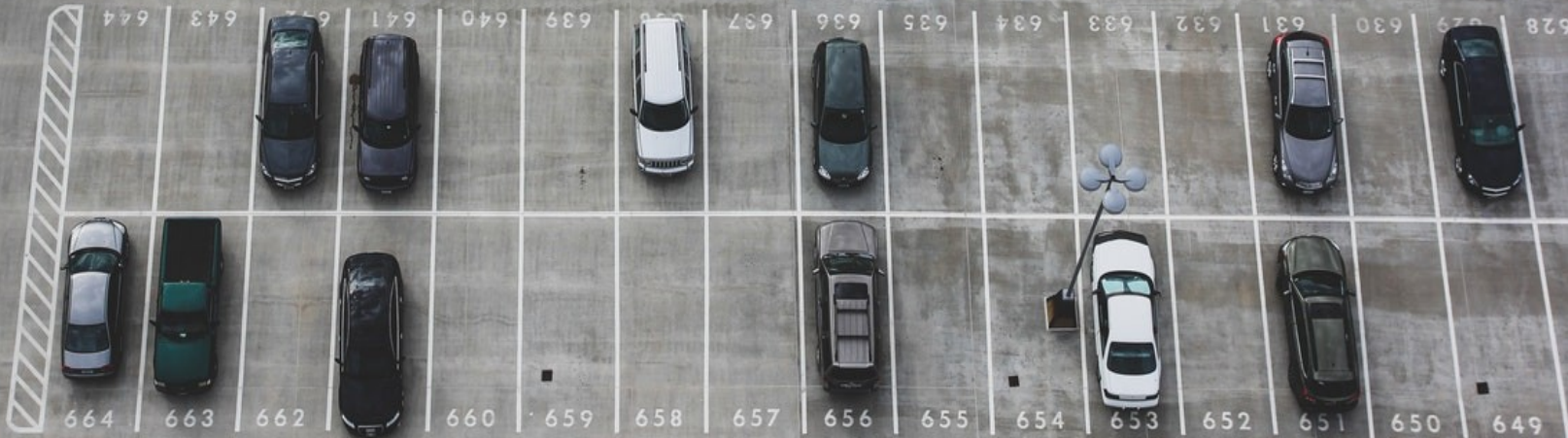




metricí
accurate recognition

Parking Place Detector



Parking Place Detector- What is

Metrici PPD, advanced solution designed to optimize the management of parking spaces using cutting-edge computer vision and machine learning technologies.

It can detect the availability of parking spaces in real-time, providing numerous benefits for both parking operators and users.

P-Hus_5 - Metrici Parking Place Detector v1.1

Parking stream view

Parking spaces list

ID	Status	Last change	Elapsed time
2	Busy	15:57:04	00:00:17
3	Free	15:57:04	00:00:17
4	Busy	15:57:04	00:00:17
5	Busy	15:57:04	00:00:17
6	Busy	15:57:04	00:00:17
7	Free	15:57:10	00:00:11
8	Free	15:57:04	00:00:17
9	Busy	15:57:04	00:00:17
10	Busy	15:57:04	00:00:17
11	Busy	15:57:04	00:00:17
12	Busy	15:57:04	00:00:17
13	Busy	15:57:04	00:00:17
14	Busy	15:57:04	00:00:17

