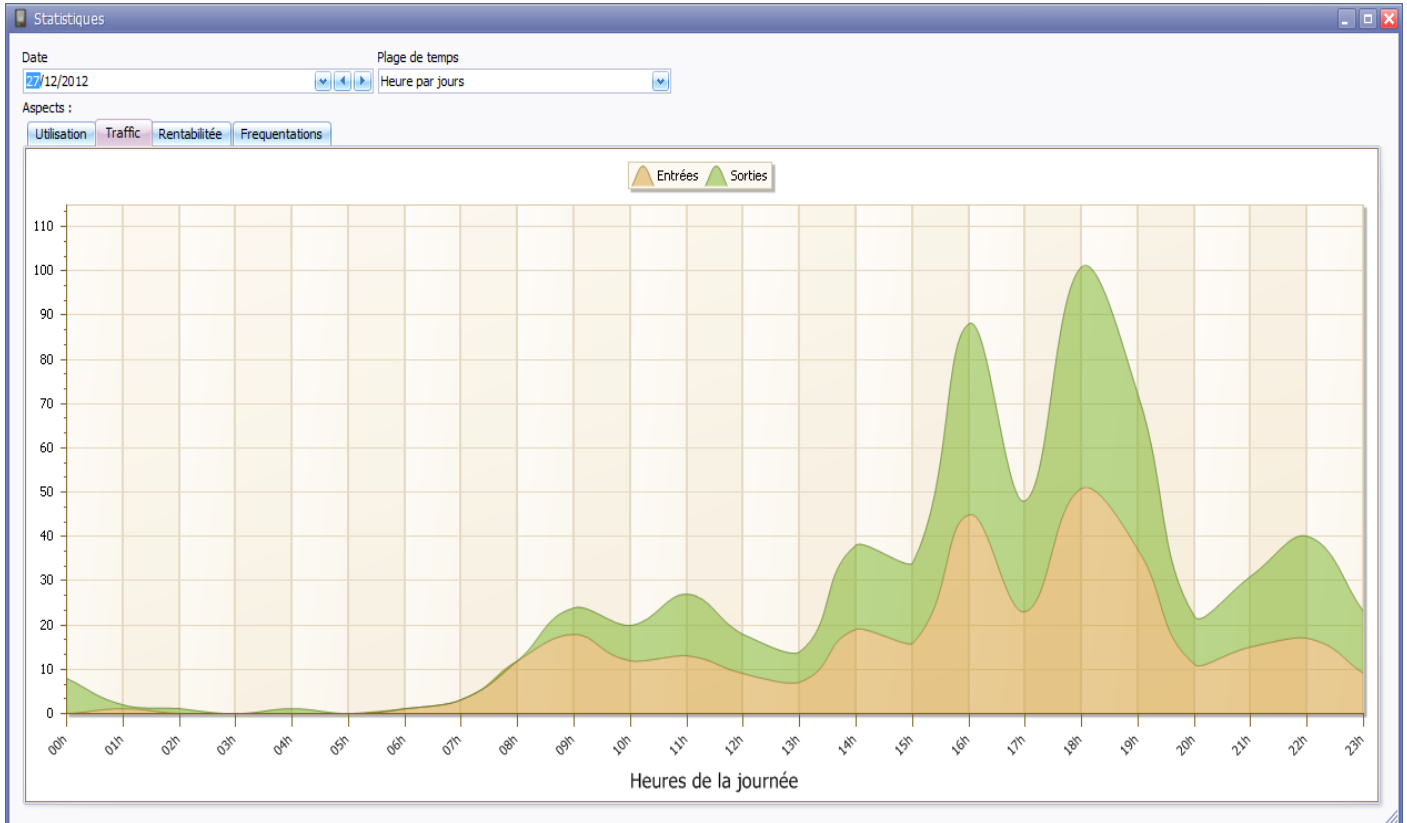
- the number of places occupied,
- the number of free places,
- the number of suction cars.



