



ANNAPOLIS
Maryland

Smart Mobility Solutions

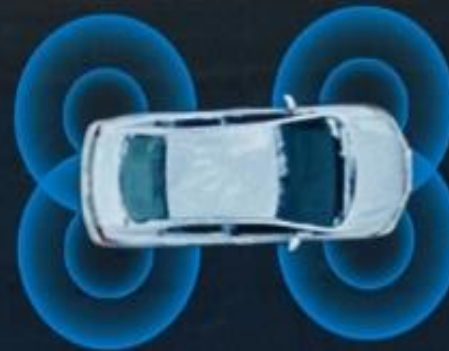




Jenoptik – Experience the Era of Light.

We make roads and cities safer

- Intelligent traffic monitoring, tolling, photo enforcement and control systems
- Automatic number/license plate recognition to keep citizens safe (Deep Learning)
- Data analysis for identifying traffic hot spots
- Services and software to serve the smart cities of the future

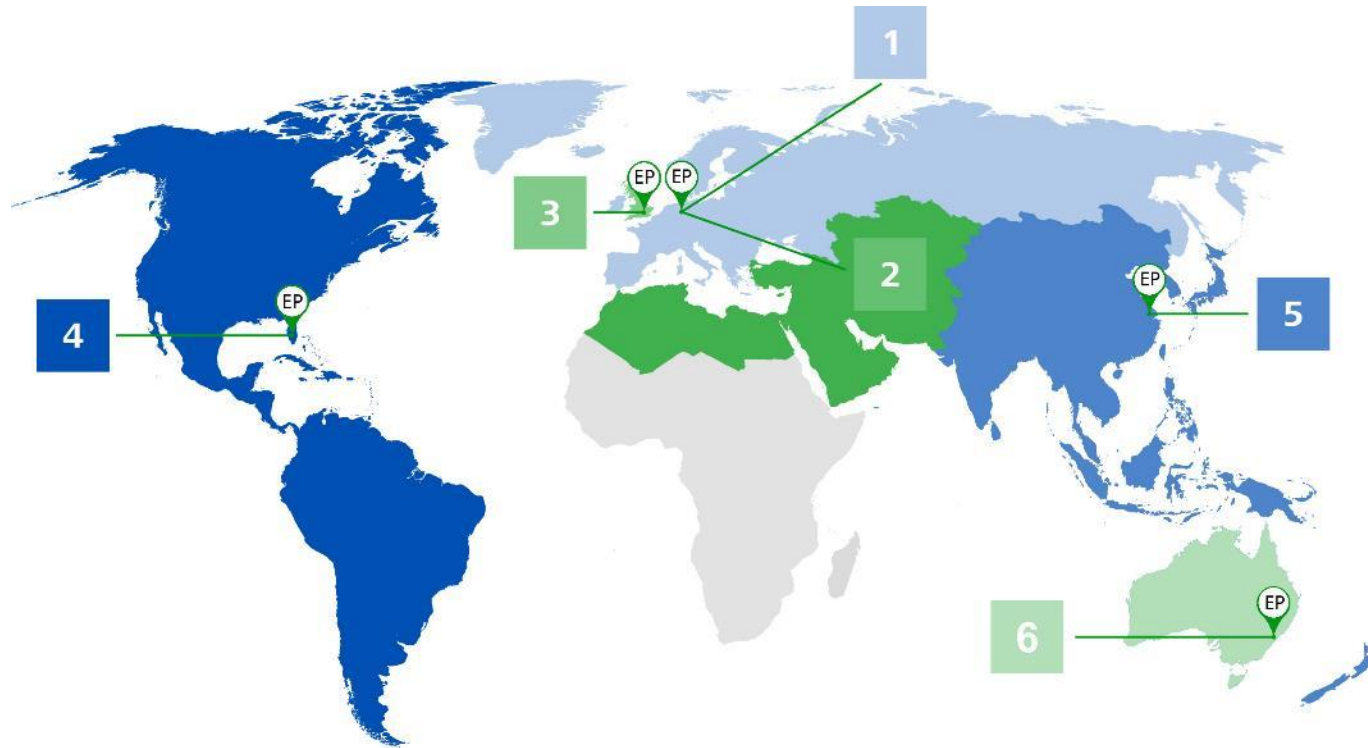


We explore new worlds

First images from Perseverance
Mars rover through Jenoptik
HazCam camera lens assemblies.



We are represented in 6 Regional Units



HQ Jenoptik Light & Safety, Monheim (GER)

1 RU Europe - non UK, EP Monheim (GER)

2 RU Middle East & North Africa, EP Monheim (GER)

3 RU UK, EP Camberley (UK)

4 RU Americas, EP Jupiter (USA)

5 RU APAC, EP Shanghai (CN)

6 RU Australia, EP Lane Cove (AU)

HQ = Head Quarter
EP = Executive Position



MORE LIGHT

A brief overview of our history

VISION ZERO The Vision Zero logo consists of the words "VISION ZERO" in a bold, white, sans-serif font. The letter "O" in "VISION" is replaced by a white silhouette of a person walking. The letter "O" in "ZERO" is replaced by a white silhouette of a car.