Connected | 2 fps | 2432 x 2432

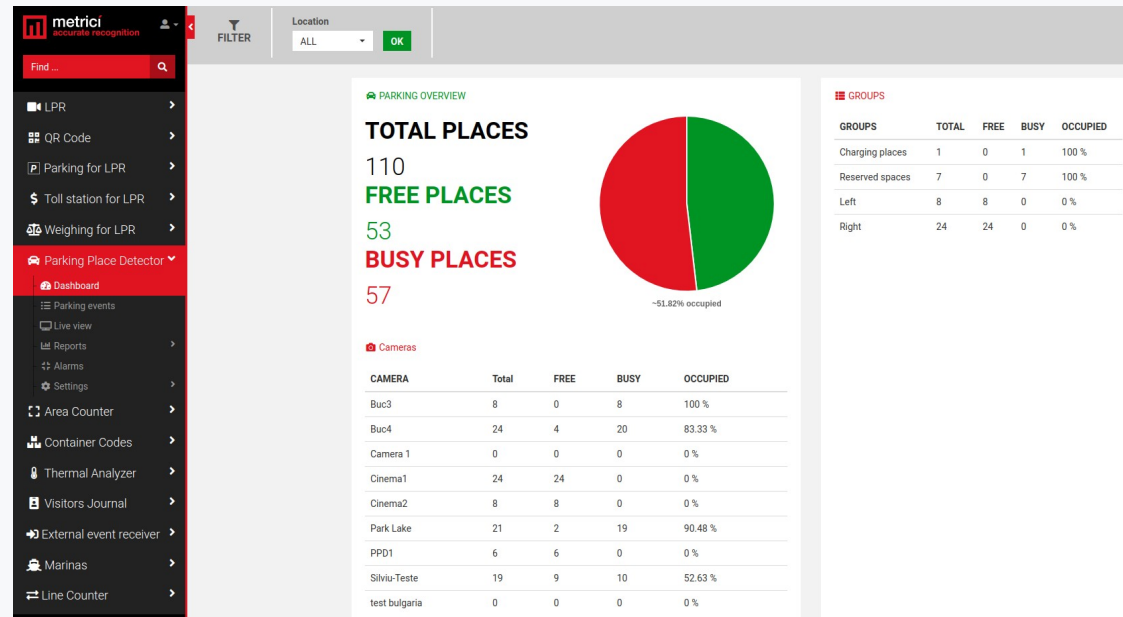
Total 16 | **Busy** 12 | **Free** 4

Settings | About | Quit

Metrici PPD- What does

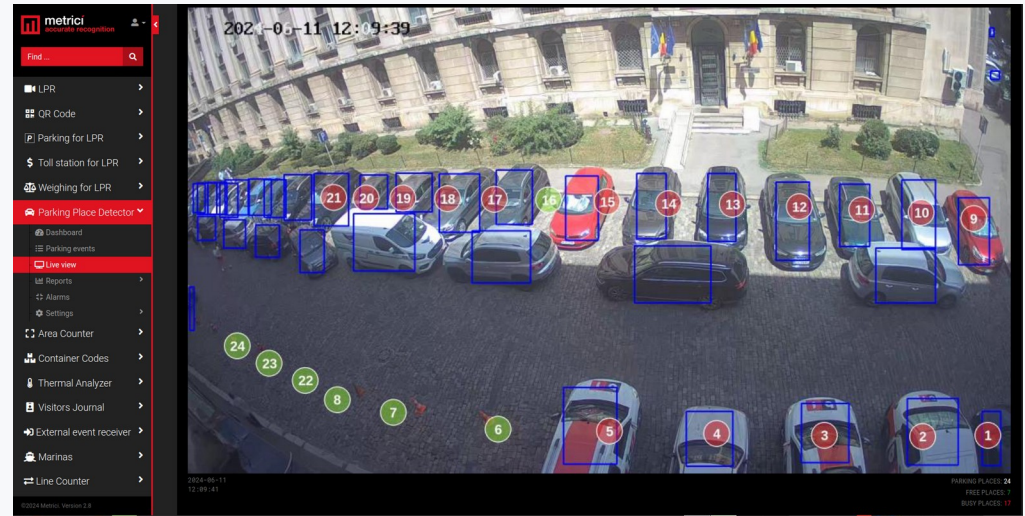
- Parking Place Detector (PPD), Metrici detection engine and Interface to manage parking spaces in underground parking lot or open space parking lots;
- Metrici analyzes video stream. Detects cars and see if they are placed on parking spots
- Dedicated WEB interface for this special application;

- The Web module allows the administrator to see the situation, to change settings, to manage the parking lot as a whole or each parking space individually, to add or to delete parking spaces from location, set alarms etc;
- One can manage unlimited number of cameras and places in the same interface.