VIII.2.5 Traffic statistics input and output per day

This screen shows the level of traffic, hour by hour, for a given day:

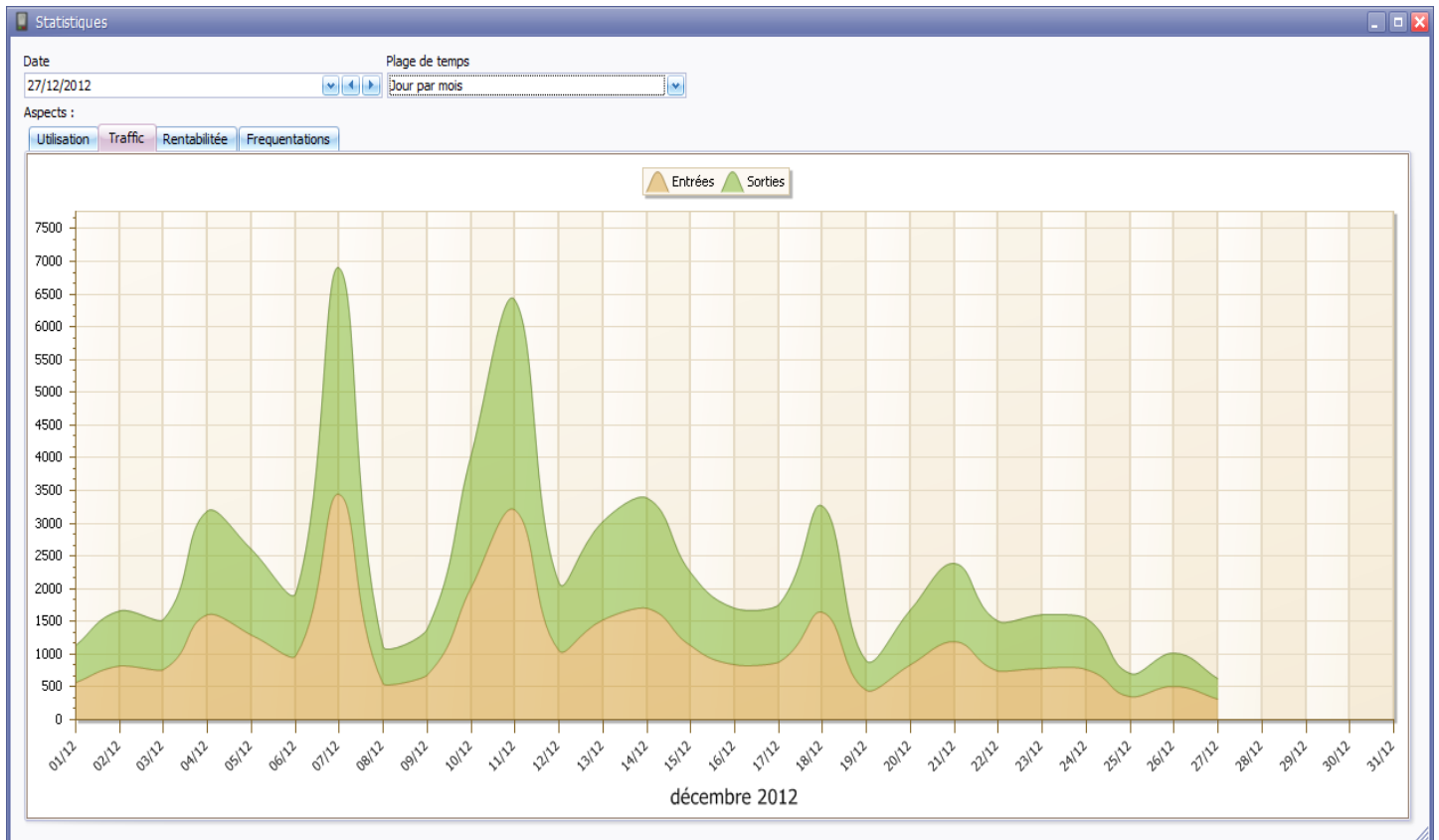
- the number of entries,
- the number of exits.



