
metricí
accurate recognition
Video analysis solutions using AI

15 YEARS OF INNOVATION IN VIDEO ANALYTICS

2010
People counter

2013
LPR

2015 - 2016
Parking and tool station modules for LPR
Observer Radar
R/G LED display

2017
QR and Container Code recognition

2018
Parking Place Detector - PPD

Deep neural networks

2019
Unified web UI and
RGB displays



2020
LPR: Vehicle classification
Area Counter + industrial module
Thermal Analyzer
MultiController

2021
Line Counter
MarineX boat recognition and measuring solution

2022 - 2024
Broad range of custom applications
Robot arms integration
Aerial & terrestrial drones

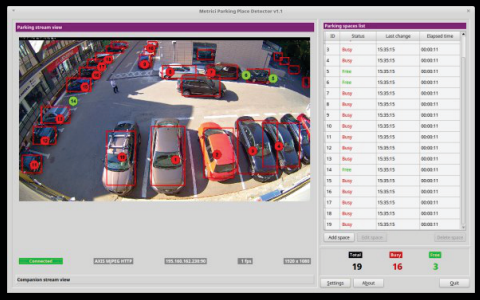
PORTOFOLIO

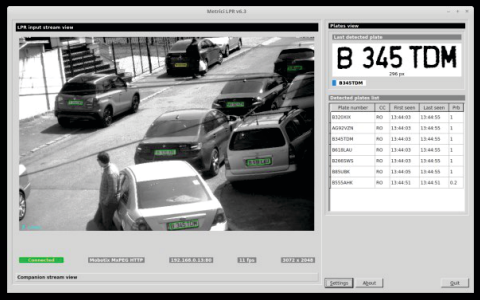


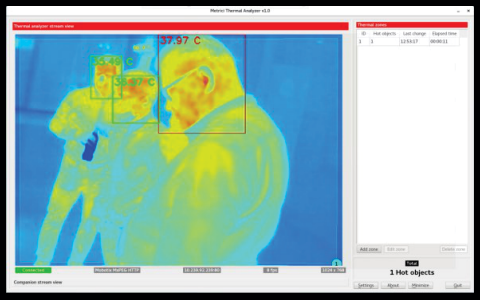
3500+ licenses sold in Romania, Hungary, Croatia, Slovenija, Israel, Bulgaria, Germany, Belgium, Serbia, Denmark, Norway, Belarus, Lithuania, Saudi Arabia, Kuwait, Bahrain, Qatar, Tanzania, Argentina and more ...

2018: New multipurpose recognition engine

Based on Deep Neural Networks technology (AI)
More accurate than traditional segmentation technologies
Can be trained to recognized almost anything, from backpacks, to people, bicycles, cars, trucks, planes, trains and so on
Used by: LPR, PPD, Area counter, Thermal Analyzer, Line counter, Custom Applications







NEW TECHNOLOGIES

Recognition engines

License Plate Recognition (LPR)

Parking Place Detector (PPD)

Area Counter (AC)

Line Counter (LC)

Thermal Analyzer (TA)

QR Code Reader

Container Code Recognition

ID Card Reader

Snapshot

Web UI + DB

Web interface with a relational SQL database behind

Has several modules which can be licensed separately

Contains history of events, reports and alarms for each type of application

Users can have restricted access rights based on location or menus of the interface

Hardware

Recognition server (x86)

Metrici Multicontroller

+ Wiegand interface

+ RFID reader

+ red/green LEDs

+ 110dB speaker

Metrici Traffic Light PoE

Metrici Observer Radar

Metrici RGB Displays

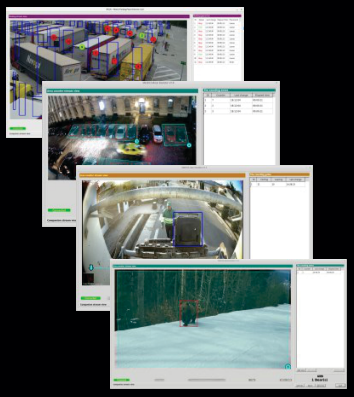
Barix Barionet 50

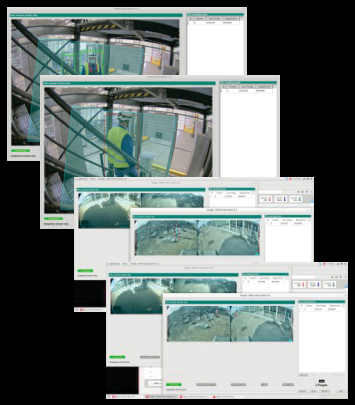
ARCHITECTURE

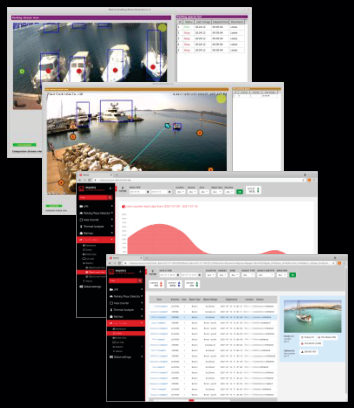
Standalone server	Several recognition servers, one having the WEB UI	Several recognition servers, the WEB UI in the cloud
Appropriate for small installations or when there is no Internet connection	Appropriate for medium and large installations where the information could be kept out of the Internet	Appropriate for very large installations where the locations are spread all over the world
	Unlimited number of servers can be linked together	Unlimited number of locations/ servers can be linked together
		The WEB UI can resides on a HA/LB cluster
Provides the best latency	The most cost effective	Provides the best flexibility and redundancy

VERTICAL MARKET

Smart city	Safety & protection	Marina management	Advanced VA
Parking management	Helmet, harness and vest	Boat type recognition and	Automotive industry
Garbage collection	recognition	length measuring	Bricks production
Traffic management	People detection around	Management of the	Fuel filter inspection
Bear recognition	scrap handlers	available berths	Shelf analysis