1933

Otto Berning & Co was founded in Schwelm/Westfalen.



- This is the basis for the success of all ROBOT cameras.
- The small picture camera for amateurs was launched on the market.
- It was a very robust, small, fast and handy camera that met with a very positive response in the professional world.

1950

The company developed towards technical photography.



- Warning – bank robbery: photographic alert systems
- Warning – road accident: photographic traffic surveillance

1960

ROBOT focused on traffic solutions.



- At the beginning of the 1960s, the first stationary ROBOT system was installed in Düsseldorf.
- At the beginning of the 1970s, the company developed systems that were installed on a tripod or in the vehicle.

1963

The MotorRecorder was launched on the market.



- The MotorRecorder became the worldwide standard in photographic traffic monitoring.
- The patented rotor lock was long-lasting and maintenance-free up to 1 million releases.

21st century

Beginning of the digital age.



- ROBOT was the first company to launch the first digital camera systems for traffic photography in 1998.

Today

Jenoptik is an international solution provider for more traffic safety and public security.



Systems and applications for:

- Traffic Law Enforcement
- Civil Security
- Road User Charging



JENOPTIK Smart Mobility

- **Headquarter: Jupiter FL**
- **Employees: 4,300+ worldwide**
- **Established solution provider and leading company in Traffic Law Enforcement and Civil Security**



4,000 sites across the US

Helping save lives by monitoring speed and red-light laws.
2200 deployed in NYC, **600** sites in Ontario Canada

Jenoptik is the right partner for you...



- **Artificial intelligence:** Better results with faster processes.
- **Single source:** Jenoptik designs and delivers both hardware and software.
- **Customized and flexible:** Mobile and fixed solutions customizable to meet agency needs.
- **Effective:** Positively impacting driver behavior for a safer community.
- **Easy to use:** All-in-one unit, quick to install, configure and operate.
- **Maintenance Services:** There are currently 4,000 Jenoptik smart mobility cameras in operation across the United States. Since we are the developer & manufacturer of the technology, maintaining & servicing our systems in a timely manner is not a problem.

VISION ZERO



MORE LIGHT

Smart Mobility: Photo Enforcement

VISION ZERO  

One System Multiple Solutions



Red Light

Red Light

- Targeted red light camera systems increases traffic safety and reduces accidents at multi-lane junctions and other hazardous road sections
- Red light violations
- illegal turning
- driving in the wrong lanes

Spot Speed Enforcement With our Speed Camera Solutions

- Increase traffic safety
- Lessens risk to Bicyclists and pedestrians
- Significantly reduce accidents in communities
- Supports the Vision Zero initiative



Making roads and communities safer



LPR

Automatic License Plate Recognition

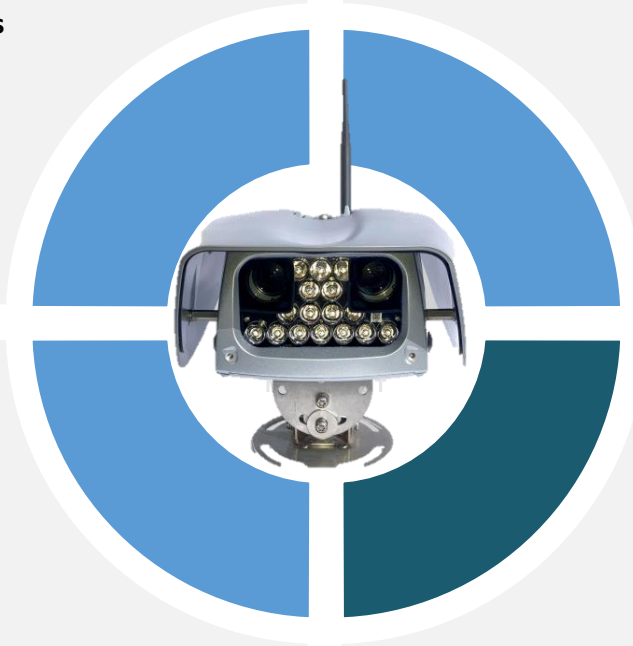
- Video Recording
- Multiple Lanes
- Bi-Directional
- Vehicle Color, Make and Brand

DVR Recorder Security Monitoring

- 24/7 monitoring
- Multiple Lanes
- Live video



Tailored solutions in challenging and regulated markets



Basic Services:



Expanded Services provided in Smart Mobility:

- Block the box & pedestrian crossing enforcement
- Construction zone Speed Enforcement
- Stop sign enforcement
- Illegal Turn enforcement
- Bus & restrictive lane enforcement
- Tunnel average speed enforcement (section control)
- Bridge protection
- Railroad crossing enforcement
- Pollution control/low emission zone
- Congestion corridor
- Traffic Counting
- Vehicle Classification
- Vehicle Height
- Audible Detection (Loud Vehicles & Gunshot Detection)
- Distracted Driving / In Cabin Enforcement (cell phone & seat belt enforcement)
- Access control
- Wireless Signal Detection
- Vessel Detection
- Facial recognition
- Mobile App integration
- Autonomous driving



Jenoptik Camera Solutions

All-in-One

Single camera solutions leads to easier setup, maintenance, and lowers cost

Bi-Directional

Can read front and rear license plates simultaneously if monitoring two-way traffic

Video Recording

Captured video can be used for further analytics or in law enforcement investigations

Multiple Lanes

A single camera is capable of monitoring 3+ lanes

Deep Learning A.I.