VIII.2.6 Incoming and outgoing traffic statistics by month

This screen shows the level of traffic, daily, for a given month:

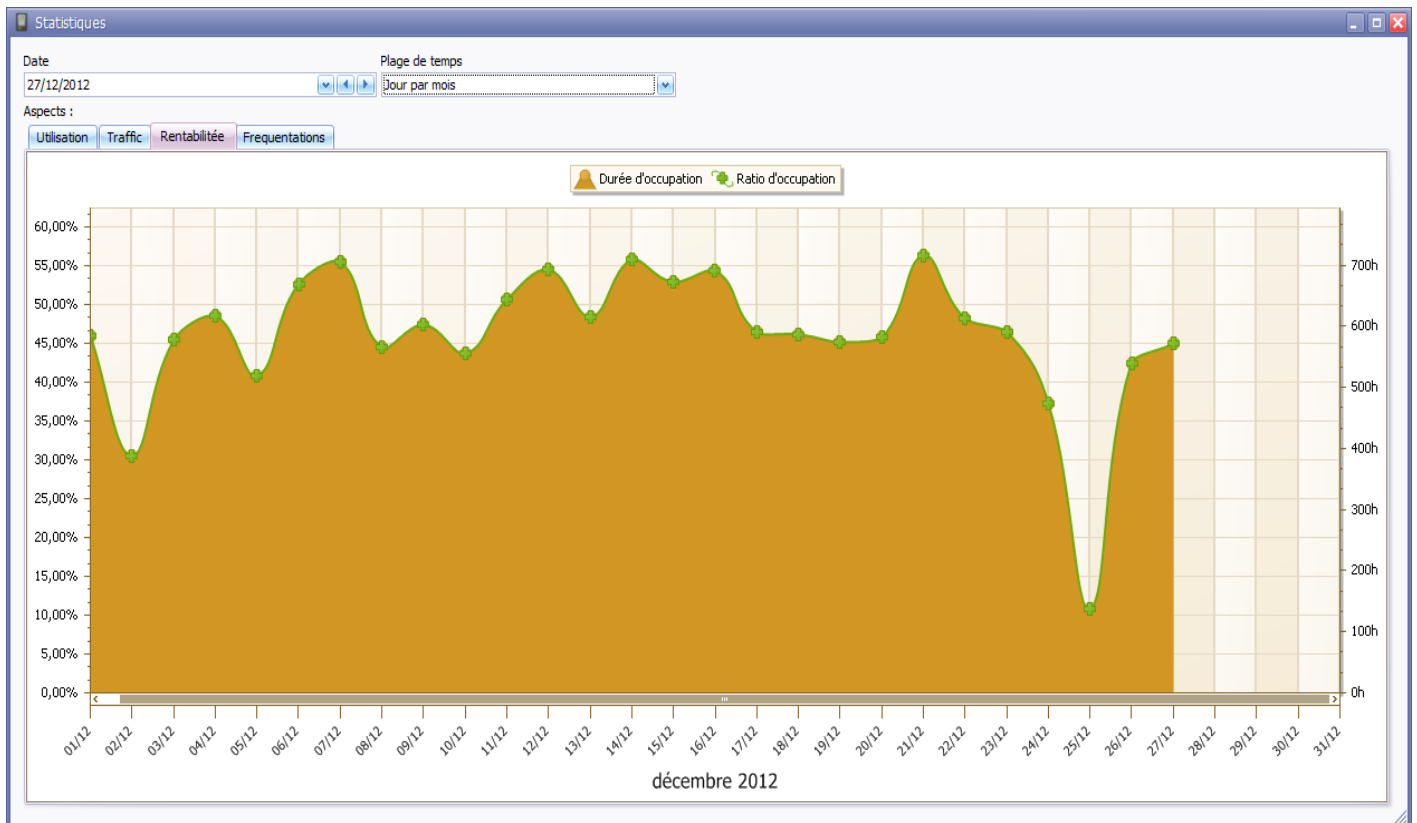
- the number of entries,
- the number of exits.