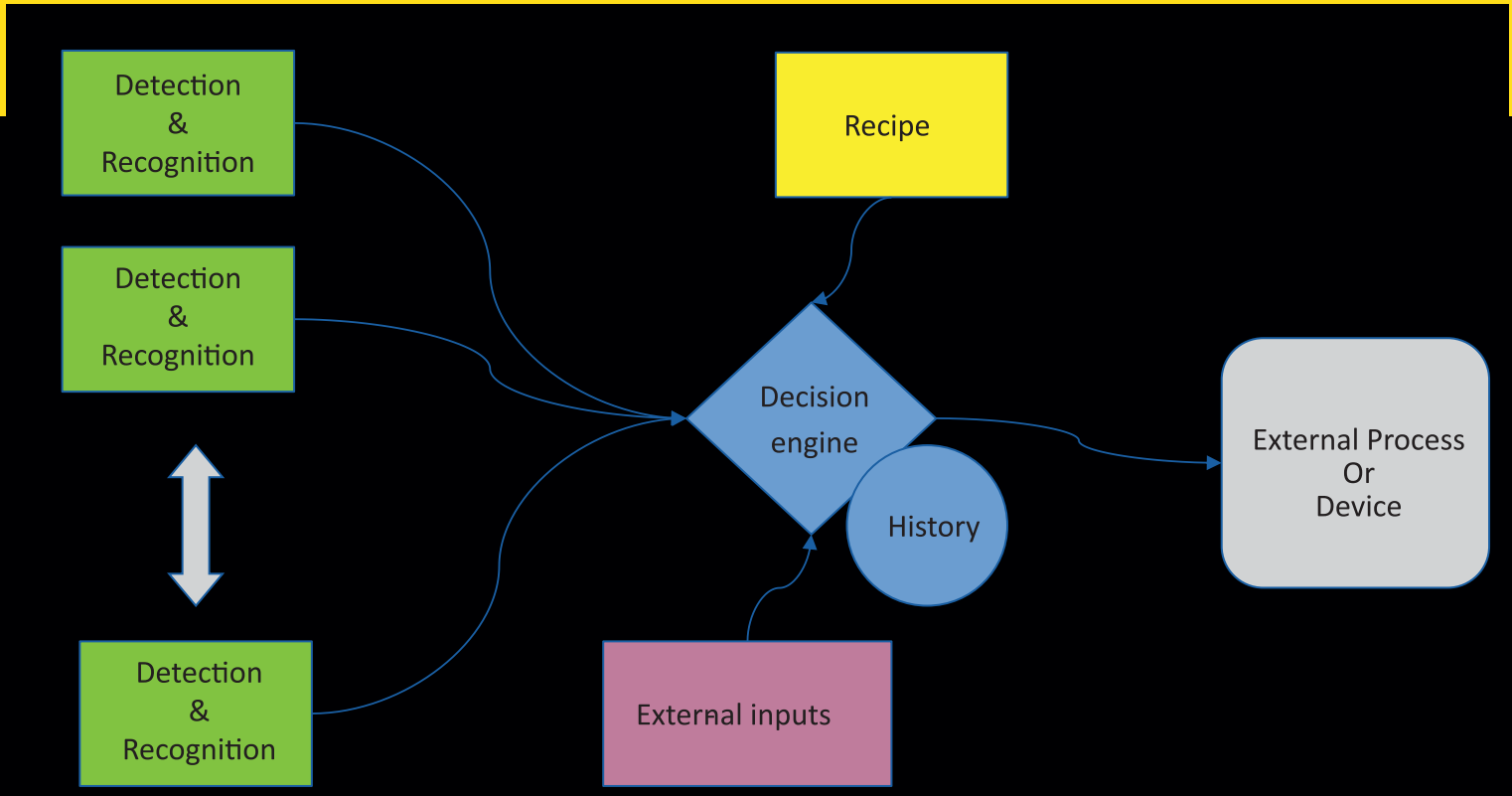








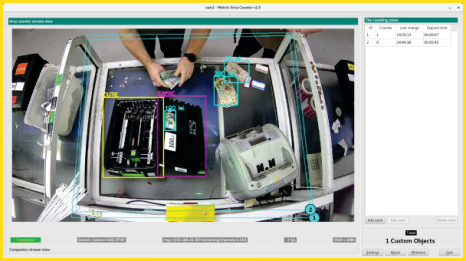
ADVANCED VIDEO ANALYTICS – FLOW CHART



CASE STUDY: ATM CASH CASSETTE FILLING

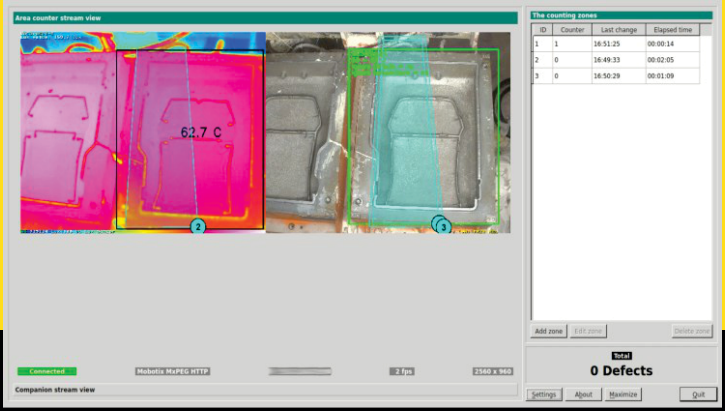






- The neural network was trained to recognize the cash cassette, the lid and each denomination.
- When the operator puts a cassette on the desk, the application waits until he opens the lid and verifies if a bill is glued on the lid. If there is no bill on the lid, or there are more than one lid, the application raise an alarm and it will light up the red LED and it will play a sound. If all it's ok, the green LED lights up.
- After receiving the green light, the operator should fill up the cassette. If the application detects a mismatch between the lid bancnote and the ones from inside the cassette, the alarm is raised.
- The current cycle ends when the operator closes the lid and removes the cassette from desk.

CASE STUDY: CAR SEATS FACTORY





A company in car parts and car seats manufacturing industry needed a solution for quality check of the production.

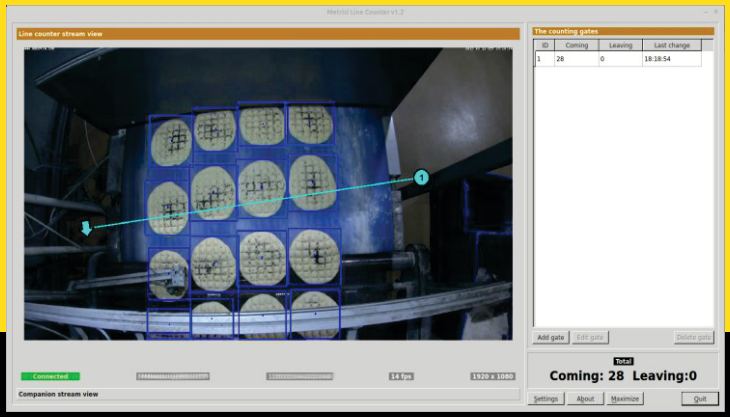
The demand included several requests:

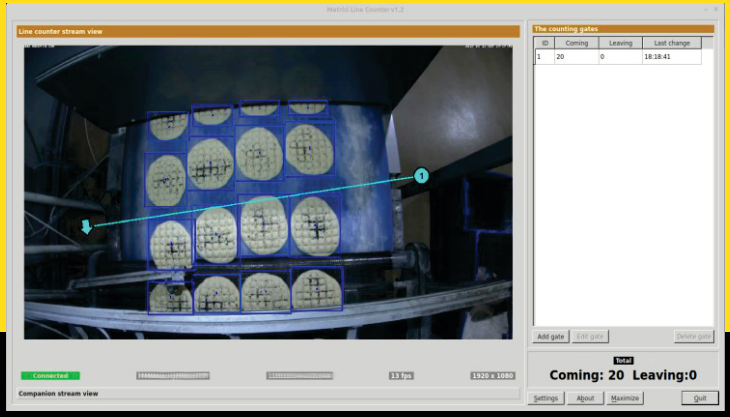
- Automatic check that the molds were properly arranged.
- Also to verify that all molds have all the elements included for the foam to be later injected.
- And last point was to ensure that the molds reached the proper temperature before the final assembly of the seats.

Metrici analyzes several video streams with the production line to ensure all the boxes are checked as they should be, one of which is from a thermal camera. If there is something wrong (e.g. mold not properly aligned, mold without all the elements or if the temperature is not right) an alarm is triggered and the production process is stopped.

Solution used in the first factory was replicated worldwide in another 3 units of the company.

CASE STUDY: FOOD INDUSTRY – BAKERY

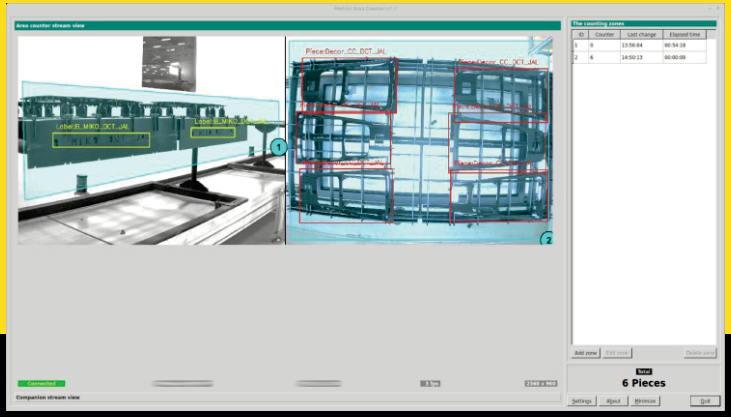


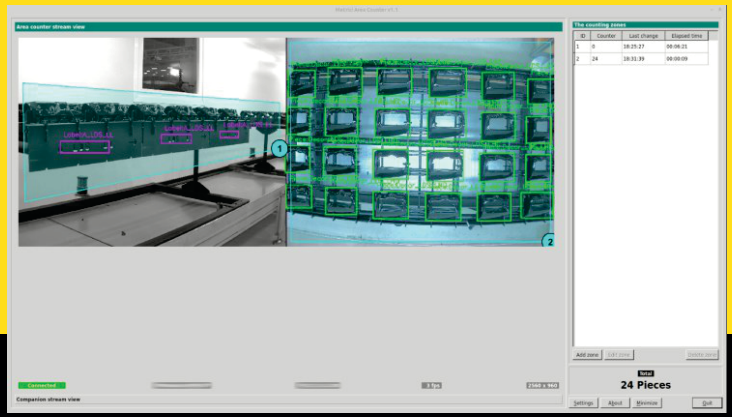


A company activating into the food industry needed a solution for quality check of the production. The production consists of several types of pita, pizza doughs and other bakery products. The management team also wanted to have the exact numbers of produced items in each cycle, in order to have a better understanding of production performance.

- Metrici checks 10 conveyor belt lines and it recognizes the kind of product out of 24 classes.
- Using, Line Counter engines it also checks how many products the operators makes in a shift.
- Reports are generated for the total number of products for each shift as well as products made on each conveyor belt.

CASE STUDY: CAR PARTS FACTORY





A big OEM company in car parts and car interior elements industry. It produces pieces for several auto companies.

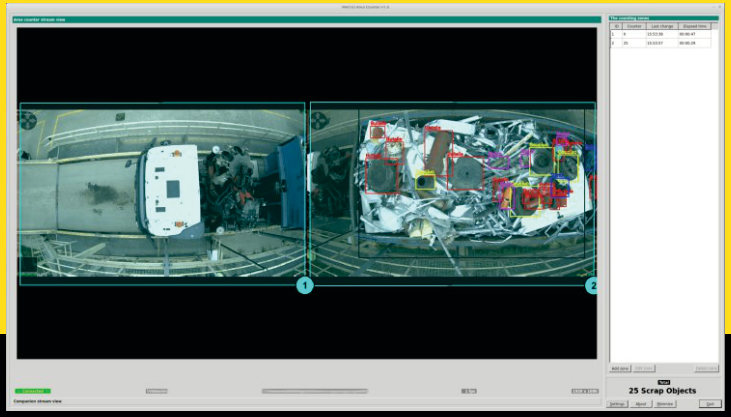
- The factory wanted to make sure that it produces and distributes the right pieces to the right beneficiary
- Also it wanted to count and quality check every piece on the production line
- Each model has its own stand that must be paired with the piece

Metrici checks the pieces and the stands. It makes sure that each stand is paired with the pieces that are supposed to be there.