How it does

- The higher the cameras are placed, the better
- Up to 16-20 parking spots monitored/ camera for inside installations
- Up to 200 parking spots/ camera for outside installations
- Big exposure time (1/2s ~ 1/3s), in order to have color images night-time
- Fisheye cameras used in 'Double panorama' or 'Quad view' modes
- WDR and Zip Stream are a plus
- 1 fps or lower is enough



How you manage

1 camera- can monitor **dozens of parking spaces**;

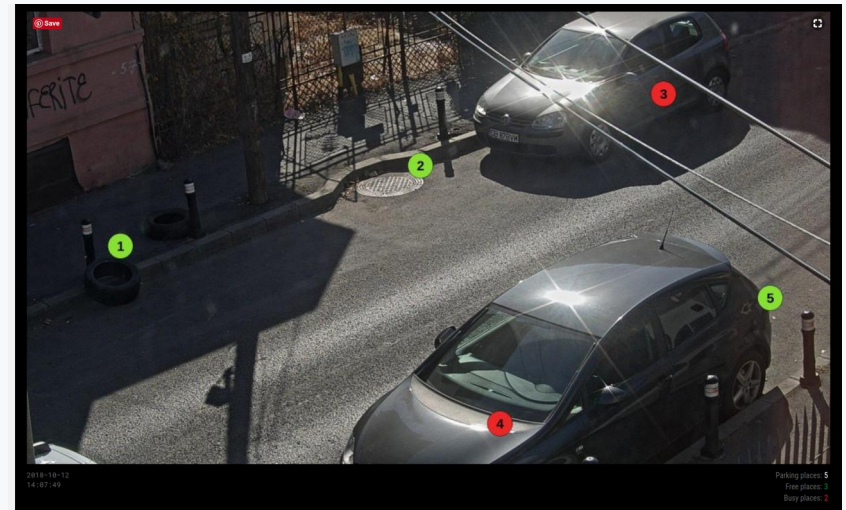
More cameras – can be “linked” to manage a location;

Metrici PPD - monitor an **unlimited number** of parking spaces;

It calculates the **number of busy or free places** for **each camera** or for the **whole location**, also for **groups**, as more places or cameras can be linked in groups – for examples places for electric vehicle/ subscriptions/ reserved etc

Access to **real time data and history**

Access to **database** with all the status changes for each parking place



How you manage

GROUPS

Metrici PPD allows you to create groups;

Several **parking places can be grouped together**. You can create, for example, a group for places to be charged, or reserved for disabled people, or reserved places;

A group can be created as a **section/floor** of a parking lot;

A parking place can be added to more groups;

DIVISION

Info about **occupancy level for each group** or for the whole location, as well as the situation for each IP camera- how many free/busy places are in real time.

ID	Status	Last change	Elapsed time
1	Free	12:17:20	00:01:32
2	Busy	12:16:17	00:02:34
3	Busy	12:16:26	00:02:25
4	Busy	12:16:32	00:02:19
5	Busy	12:17:22	00:01:30
6	Free	12:17:45	00:01:07
7	Busy	12:16:59	00:01:52
8	Free	12:17:55	00:00:57
9	Busy	12:17:43	00:01:08
10	Busy	12:17:33	00:01:18
11	Free	12:18:29	00:00:22
12	Busy	12:17:45	00:01:07
13	Free	12:17:51	00:01:00
14	Busy	12:18:01	00:00:50
15	Free	12:18:05	00:00:47
16	Free	12:18:14	00:00:38
17	Free	12:18:24	00:00:28

metrici
Find
LPR
QR Code
Parking for LPR
Toll station for LPR
Weighing for LPR
Parking Place Detector
Live view
Reports
Alarms
Settings
Global settings