Enables superior ALPR read rates, State Identification, and Vehicle Classification

Multiple Solutions

Customizable solutions: fixed (street furniture), trailer deployable, and in-car solutions



Non-invasive red light and spot speed solution

Replacement technology for obsolete wet film cameras

Overview

VECTOR SR is a fully self contained traffic enforcement system for multiple potential applications:

- Red light enforcement
- Speed-on-green
- Standalone spot speed
- Level crossing enforcement
- Point-2-point average speed

VECTOR SR is easy to install:

- Fully self-contained detection system; only requires power connection
- Fully integrated communications
- <8kg weight and compact
- Can be installed on lightweight passively safe columns, or attached to existing street furniture

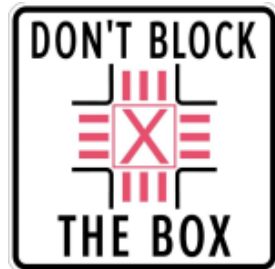
VECTOR SR is suitable for use on any road type, from urban to highway. In addition, its core ALPR technology can be used as a source of rich traffic data for many other applications.

Non-invasive radar detection:

- No in-road loops
- Stop line vehicle triggering
- Standard spot speed enforcement and speed-on-green

Optical traffic phase monitoring:

- No connection to traffic signal controller
- Visual trigger on signal change



Flexible and simple to install

VECTOR SR is compact and lightweight. It can be installed on passively safe columns, fitted to existing street furniture or infrastructure such as gantries.



Fit to existing street furniture

Passively safe standalone columns

Spot speed capability

VECTOR SR uses radar detection for spot speed enforcement. An intelligent virtual grid for secondary speed verification means no check marks are needed on the road surface. Installation is simple - only a power connection is required.



Proven powerful installation

VECTOR SR uses a powerful and proven installation solution to present red light offence data. It can also present video clip evidence.

Rich ITS gathering

Based around the proven VECTOR ALPR camera platform, VECTOR SR can unobtrusively gather rich ITS data for all passing vehicles, both for civil and security/policing applications:

- Immediate use for traffic information, journey time, or police alerts etc.
- Statistical gathering, origin/destination, traffic volumes, usage patterns etc.

VECTOR SR is capable of capturing enforcement images in all operational environments, detecting violations 24/7 and in all weathers.

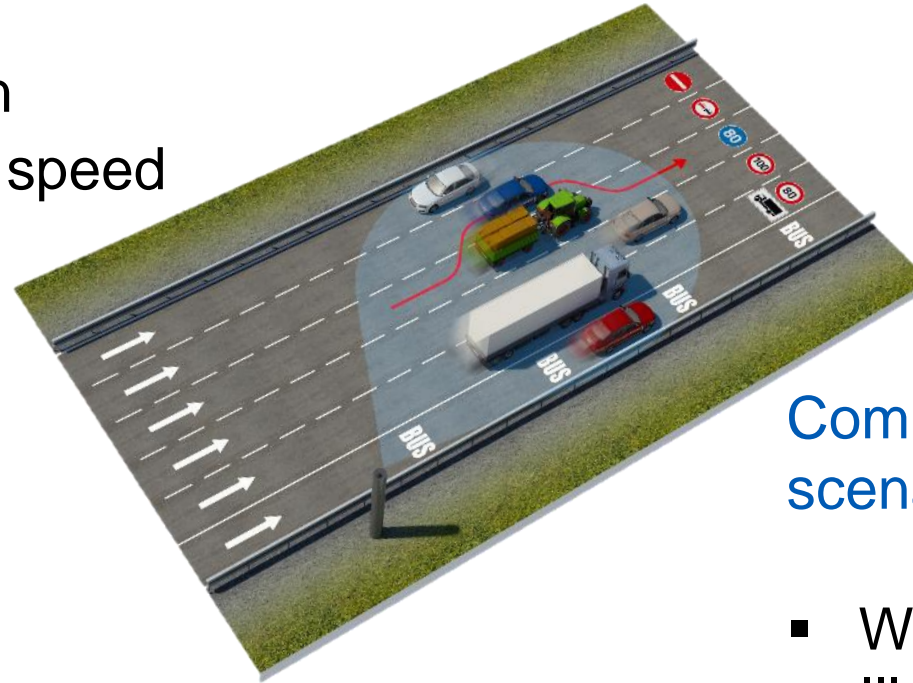
At sites with suitable existing street lighting, no further illumination is required, but at dark sites, the unique, patented VECTOR IR (infra-red) lamp units can be used to unobtrusively flood the scene with non-dazzling illumination. Drivers will not be distracted by sudden flashes of light, whilst the operating authority will have clear images that identify the make and model of vehicle.