It counts how many pieces there are and it verifies that they are not defective.

If the stands and the pieces do not match or if some pieces are not right, it stops the production process for a human operator to intervene.

CASE STUDY: SCRAP METAL COLLECTION





A big steel pipes production company collects scrap metal for internal use.

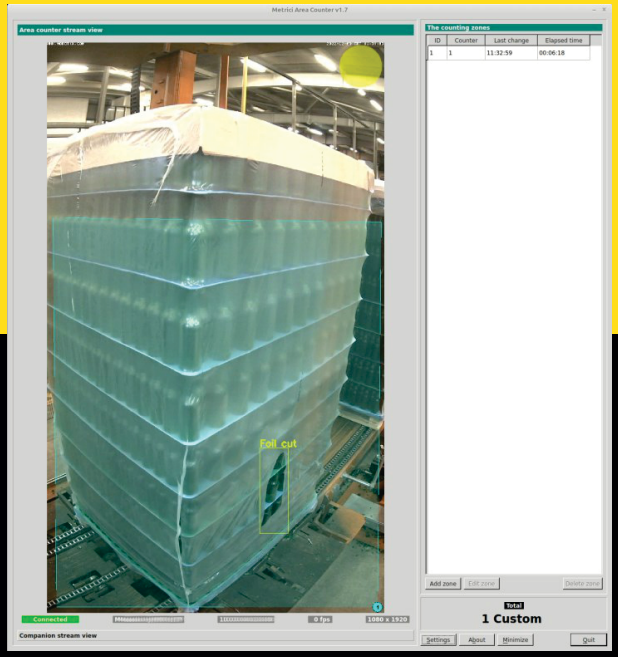
- **The factory wanted to make sure that the metal collected doesn't contain hazardous products and materials, like gas tubes, tires, reservoires, motors, pumps and a few others.**

- **Also it wanted to have a recording of the payload of each truck which unloads scrap metal.**

Metrici checks the cargo of each truck and signals in real time if a prohibited product or material is identified.

A human operator is required to verify further using high resolution images marked by the Metrici engine and another operator can remove the unwanted product or material, before allowance of the truck inside the unloading area.

CASE STUDY: BOTTLE PRODUCTION

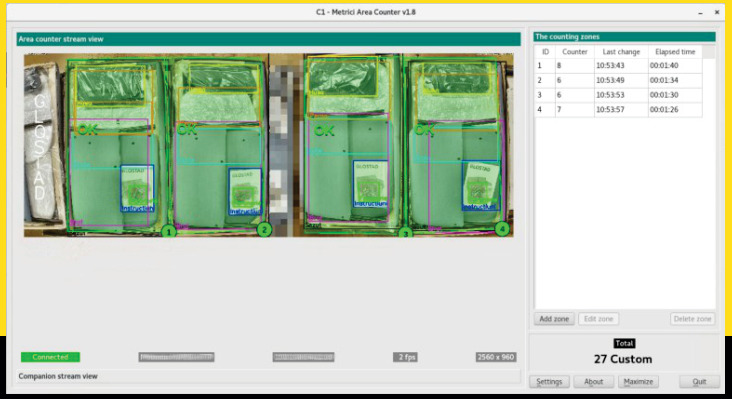


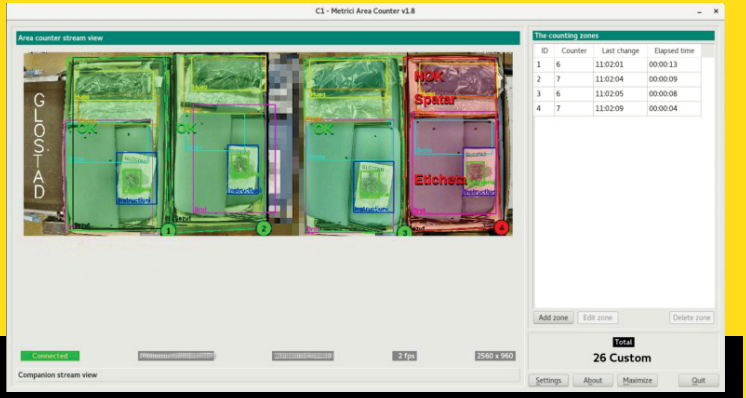
Metrici checks each package using 4 cameras placed on all the corners of the package area. When a foil cut is detected, a signal is sent to a PLC device, the line is stopped and a loud sound is emited by a Metrici Multicontroller.

A bottle production company needed a solution which prevents the packaged bottles to be sent to clients unproper foiled. The main problems are due to wearing of the foiling machines or due to uneven thickness of the used foil which leads to random cuts. These cuts leaves some bottles unprotected and they can slip away or can be damaged during the transport stages.

A human operator is required to unwrap the package and refoil it properly. All events are recorded into the database for further inspection.

CASE STUDY: FURNITURE PRODUCTION



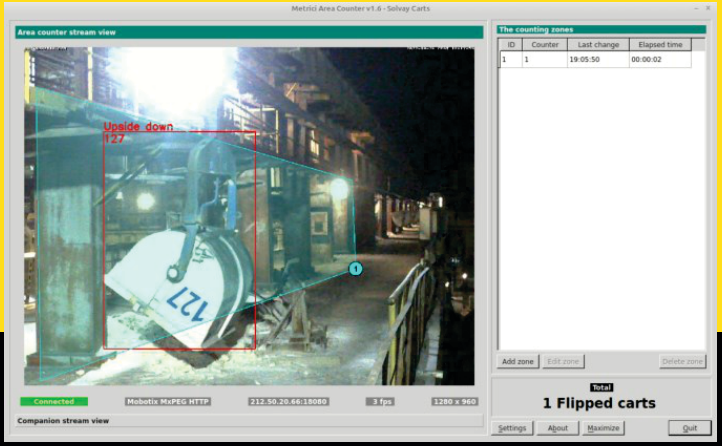


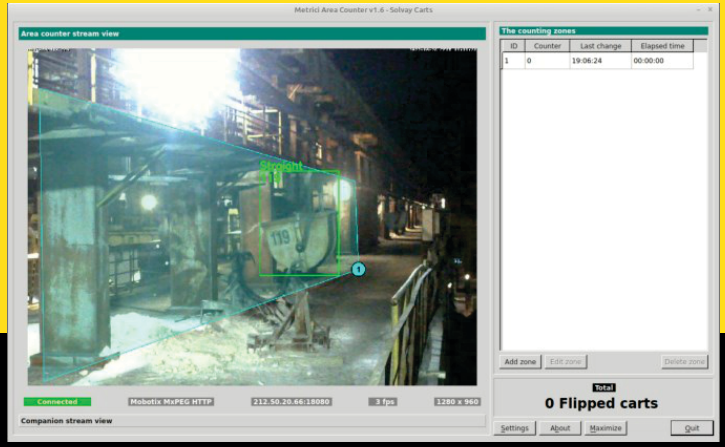
A big furniture producer wants to check if the human operators which packages the products, have put inside all the items which are parts of each product. Because there are many types of products which leaves the assembly lines sometimes an operator forgets to package all the required items.

Metrici checks each assembly line using 1 camera equipped with two sensors. The packaging area is splitted in 4 assembly zones, each monitored individually. For each product type a recipe is loaded using a fiducial code. If a missing items are detected, an alarm is triggered, showing all the missing parts on a screen.

If an error is detected, intervention of an supervisor is required. All events are recorded into the database for further inspection.

CASE STUDY: CHEMICAL EXTRACTION FACILITY

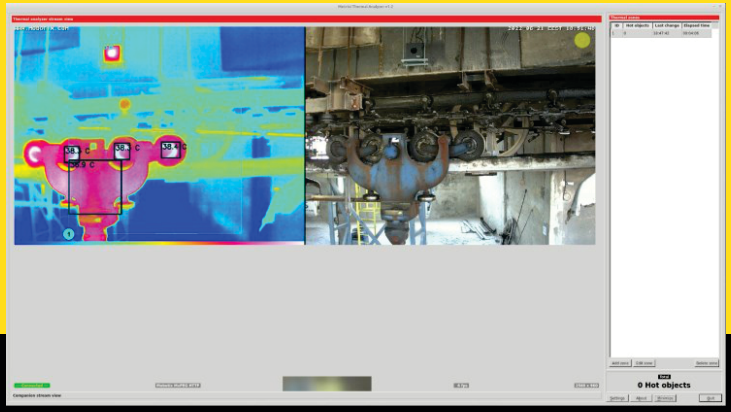


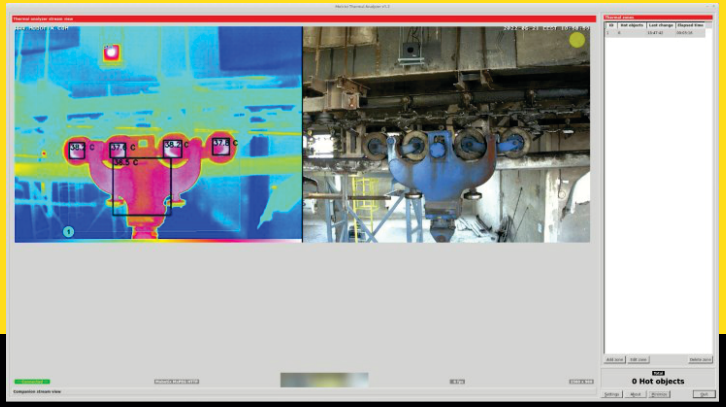


A global chemical company which have extraction facilities in eastern Europe, asked Metrici to build a solution for cart flip detection. Each extraction pit uses a lot of special carts for moving huge quantities of materials. The loading of carts is done by mechanical machines fully automatic. From time to time, the mecanism which flips each cart before loading, can have a failure, or the cart can reverse by itself after a few meters, if it's damaged.