VIII.2.7 Profitability statistics by month

This statistic is related to the profitability of the car park. The screen shows, day by day, and over a period of one month:

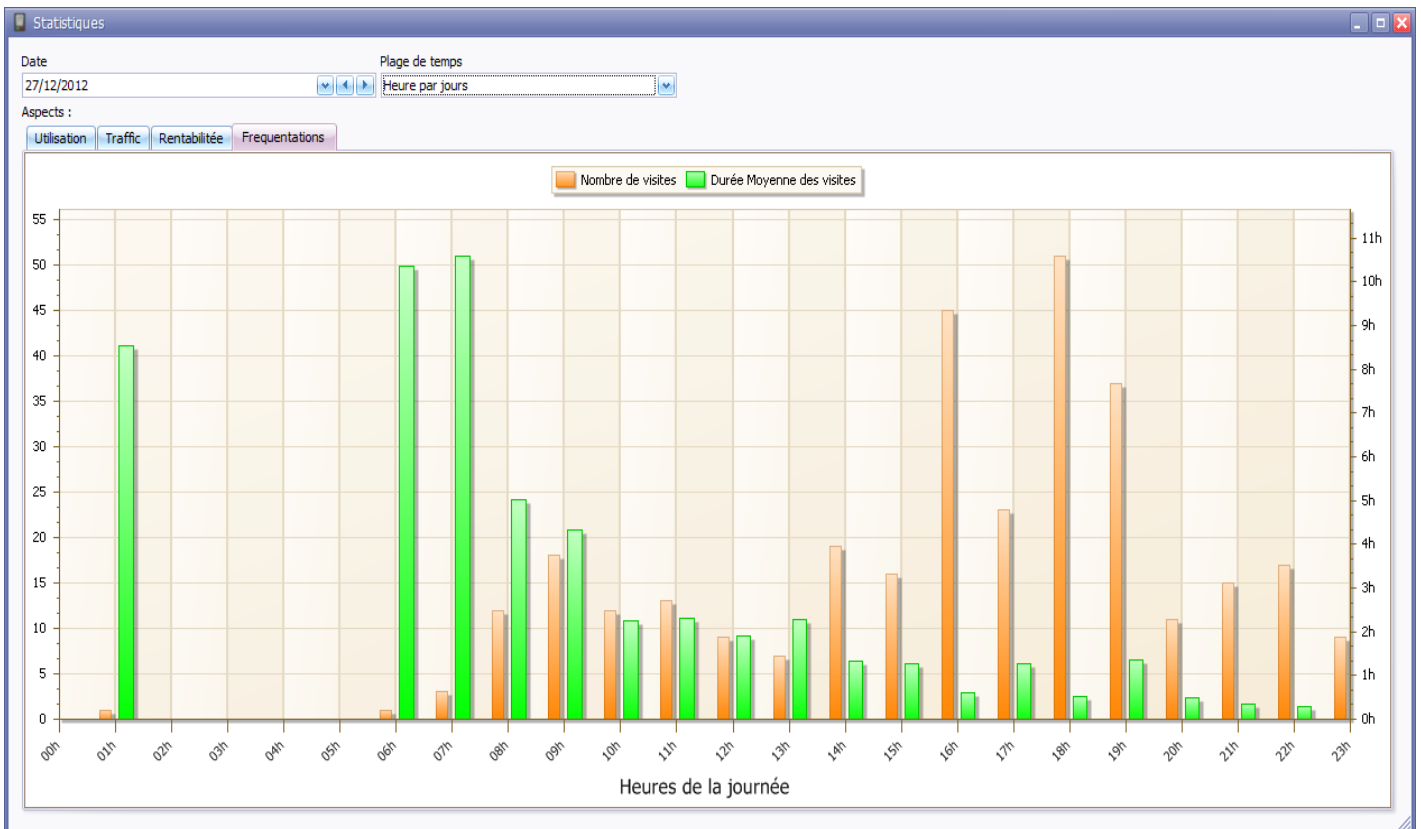
- the occupation time in hours,
- the occupancy ratio in%.