Flexible Use

Every road is different and has its own challenges. Hence, we offer a flexible speed solution:

- Base system
- Internal and external cameras
- Non-invasive sensors and flashes



Complex enforcement scenarios:

- Wrong direction
- Illegal overtaking
- Minimal speed
- Speed limit
- Speed limit truck
- Dedicated lane usage

Flexible Use

Every intersection is different and has its own challenges. Hence, we offer flexible red light & speed solutions:

- Base system
- Internal and external cameras
- Non-invasive and invasive sensors and flashes



Complex enforcement scenarios at an intersection:

- U-turn
- Left turn (illegal)
- Speed on green
- Pedestrian zone violation
- Parallel driving vehicles
- Right turn on red

Example Enforcement Image



MORE LIGHT

Day Images: Day



CONFIDENTIAL

Example Enforcement Image



MORE LIGHT

Evening / Dusk Images



CONFIDENTIAL

Example Enforcement Image



MORE LIGHT

Night Images



CONFIDENTIAL



MORE LIGHT

Fixed or Mobile installations

VISION ZERO  

Fixed Deployment:

- Stand alone pole
- Existing street furniture
- Bridges
- Roadway Gantry
- Overpass
- Tunnel





Rapid deployment trailer combined with speed and ALPR technology assists agencies to quickly identify persons and vehicles of interest which can help make roads and communities safer.

Jenoptik rapid deployment trailer has been developed to use our ALPR technology that can be used for a whole host of traffic, civil and anti-crime applications. Utilizing an extendable mast provides superior coverage and read rates for any scenario. Deep learning ALPR enables intelligent pattern-recognition capabilities used to monitor traffic and detect potential criminal activity.

Standard Features

- Long run-time in most climates
- Actionable hotlist alerts under 5 seconds to your phone
- Up to 3 lane monitoring with a single camera
- 24/7 unattended operation
- Remotely monitored and controlled
- Lightweight design, easily towed
- Extendable mast up to 25 feet
- Speed limit sign with interchangeable digits

Ideal uses

- Law Enforcement
- Public Safety
- Traffic Safety

We are the

pioneer

of Automatic License Plate Recognition (ALPR) technology*, and we continue to develop and manufacture our own hardware and software.

*In London 1979, under the name Computer Recognition Systems (CRS)

Making the world safer with advanced security solutions

Many crimes include the use of a vehicle: it can be stolen, used for traveling to the crime scene, as weapon itself to drive into people or a building, for the transportation of drugs, firearms or other criminal purposes such as kidnapping. Just one terrorist attack prevented is a strong argument for cameras in public spaces.

We specialize in:

- Vehicle Identification
- Person Identification
- Driver Behavior Detection
- Big Data Analysis
- Data Processing



Civil and anti-crime applications

- for detecting and countering criminal or terrorist activities
- by capturing number plate images
- with fixed, vehicle-mounted or portable systems
- collecting data for interpreting large amounts of information (Big Data and Smart City trends)
- ensuring pattern recognition – specifically, monitoring vehicles' individual and/or collective progress