Metrici checks the position of each cart after it passes the flipping mechanism. If an upside down cart is detected, Metrici stops the line and triggers a sound alarm.

CASE STUDY: CHEMICAL EXTRACTION FACILITY





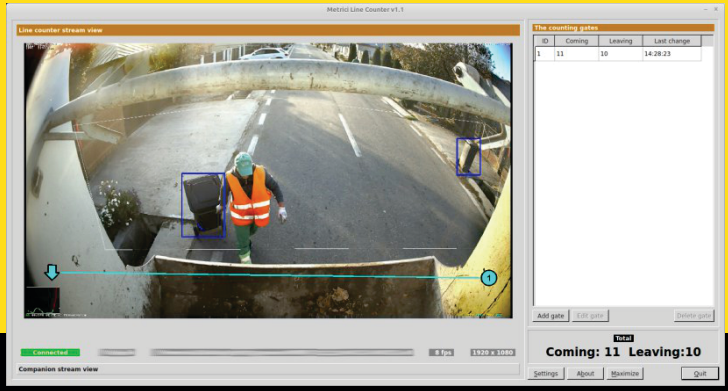
The same global chemical company which have extraction facilities in eastern Europe, asked Metrici to build a solution for ease the maintenance of its carts. Each cart travels on a wire line, holding it through a fork equipped with 4 wheels, running on bearings. The bearings are inspected from time to time by the maintenance personel, but sometimes they become damaged before schedule. This can lead to big losses, because a stopped cart on the middle of the wire line its very expensive to be unmounted.

Metrici recognizes the bearings and measures the temperature of each one, together with the OCR of the cart number.

The algorithm uses a black body for reference and mediates the values in a way that is imune of weather changes. All read values are saved into a database for further inspection.

CASE STUDY: WASTE DISPOSAL SERVICES





A service company operating in waste disposal. The service provider has contracts with both individuals as well as companies

Demands for the first stage:

- recognizing two types of trash bins
- recognizing other trash besides bins: bags, boxes, electronics etc

Client also wanted to make sure their staff are not collecting trash that is not allowed or above the quota.

Metrici detects what type of trash is loaded onto the truck

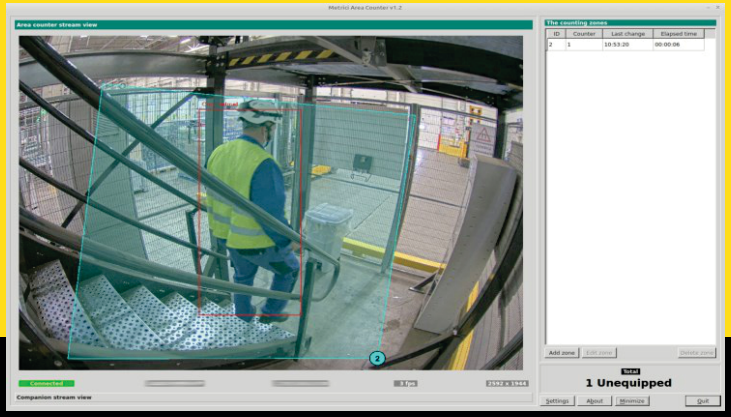
It also reads the GPS coordinates for each event

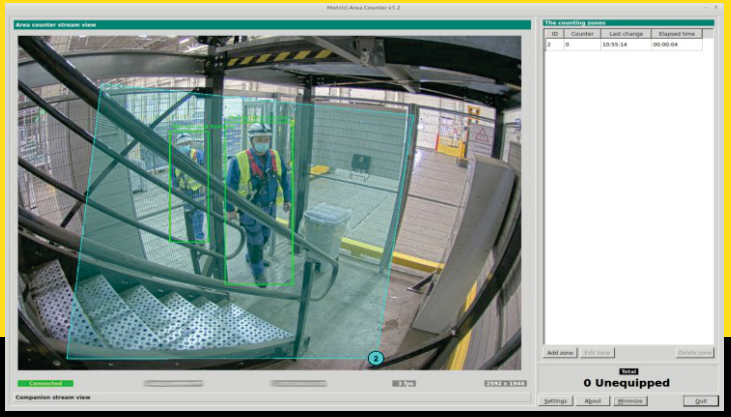
Counts how many bins are collected and where

All data are a tool to generate according bills to the customers

On a second stage, selective trash disposal is to be introduced and Metrici will make sure the right bins or bags are loaded.

CASE STUDY: SOFT DRINKS FACTORY





An operator in soft drinks industry, production and distribution center. Most of the processes inside the factory are machine based. Once in a while, when the robots malfunction, human service teams must intervene and fix the machines. The interventions are made at unusually great heights.

- During time, several accidents occurred on site because the service men did not wear protective gear
- Intervention are made only in an area of the factory and men must enter a certain door

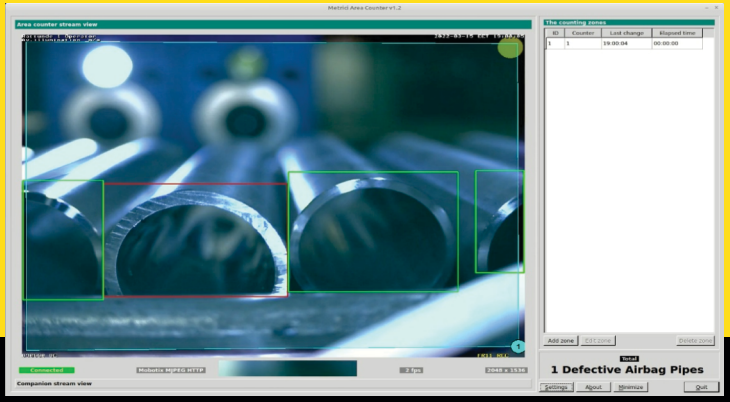
Metrici checks that each person entering the intervention is properly equipped.

A detection area is set and Metrici monitors that perimeter.

If one protective element is missing, Metrici triggers alarm for the management team to take measures.

CASE STUDY: AIRBAG PRODUCTION





A factory operating in car parts industry- Airbag production

Quality inspection was demanded for each airbag pipe

Human inspection was impossible, due to the production line features: speed of the process, number of pieces, uncomfortable position on the production line

Metrici was approached to visually quality inspect each product

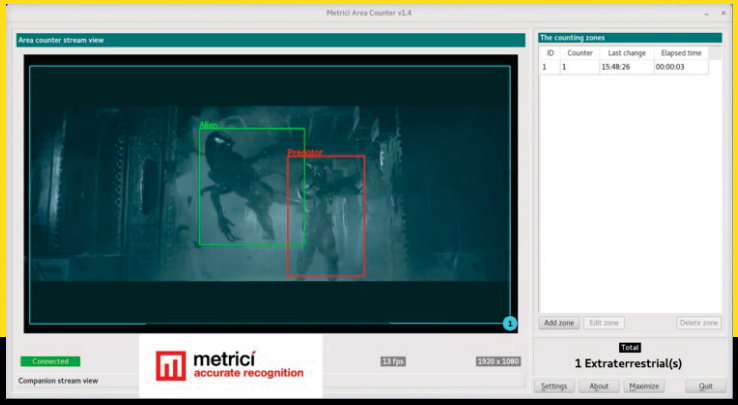
Two situations could go to a reject product

- Metal or other debris inside the airbag pipe
- Unfinished surface on the ends of the pipes

Metrici Area Counter engines with dedicated AI training was developed

Each pipe is inspected by Metrici to be well finished and has no debris inside before allowing the pipe to go on the line

RECOMENDATIONS



- The neural network can recognize all the things a human operator can properly distinguish, without going tired, but should be carefully trained;
- The width of the objects which should be recognized must be greater than 4% of image resolution. If the objects are bigger, the “fast” versions of the neural networks can be used with great results;
- A GPU (Intel/ AMD or NVidia) is an advantage, up to 4 GPU/ server can be used for large installations, but an Intel NUC is enough for 1 or 2 cameras;
- The Web UI is not mandatory if the user doesn't want to store events for further inspection.