VIII.2.8 Attendance statistics per day

This screen shows the attendance statistics of the parking lot over a monthly period by giving:

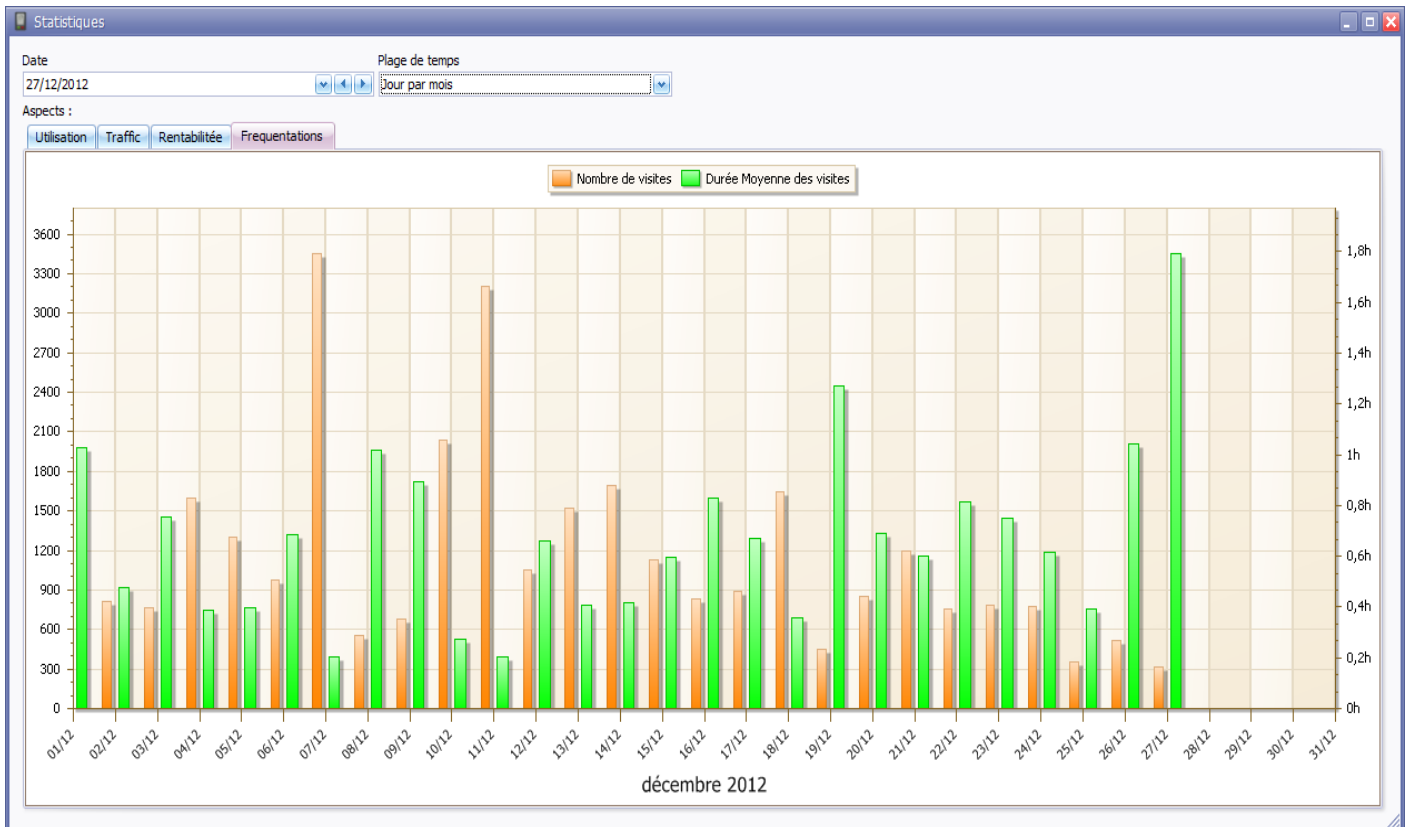
- the number of visits during the period,
- the average length of a visit.