Products and Services

VECTOR² – Integrated ANPR Camera

Identification and Capture

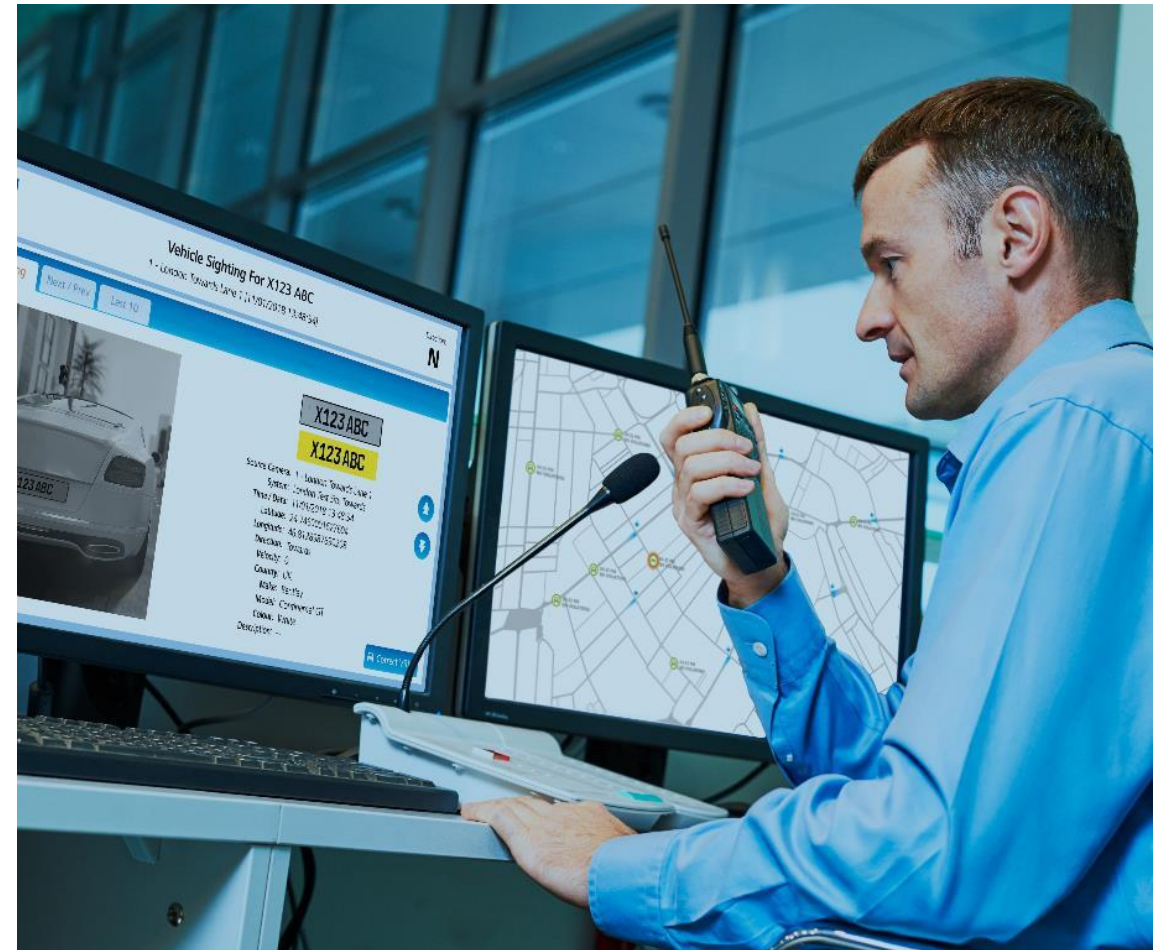
Police ANPR - civil enforcement - tolling - journey time measurement - speed enforcement - access control - congestion charging - security cordons - parking management

- monitors up to three lanes of high-speed traffic by night and day
- uses two high-resolution cameras combined with integral Infra-Red (IR) illuminators to provide ANPR and scene overview images
- can auto-detect and track vehicles passing through the field of view
- can be externally triggered for applications involving specific vehicles



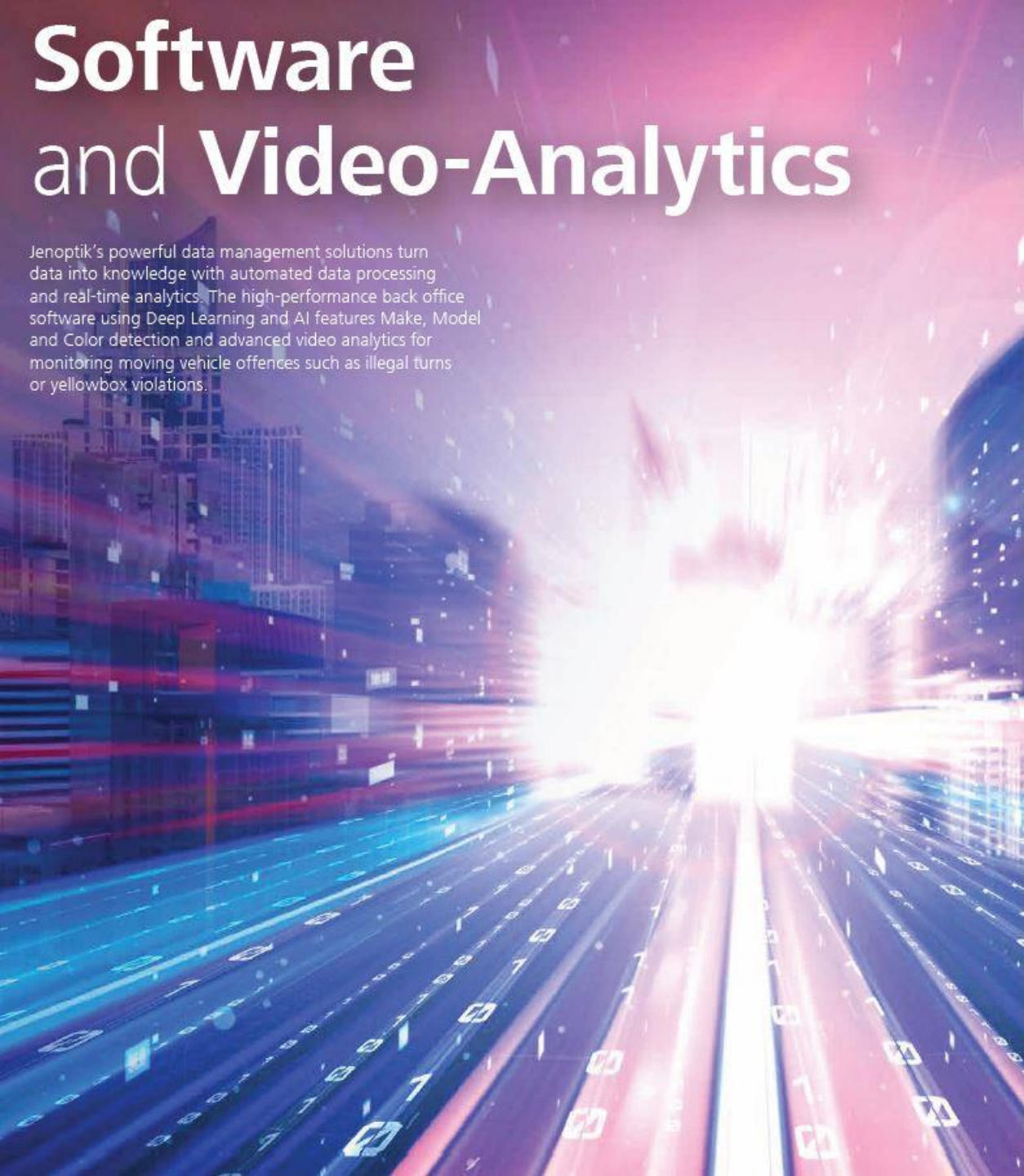
Real-time detecting and understanding car-related events