RECOMMENDED IP CAMERAS

Axis	Mobotix	Basler
Native MJPEG support	Native MJPEG support	Very high resolutions
Zipstream	MxPEG + thermal metadata	Speed optimised protocol
	Dual sensor	Lowest latencies

*and many more brands

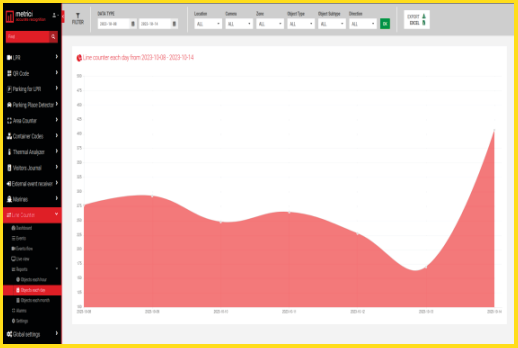






GDPR / DATA PRIVACY





Metrici is fully committed to the protection of the personal data of its users/ customers/ clients, employees, suppliers, and other stakeholders in accordance with the requirements of the law. We take the protection of personal data very seriously, and we have applied various methods and controls accordingly to ensure that we know what data a Metrici system collects, processes and stores, and that those data are protected appropriately.

When a live video stream provided by an IP camera is analysed, no video clips are stored. The live images are analized “on-the-fly” and discarded right after this step. The administrator of the application can choose if the saved data will contain a fully or an obfuscated image of the recognized event (for example the detection of a vehicle) or only the analytic data (like vehicle class, direction of moving, timestamp, and so on).

All the data and statistics are stored on local servers, the entire system can work completely offline from the Internet, without human intervention.

WHY METRICI?

Open standards: HTTP API, REST methods, JSON & XML data

Easy integration: each recognition engine (TA, LPR, QR, CCR, PPD, AC, LC) use the same language when talking to other systems

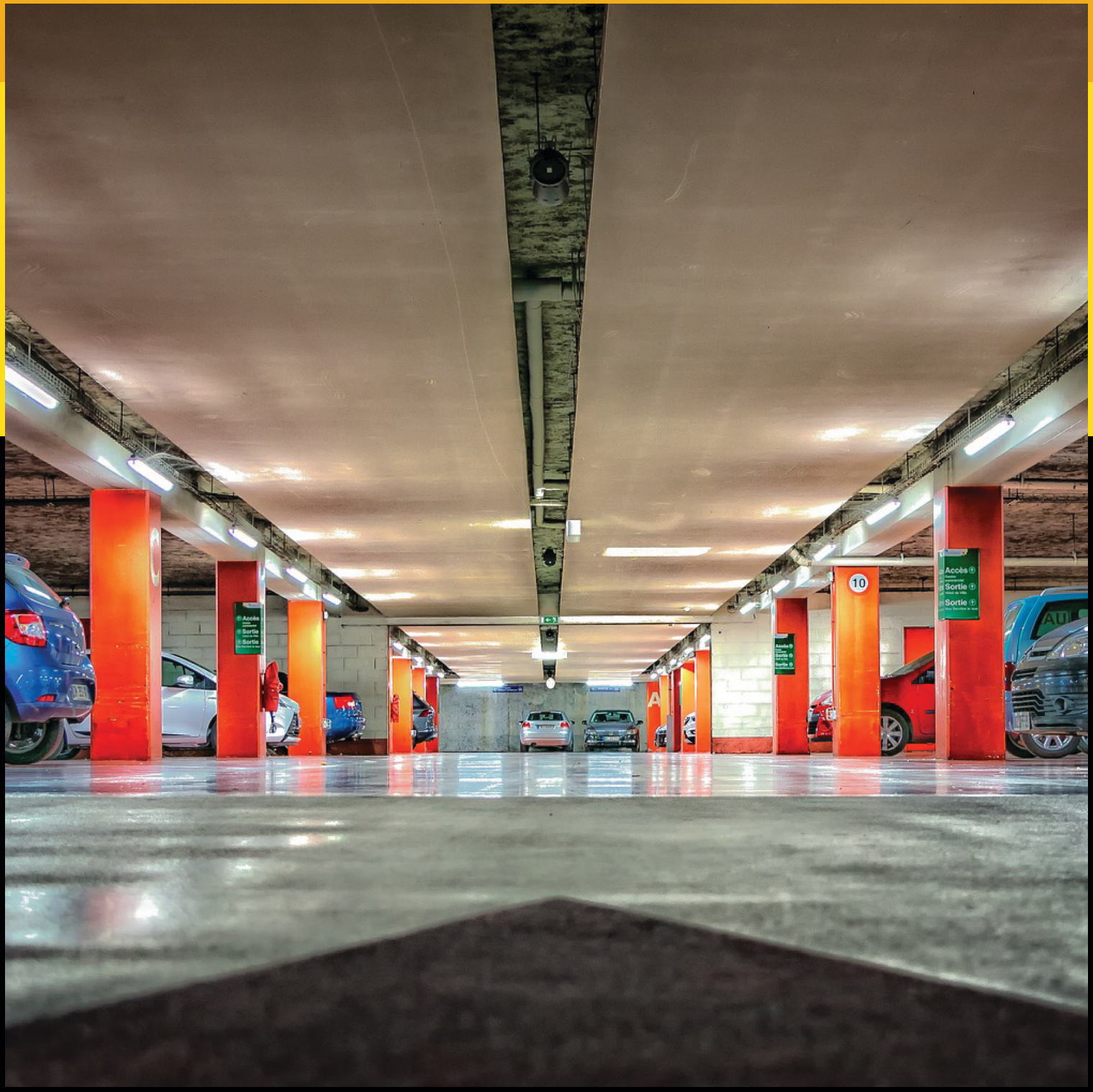
Flexible licensing: you can acquire only the recognition engines, the architecture can be expanded without limits

No additional hidden costs: it works on Linux, so there is no need to buy additional licenses for the OS, the antivirus or the database server

Complete solutions: software, servers and additional devices like LED displays, radar speed detectors, LAN controllers

“On request” customizations: the software can be modified and the recognition engines can be retrained to fit special needs


metricí
accurate recognition
AI-based SMART PARKING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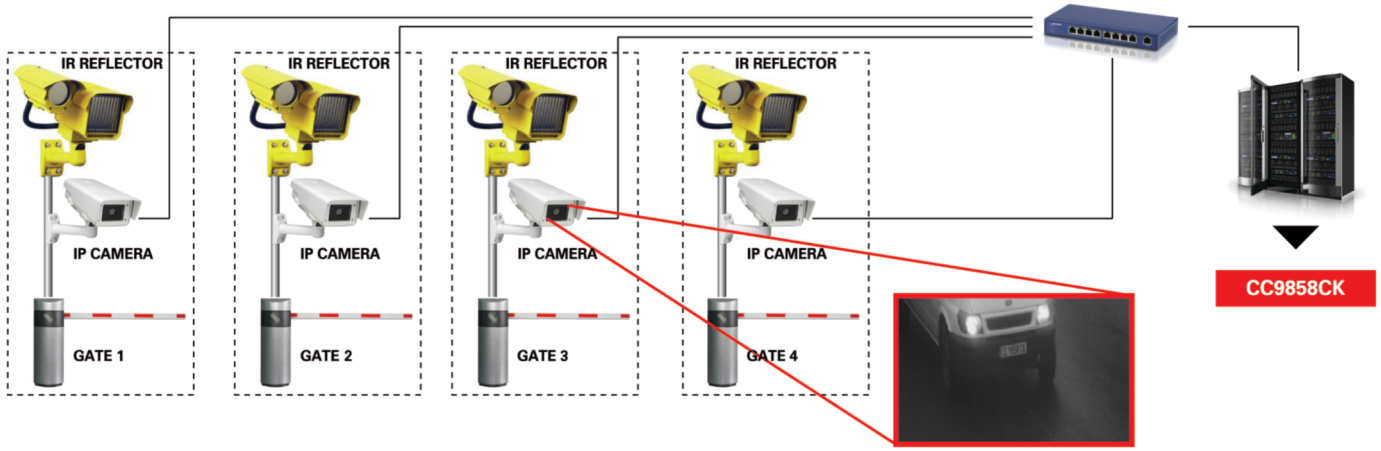
WHO IS METRICI

- 14 years of experience in offering advanced technological solutions in license plate detection - ANPR and management development tools
- Metrici is one of the most technological advanced ANPR software on the market and one of the most viable and competitive on international market
- Large variety for using, from payment parkings to access control, retail and security, from a small residential neighborhood to industrial parks, commercial or traffic monitoring
- Tool for income increase, security upgrade and a better management for vehicles and traffic
- Metrici helps you grow the business, have a development predictability and is a powerful marketing and security tool
- Integral and integrated management system and technical support
- Additional info and statistics
- Complex database
- Elaborated interface, with numerous options for the users
- Possibility of managing more locations in the same time, from same interface, no matter where they are placed
- Moduls for Parking, Toll Stations, Traffic management, People Counter



METRICI PARKING MODULE



AXIS COMMUNICATIONS · BOSCH · HIKVISION · Security-Vision-Systems MOBOTIX · SONY

+ 20 other integrated brands

FRIENDLY INTERFACE

Metrici has a friendly interface that can be accessed on a local server or from anywhere in the world where there is internet access. Thus one can monitor and manage a business from a distance.