What you see

Full management of parking places using only Metrici PPD solution: no sensors, no cables, no asphalt breaking or cutting;

It calculates and **keeps evidence** of free/busy parking places;

Metrici PPD can show info about the status of free/busy places on **LED displays to inform drivers**;

Real time calculations with loading degree of the parking lot, as well as access to **reports, graphics and statistics** with the activity in the parking by hours/days/months

Metrici PPD may **command** different devices when the parking is full or reaches a certain percentage of busy places. Also, it may **raise alerts**



What you get

REPORTS AND STATISTICS

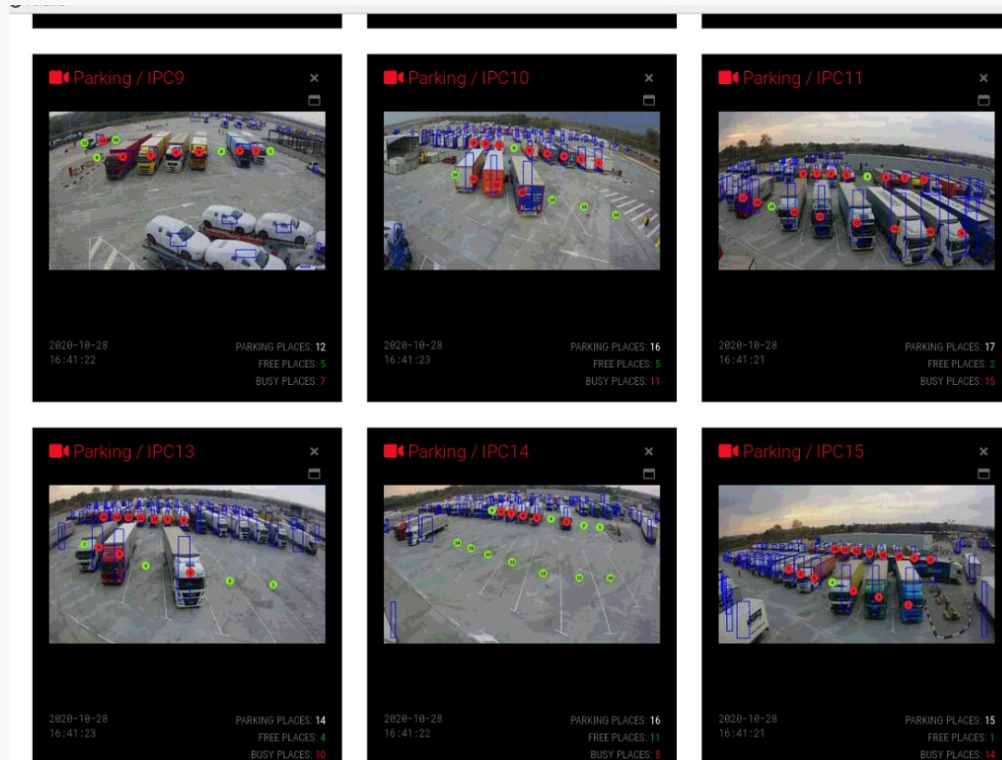
It generates detailed reports about the activity in the parking lot; These may be divided for each camera, for all cameras in location or for a group;

LIVE VIEW

You can see live as many cameras as you want. For each one, PPD will display graphically as well as text the number of monitored places, how many are busy and how many are free; The status of each parking spot is marked with red or green color on screen

MAIL/SMS- ALERTS AND ALARMS

Allows sending alerts by e-mail or SMS. Allows alarms settings. It may send notes/alerts in case of certain established events:(e.g.: a certain parking place is busy for more than x hours, the reserved parking spaces are full, occupancy level is 70% etc.