- by analyzing incidents in real time and automated
- by uploading vehicle black/white lists centralized
- by establishing interfaces to other organisations' databases
- by matching vehicles of interest with hotlists
- by spotting clone license plates



Software and Video-Analytics

Jenoptik's powerful data management solutions turn data into knowledge with automated data processing and real-time analytics. The high-performance back office software using Deep Learning and AI features Make, Model and Color detection and advanced video analytics for monitoring moving vehicle offences such as illegal turns or yellowbox violations.



Turning data into knowledge.



Advanced video analytics with Deep Learning (DL)

Our video-based camera solutions are powered by Deep Learning. We innovate by leveraging our Artificial Intelligence expertise, pushing the boundaries of what was previously thought impossible. With Artificial Intelligence enhancement, our cameras are capable of reaching exceptional capture and read rates, including damaged and/or dirty number plates. Our software is also capable of capturing and correctly reading non-retro reflective number plates from the most challenging locations in the world, without the requirement for white light, providing a unique market capability. Independent trials have shown exceptional test results of > 99 % capture and read rates across 4 traffic lanes.

Using a combination of real images and synthetic data, we can create and train the development of new number plate formats and styles to address new markets. In addition we have developed a highly accurate video-based speed measurement especially for Secondary Speed Verification (SSV).



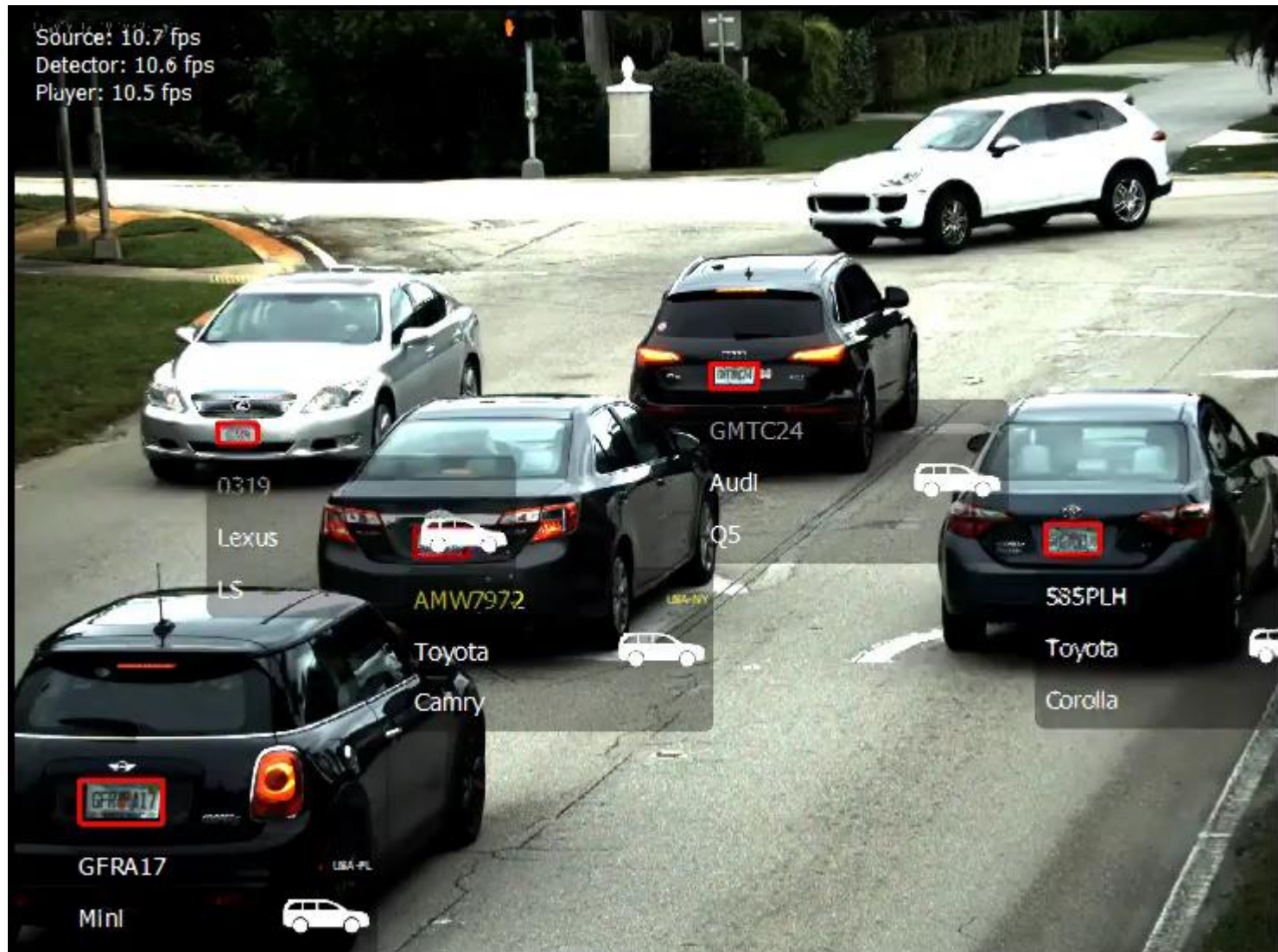
Difficult to read number plates captured and read by our camera-based Deep Learning software, thanks to DL engine.