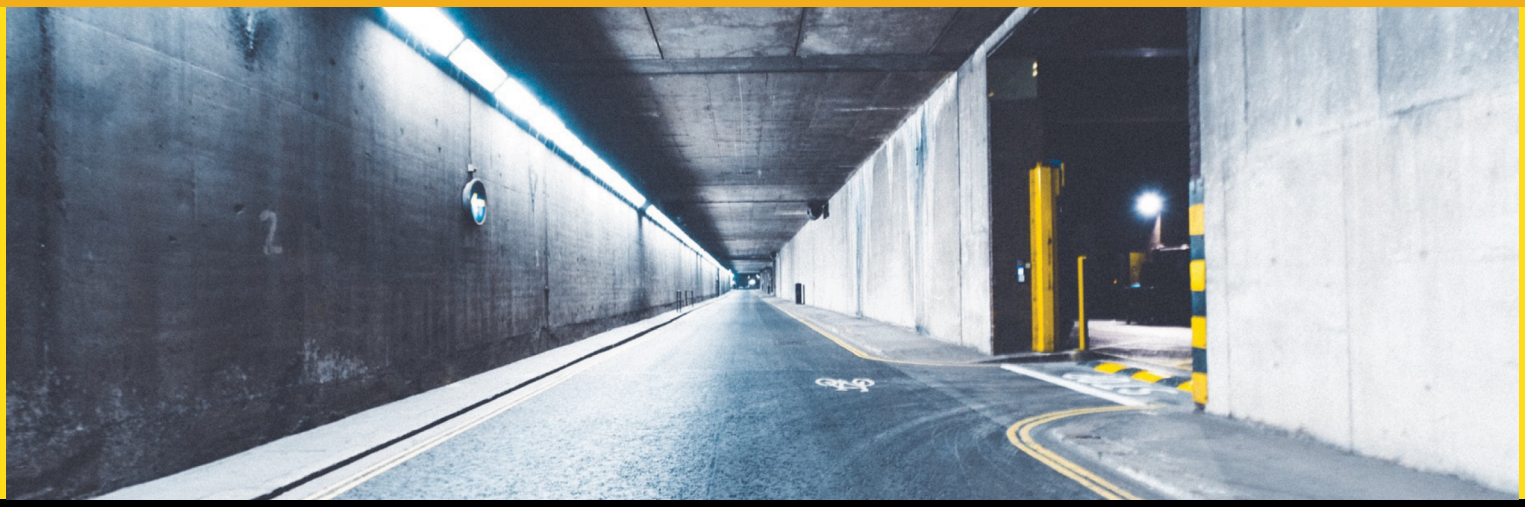
UNLIMITED NUMBER OF TIME TABLES AND TARIFFS

As a payment parking means also a market analysis, and the traffic fluctuates, one can define as many timetables and tariffs it wants, so that the price offer be always fitted to the vehicle flow and demand.

ALARM SETTINGS

Metrici sends an alarm, by mail or SMS, in case of a predefined event. For example when a car spends more than X hours in the parking or when a certain license plate is detected.

METRICI PARKING MODULE



SMS INTEGRATIONS

The phone numbers that are in a database can allow access for a vehicle in a parking, by SMS, according to a predetermined settings established by the administrator, for temporary acces or for unlimited access by included it in the whitelist.

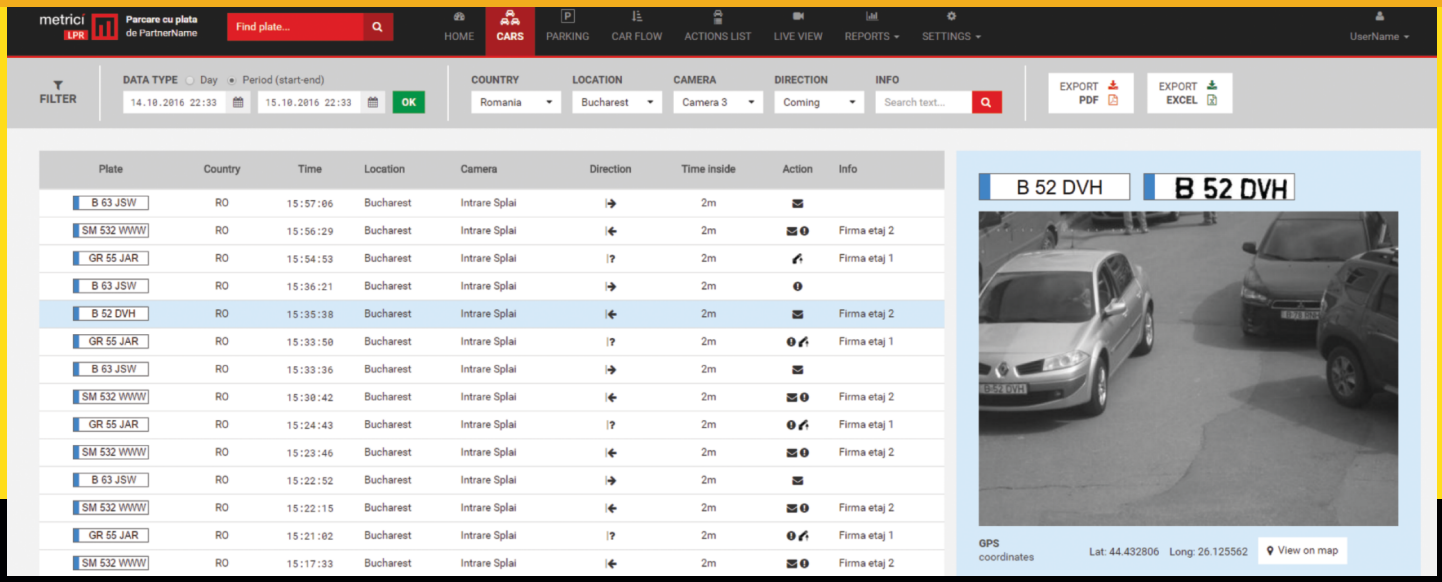
FLOORS OR SECTIONS MANAGEMENT

Metrici can be set in such manner that can manage apart individual sections or floors of a parking lot. It will automatically calculates the free/busy spaces for each sections/floor.

TENANTS AND SUBTENANTS

Metrici allows defining tenants and subtenants of a parking lot, for unlimited levels. For example an office building that has a parking may create tenants for each company in that building and establish a certain parking spaces for each. The company can also creates subtenants for each of its departments, and these another subtenants for teams of the departments and so on. Each one of these tenants and subtenants has its own interface where can manage the license plates in the whitelist/blacklist, the timetables, number of vehicles etc.

METRICI PARKING MODULE



SMS PAYMENT

The SMS tool can be used for parking payment if the system is configured in such a way.

TIME INTERVALS

The administrator of a parking can set time intervals in which a client can exit a parking without payment or the interval in which he can exit the parking after a payment was made.

LED DISPLAY AND TRAFFIC LIGHT INTEGRATION

Metrici can be integrated with a traffic light or a LED display for showing info regarding the free/busy spaces inside the parking.

CASH REGISTER INTEGRATION

The system can be integrated with as many cash registers and can print receipts: the cost is automatically calculate depending on the predefined time tables, tariffs and time spent by the vehicles in the parking.

METRICI PARKING MODULE

SPECIAL LISTS

Whitelist: The vehicles in this list can have different settings: open the barrier, free access, unlimited access, special time tables etc;

Blacklist: when a vehicle in this list is detected, Metrici can send an allert: e-mail, SMS, popup.

RESERVED PARKING SPACES

One can guarantee the parking spaces for each tentant, if the administrator wants it: in this case the parking spaces will not be considered as free and displayed as such for other clients of the parking lot, even if a tenant did not occupy all of them.

COMPANION CAMERAS

Companion cameras can be installed along the detection ones so that every detection can be linked also to an image captured from the companion: for example with a wider lens, or another angle etc.

CONTINUOUS OR TRIGGER DETECTION

The system can search for a license plate in continuous mode, at trigger or a combination of the two: laser, inductive loop for situations when the license plate is not visible and the event will be recorded in database.