VIII.2.9 Attendance statistics by month

This screen shows the attendance statistics of the parking lot over a monthly period by giving:

- the number of visits during the period,
- the average length of a visit.



VIII.3 Additional and specific functions

VIII.3.1 Search function of a vehicle

This function allows the operator to help a user to find his vehicle in the parking lot, the user knowing his arrival time by the timestamp of his ticket. The operator can indicate the places that were taken in the minutes concerned.

Recherche d'un Véhicule

Recherche de Véhicule : Arrivées Le 12/12/2012 Vers 16h +/- 1/2 heure Rechercher

N° Place	Arrivée
1392	12 décembre à 15:38
1420	12 décembre à 15:41
1375	12 décembre à 15:52
1413	12 décembre à 15:54
1380	12 décembre à 15:56
1376	12 décembre à 15:56
1417	12 décembre à 15:57
1369	12 décembre à 16:00
1368	12 décembre à 16:03
1402	12 décembre à 16:06
1413	12 décembre à 16:09
1400	12 décembre à 16:09
1392	12 décembre à 16:17
1407	12 décembre à 16:27
1407	12 décembre à 16:27
1407	12 décembre à 16:27
1407	12 décembre à 16:28
1407	12 décembre à 16:28
1407	12 décembre à 16:28
1407	12 décembre à 16:28
1407	12 décembre à 16:28
1407	12 décembre à 16:28
1407	12 décembre à 16:28
1407	12 décembre à 16:28

Localisation de la place

Rampe de Descente

VIII.4 Management of suction cars

Generation of an alert on the departure of a suction car: when a vehicle has parked more than X days, an alert can be issued to warn the guards to be vigilant in case of attempted "lost ticket" fraud (red = car parked for more than X days or hours, X being an adjustable parameter)

In this case, if the registration number of the suction car has been raised, it will be automatically displayed on the screen, making the check easy.

VIII.4.1 Antitheft function for subscribers

Subscribers, VIP customers, employees ... whose vehicles remain parked for some time may benefit from a complementary anti-theft system. They declare to the manager that their vehicle remains parked, until the declaration of the end of the parking. In the case where the vehicle leaves the declared place, the manager is warned by an alarm of this nonconforming action.

VIII.4.2 Parking management by vehicle categories

Detection of the cars of the employees of the shopping center or stores composing it. Indeed some employees go against the instructions of the management of the mall and go for example in the morning take the best parking spaces (those near the entrances of the center). The system can easily detect these vehicles because they are first come, and they stay in the same place longer than the average customer.

Innovative Park provides the location numbers to the center management, who can then send an agent to pick up the vehicle number and verify that it is an employee, and Innovative Park reports in real time to the agent whether the vehicle move or not.

VIII.4.3 Parameterization functions

Screens allow to set:

- Operator access levels.
- Acknowledging alarms.
- Maximum time before alarm "car suction cup".
- In and out of subscribed vehicles.

Each parking space and each digital signage are geographically located on a plane. Items can be moved on the map. The operator can select a place or a group of places to apply a modification, setting, forcing or deleting action.

VIII.4.4 History and Edition Management Functions

- Display and / or edit the list of incidents and alarms during a defined period of time.
- Display and / or edition of parking statistics

VIII.4.5 Alarm management functions

Display of a graphic window with the location corresponding to the incidents.

VIII.4.6 Economic mode or standby

The user can define hours of operation of his system. Outside these hours, the system goes into standby for energy savings.

The brightness is adjustable. In standby mode, the brightness of the LEDs as well as the dynamic display panels are reduced. The reduction level is adjustable by the operator over a range from 10% to 100% (off). Depending on the type of digital displays, the backlighting of the displays can also be reduced in brightness.

VIII.4.7 Data export

- Automatic editing (at a configurable time) or report request including:
 - the occupancy rate and the average parking time,
 - the number of entrances and exits in the car park.
- Graphic presentation,
- Export of files in formats: .TXT, .XLS, .XML.