Make, Model and Colour detection (MMC)

See the bigger picture with additional vehicle information. ALPR cameras or our back office system can generate high accuracy make, model, classification and colour recognition for applications in civil security, traffic intelligence, lane usage and much more.

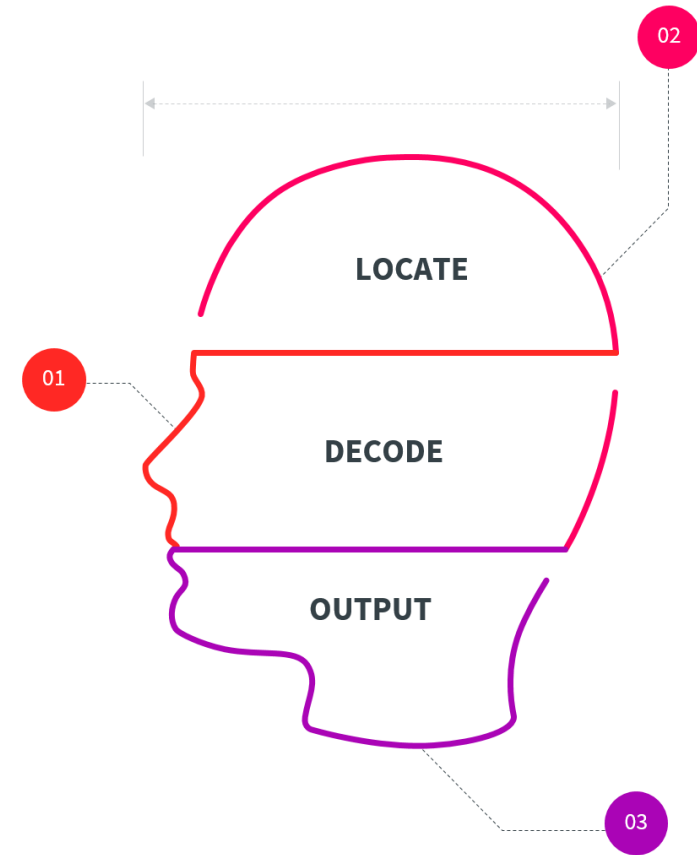
Video Analytics Examples



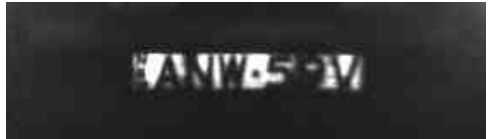
Deep Learning: Deep Analytics

Artificial intelligence leads the way to higher read accuracy and to greater trust.

- Research & Development done completely in-house
- Always learning new plate styles and types
- Achieves superior read rates vs. Optical Character Recognition (OCR) technology
- Able to handle difficult license plates due to obstruction damage, and dirt
- Enables vehicle classification



Deep Learning: Reading the Unreadable



Conventional ALPR

NO READ



NO READ



NO READ



NO READ



NO READ



NO READ



NO READ



Deep Learning ALPR

AHJ63D



ANW59V



BF38BP



BQ50ZT



BS67HG



LB575



CYU63X



Conventional ANPR discards 10% to 30% of plates as “unreadable”

Deep Learning ALPR gets almost all of these correct



Smart Mobility Division – Alert to phone

Road User Charging (RUC) Solutions

Road User Charging Solutions

- Tolling
- Weigh in Motion
- Prohibited Vehicle Monitoring
- Congestion Charging

Applications

- Tolling
- Tunnel management
- Bridge management
- HOV / HOT lanes
- Restricted access: city centre, pedestrian zones, low emissions
- Vehicle classification & measurement
- Traffic-flow data

Advantages

- RUC equipment footprint is small
- Considerable lower CAPEX compared to gantry solutions
- Low OPEX: the compact tower can easily be accessed at the side of the road
- Highest industry KPIs for detection





MORE LIGHT

Software Back-office

VISION ZERO  

Our TraffiData Back Office Facility (BOF) is the product of 20 years experience in aiding 75+ national and local law enforcement agencies across the globe.