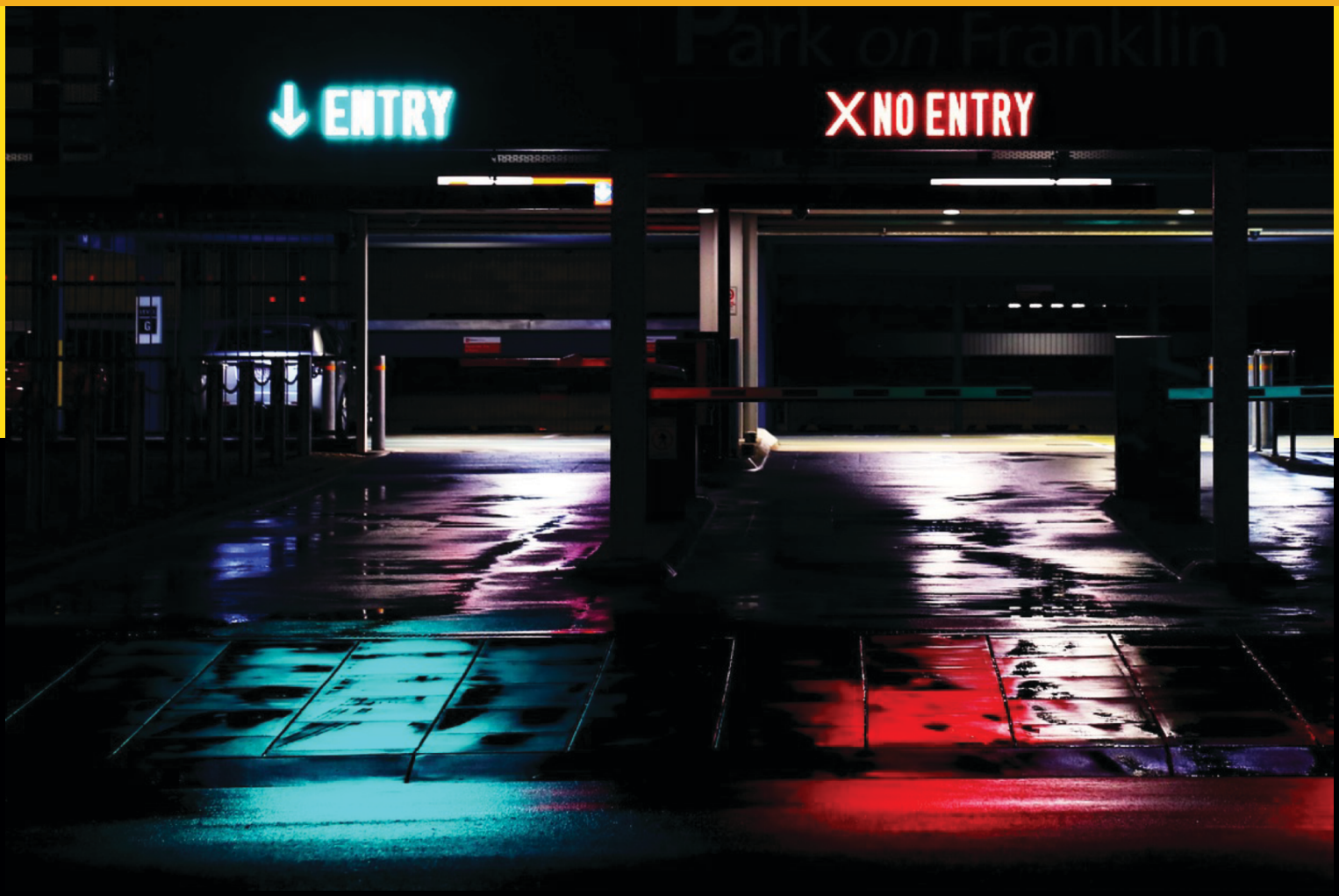
EXTERNAL SYSTEMS INTEGRATION

Integration with external system, such as Skidata or Scheidt and Bachman, for example, or external databases.

LOG FILES

Metrici saves all the data referring to the internal processes or communication with external systems. In case of a malfunction, one can instantly see where the problem is and fix it.

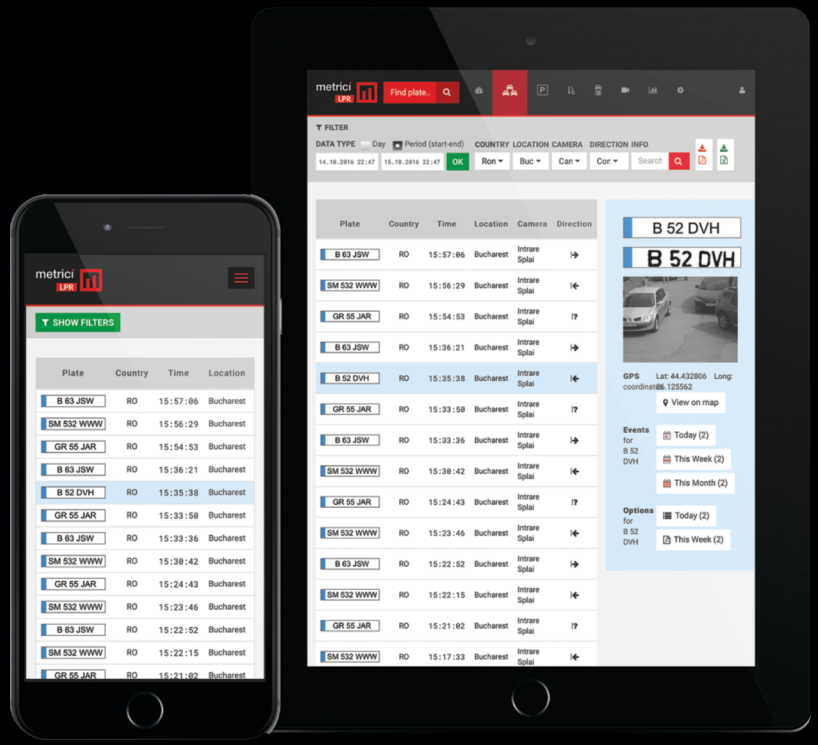
WHERE ELSE YOU NEED METRICI



You may need a better control for access inside a factory.
You want to keep track of you vehicle fleet.
You want to know who are your best and loyal clients or from what region they are coming.
Get inspired by the experience of our clients.

WHERE YOU CAN FIND US

- Commercial and industrial parkings
- Access control and security systems
- Solutions for rules enforcing in traffic and respect for traffic signs in cities
- Traffic monitoring and a better flow on streets in the cities/highways
- Speed radar integration
- Tolling stations
- Weighing stations
- Retail shops, malls
- Office buildings
- Gas stations
- Residential
- Auto services
- Car wash
- Auto fleets
- Transport and distribution companies
- Factories
- Campuses



CASE STUDY: POLITEHNICA UNIVERSITY



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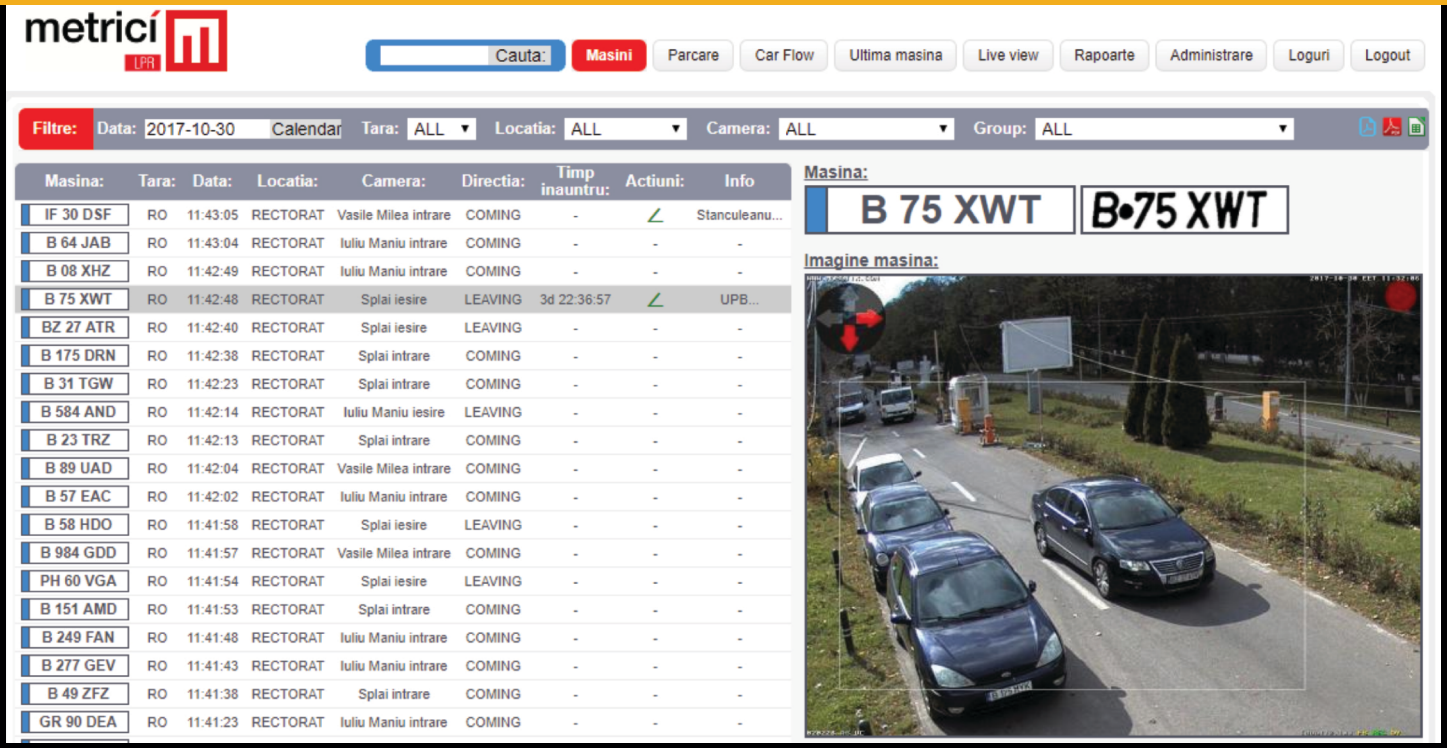