VIII.4.8 interoperability with third party systems

- Communication to an ERP or a proprietary application of alarms and statistics of parking operation via IP network,
 - Remote management: management of the operator position by external administrator,
 - Remote maintenance,
 - Relocation or duplication of the parking application on a central site (web server mode),
 - Communication with the Building Management System, VMC (protocol conversion *),
 - Alarm server recoveries from local PLCs: smoke detection, CO detection, CO2 by protocol conversion *.

* Protocol conversion exchange formats: TCP / IP, Modicon ModBus, Jbus, BusCAN, Profibus, IEC 61850 ...

IX. CABLING

Innovative Park equipment is cabled using Category 5e cable cabling via RJ45 sockets for inter-sensor links, links to digital signage and inter-gateway links.

The interests of category 5e - RJ45 cabling are as follows:

- installation time decreased by the use of pre-fabricated cables to standard lengths 3 and 5 meters that are in stock, or pre-manufactured cables to the desired length (interval between two VDML),

- no assembly of the VDML on site following the wired connection, the RJ45 sockets being installed on the closed VDML and installed on the chenin of cable,

- Eliminates the risk of error when connecting traditional connectors.

Traditional wiring remains an option for specific cases such as certain tube runs.

As part of this option, the cabling is reduced to its simplest form.

1. VDML pedestals containing the electronics are attached to the cable tray with a nut secured to the screw in place on the VDML.

2. Pre-manufactured cords in category 5e cable, fitted on either side with an RJ45 male connector, are passed through the cable tray and then connected to the 2 VDML sockets.

The cables used are pre-fabricated patch cords of the type shown in the following illustration, ie standard commercial cables of lengths 3 and 5 meters and specific lengths for connections to the panels. dynamic display and gateways.



X. SYNTHESIS OF THE KEY ELEMENTS OF THE INNOVATIVE TECHNOLOGIES SYSTEM

- Wired technologies to manage the applications in structure.
- Use of a high-speed industrial communication network that is insensitive to electrical noise.
- The field system, detectors and dynamic displays, operates autonomously without concentrator or supervisor. The database is integrated in the digital displays.
- Dynamic displays and totems integrating the database of the system which offers a response time of the order of 200 ms for a change of state of the information of a dynamic displays when a vehicle movement on a square.
- Ability to manage detectors that are not wired on the same network as the digital display panels (solves some wiring constraints),
- The network accepts indifferently on the same bus the detectors of vehicles and the displays and totems.
- The supervisor is only used for back office functions, ie an HMI (Human Machine Interface) for statistics management and configuration. The system can operate without supervisor and autonomously by functional centers of interest (bus or floor).
- Dynamic displays and totems built from standardized elements.
- Wiring made in jumper category 5e and RJ45 plugs.

XI. ORIGIN OF INNOVATIVE TECHNOLOGIES EQUIPMENTS

All the equipment offered by Innovative Technologies (car park detectors communication bridges, dynamic displays, supervision software, automated data processing machines) are of Innovative Technology design and are made in France.

Cumulative intellectual property of Innovative Technologies employees: 55 patents.

XII. INSTALLATION

The installation will be carried out according to the recommendations of the Technical Manual and Installation Requirements in the appendix.

XIII. COMMISSIONING

The commissioning of the equipment will be carried out by Innovative Technologies engineers.

XIV. REMOTE MAINTENANCE

Remote maintenance will be provided by Innovative Technologies via an internet connection made available by the customer. This remote maintenance will update the software and firmware and monitor the operation of the facility.

XV. AFTER SALES SERVICE

After sales service is provided by one or more Innovative Technologies engineers:

- by remote maintenance,
- by interventions on suite.

XVI. GUARANTEE

The material is guaranteed one year.



Innovative
Technologies

Innovative Park :

“The smart way to park”

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The technical and commercial documentation of the Innovative Park system is available on the website:
www.innovative-technologies.fr

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