Take advantage

PRECISE

- One can know **how much time** a parking place was busy/free or for groups/ floor/ sections occupancy
- The system can create **heat maps** with the more searched places or which ones are more time busy;
- Several parking lots/locations can be managed from the same center or device;

CONVENIENT

- Metrici PPD is the perfect **solution** for street parkings or open space where no sensors can be installed;

FILTERS/EXPORT

- In parking events database, one can filter the list/the search for status changing for the parking spaces by location, camera, group, time;
- Metrici generates **reports** with the occupancy level for different time intervals;
- It may **export the reports** in XLS or PDF formats.

ID	Status	Last change	Lapsed tim	Placement
1	Busy	13:40:29	00:00:21	Strict
2	Free	13:40:29	00:00:21	Strict
3	Busy	13:40:29	00:00:21	Strict
4	Free	13:40:29	00:00:21	Strict
5	Busy	13:40:29	00:00:21	Strict
6	Busy	13:40:29	00:00:21	Strict
7	Busy	13:40:29	00:00:21	Strict
8	Busy	13:40:29	00:00:21	Strict
9	Free	13:40:29	00:00:21	Strict
10	Free	13:40:29	00:00:21	Strict
11	Busy	13:40:29	00:00:21	Strict

Name	Send Email	Send Email Address	Send SMS	Send SMS Number	Status	Actions
Group (charging places) is full	✗		✓	745098765	✓	View Edit Delete
Location Bucharest almost full (90%)	✓	vlad@metrici.ro	✗	0	✓	View Edit Delete
Parcare Silviu	✓	silviu@metrici.ro	✗	0	✓	View Edit Delete
Parking full	✓	support@metrici.ro	✗	0	✓	View Edit Delete
Parking place 14-2 is busy	✓	office@metrici.ro	✗	0	✓	View Edit Delete
Parking place 15-6 is free	✗		✓	723123456	✓	View Edit Delete
Test Dragos	✓	idragosg@gmail.com	✓	754434406	✓	View Edit Delete

Control

CONTROL OF A PARKING GUIDANCE LED INDICATOR

Metrici PPD may control parking guidance led indicators for each parking space to show if that place is busy or free;

LOG FILES

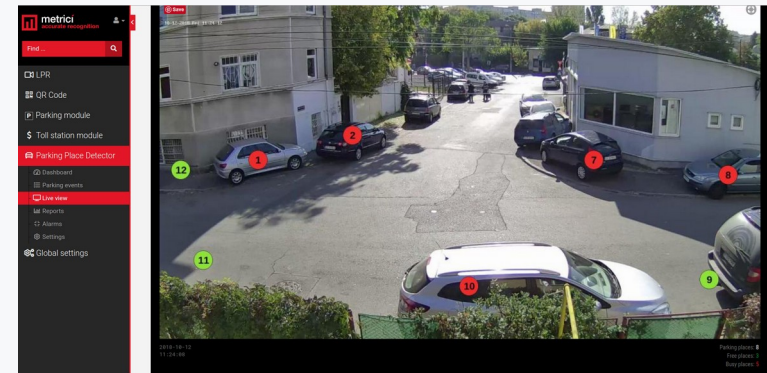
It saves data regarding the modifications in the system and the communication with external systems, if that is the case. Keeps track of operations made by each user;

EVENTS

One can see in Interface and display each status change for a parking place, with photo witness, hour, camera and the group to which belongs to & other

EXTERNAL

Communication to other software or hardware. Send events or history. Send regular reports.



Key features

Real-Time Detection

- Uses high-definition cameras and advanced image processing to detect the availability of parking spaces in real-time.
- Continuously monitors and updates the status of each parking spot/ each group/ each location, ensuring accurate and up-to-date information.

User-Friendly Interface

- Provides an intuitive dashboard for parking operators to manage and monitor parking spaces.
- Offers mobile app integration for users to check parking availability before arriving at their destination

Automated Alerts

- Sends alerts/ mail/ SMS to users and operators about available spaces, occupancy rates, and potential violations – more time than paid/ overtime/ overnight
- Can notify drivers of expiring parking times or unauthorized vehicle occupancy.