METRICI SECURED THE BIGGEST UNIVERSITY CAMPUS IN ROMANIA

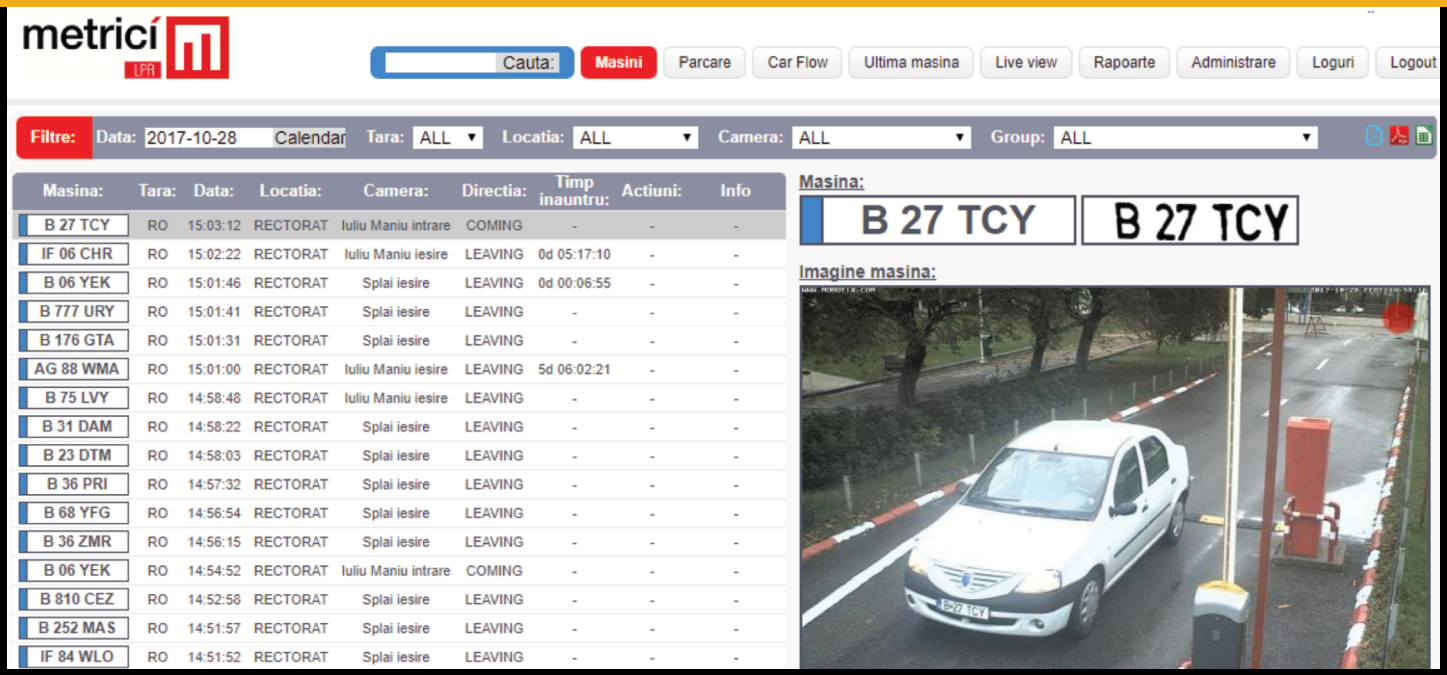
MISSION

Politehnica Bucharest University has the biggest university campus in Romania and an impressive number of students: more than 25.000 students, 1400 teachers and many visitors enter daily in the 100 ha (247.1 acres) campus.

Besides the 15 faculties' buildings, this huge campus also includes a conference hall, some residential buildings, church, sports base, commercial banks

Such a great surface to cover, the great number of persons and the different activities inside the campus were a logistic nightmare for the administrators.

CASE STUDY: POLITEHNICA UNIVERSITY



Taxi drivers and ridesharing often used the campus as a shortcut between these main streets. And not just once it happened that people inside the campus were injured because of the high speed of vehicles when transiting.

Also, the campus is surrounded by office buildings and residential buildings, so many neighbors would often use the campus as a free long or short time parking. That was the case also with some students, teachers and guests.

SOLUTION

Metrici had the full answer to all the above problems of Politehnica. In a first stage of the installation, barriers, surveillance cameras and Metrici system were installed at every entrance in the campus. A one time fixed tariff was introduced for every car entering the campus.

CASE STUDY: POLITEHNICA UNIVERSITY

The main purpose was for people to get used with the new system of barrier and ANPR detection. Over 4000 vehicles enter daily in the campus.

The university also created a Whitelist with vehicles with free access. Everybody else has to pay.

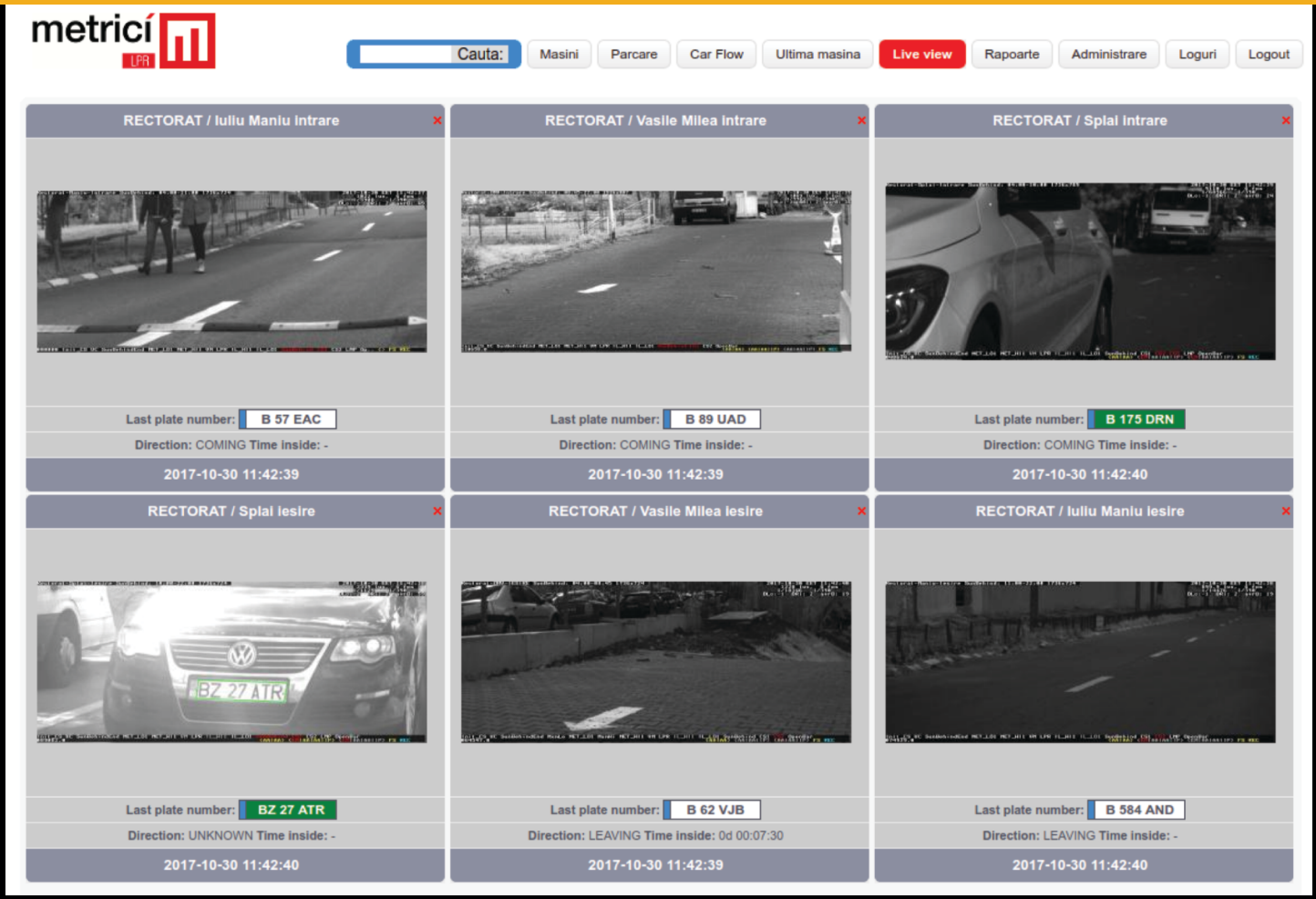
The tenants inside the campus will also have limited preserved parking spaces. Each tenant will personally manage their access list by modifying the license plates in database in accordance with their own vehicles and needs.

Also, in case of events inside the campus, the administrator of the parking could easily introduce, by SMS, new license plates on the whitelist.

POLITEHNICA TECHNICAL DATA

- 10 ANPR cameras
- 10 Infrared projectors
- 10 barriers
- 1 server
- Metrici licenses
- Integration with external database for whitelist

CASE STUDY: POLITEHNICA UNIVERSITY



RESULTS

With the help from Metrici, the campus administration eliminated all the traffic and managing problems. No more speeding and unallowed traffic through the campus, or neighbors using this space as a free personal parking. Plus, the access is totally automated.

WHY METRICI



- Easy to install or use
- Large spectrum use
- Exact and quick detection of license plates
- The best system on the marketing
- Complex database
- Useful reports and statistics
- External systems integrations
- And last but not least, a neural network that uses artificial intelligence

30 DAYS FREE DEMO

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