Key features

Data Analytics:

- Collects and analyzes data on parking usage, peak times, and occupancy rates.
- Generates reports to help operators optimize parking management and improve efficiency

Integration Capabilities

- Easily integrates with existing parking management systems, access control systems, and payment solutions.
- Supports integration with mobile apps and navigation systems for enhanced user experience

Scalability

- Designed to scale from small parking lots to large multi-level parking facilities.
- Can be expanded to include additional cameras and sensors as needed.

Metrici Hardware - LED Display

- Direct communication with Metrici Interface
- Can show all information that is to be found in Metrici Database: speed, license plate, owner, weight
- Can show indications for the driver
- Number of free/ busy places or other data
- Aluminum case
- Water resistant coating for LED lights
- Displays can be custom configured

Each display has its own web interface;
Ethernet and/ or wifi connection;
Connected over HTTP to Metrici server;
IP66 case , -20 to 50 Celsius degrees operating temperatures



Parking management - Briefly

DATABASE

Informations about the status change and reports visualisation;

FUNCTIONS

Quick and easy installation. Define a parking spot just by placing a dot in the image and this is introduced in database;

USER FRIENDLY

A parking place no longer can be used? With only one click, this becomes inactive and it isn't counted anymore;

INTEGRATION

Integration with LPR: information about what car entered the parking, but also which places are busy and in which sections/floor there are free spaces;

SEARCHES

Searching filters based on parking place ID number, location, group, date, hour;

REDUCED COSTS

No more cost with maintenance, warranty, supplies, wear, excessive wiring, no more expensive electricity bills

TECHNICAL SUPPORT

–Creative Uses of Metrici Parking Place Detector

Smart City Parking Management:

- Deploy the system across a city's public parking facilities to create a unified smart parking network.
- Integrate with a city-wide app that shows real-time parking availability, guiding drivers to the nearest available spot, reducing traffic congestion and emissions.

Retail and Shopping Centers

- Use the detector to manage parking spaces in large shopping malls, ensuring customers can easily find available spots.
- Integrate with loyalty programs, where customers earn points for parking in designated areas or during off-peak times.
- Integrate LED display to show availability, number and direction for the drivers

Event Venues

- Implement the system at sports arenas, concert halls, and convention centers to manage high volumes of vehicles during events.
- Provide a pre-booking option where attendees can reserve parking spaces in advance, reducing last-minute congestion.

–Creative Uses of Metrici Parking Place Detector

Corporate Offices

- Install the system in corporate parking lots to allocate spaces efficiently among employees and visitors.
- Use the data to implement flexible parking policies, such as shared spaces or prioritized parking for carpooling employees.

Residential Complexes

- Manage parking spaces in residential areas, ensuring residents and their guests can find parking easily.
- Introduce automated guest parking permits where visitors receive a QR code to scan upon arrival, granting temporary access to available spaces.

Hospitals and Healthcare Facilities

- Ensure that patients and visitors have access to convenient parking by monitoring and managing spaces in real-time.
- Reserve specific spaces for emergency use or for patients with limited mobility, improving accessibility and service quality.

–Creative Uses of Metrici Parking Place Detector

University Campuses

- Deploy the system across university parking facilities to assist students, faculty, and visitors in finding available parking.
- Integrate with campus apps to provide real-time parking updates and allow users to reserve spots during peak hours.

Airports

- Manage large airport parking lots, guiding travelers to available spots quickly.
- Offer premium parking services where users can reserve and pay for parking in advance, receiving a guaranteed spot near the terminal.

Green Initiatives

- Support eco-friendly programs by designating and managing parking spaces for electric vehicles and car-sharing services.
- Provide real-time data on the availability of charging stations for electric vehicles, encouraging their use.

Tourist Attractions

- Implement the system at popular tourist destinations to manage parking effectively, ensuring a pleasant visitor experience.
- Combine with ticketing systems to offer bundled deals, where visitors can purchase tickets and reserve parking spots simultaneously.