Quick and efficient evaluation of incidents

Effective data processing using Jenoptik's TraffiDesk™ pro evaluation software. You save on time and personnel in evaluating data from your traffic monitoring systems.



Violation Review Example

Speed Violation

All relevant and necessary data of the incident is provided in the data bar attached to every image.



MORE LIGHT

062 km/h
Time : 11:04:24 Limit : 050 km/h Fix : D 14 Code : 70003
Date : 16.06.2019 Photo # : 440 A Int : 0 SerNr : 625-059460306
Lane : 1 SR390-ONT

KIPLING AVE. Southbound

062 km/h

Plate selection

CDN_ON CFWA442 80%
CFWA442
OK Except...

Incident details Vehicle lookup Secondary violations

Date & time: Sun, 6/16/2019, 11:04 AM
Vehicle kind: Other
Gender:

50 km/h
62 km/h
62 km/h
12 km/h

CONFIDENTIAL

Violation Review Example

Red Light Violation


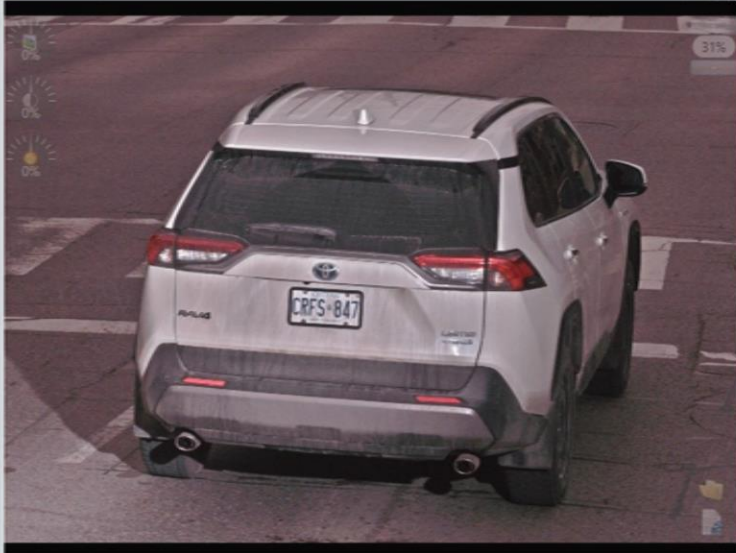



MORE LIGHT

TDSKpro.studio

File Verification

Time	Date	Lane	Amber	Code	Red	Photo	Speed
13:07	11.01.2023	1	03.3	4000	000.7	199 A	076 km/h



Incident details

Speed Vehicle kind

First/second time in red / Violated article

License plate type

Enter license plate here

Username: Administrator | Application version: 14.0.23003.1702

CONFIDENTIAL



Processing Flow



Services

Big Data Management

- Web-based back office system for high end users: police, customs, local authorities
 - manages large, complex, Red Light/Speed camera, fixed-sites, in-car and portable LPR systems
 - allows live and retrospective incident analysis and reporting (analytical capabilities)
 - is modular and customizable
 - captures LPR data



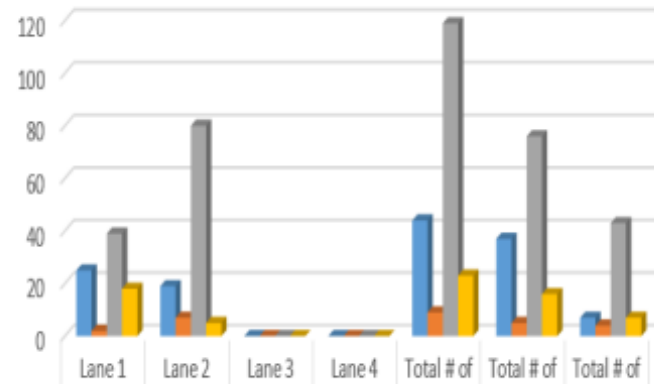
Performance Report



MORE LIGHT

	Lane 1	Lane 2	Lane 3	Lane 4	Total # of Violations	Total # of Tickets Issued	Total # of Rejections	% of Rejected Violations	Citation Rate	Agency Fines & Penalties Collected
Location 1	25	19	0	0	44	37	7	15.91%	\$325.00	\$ 12,025.00
Location 2	2	7	0	0	9	5	4	44.44%	\$325.00	\$ 1,625.00
Location 3	39	80	0	0	119	76	43	36.13%	\$325.00	\$ 24,700.00
Location 4	18	5	0	0	23	16	7	30.43%	\$325.00	\$ 5,200.00
Total Incidents	84	111	0	0	195	134	61			\$ 43,550.00
Total Traffic	580	617	0	0						
Total Incident %	15%	18%	0%	0%						

CITATIONS VIEWED Month of January 2023



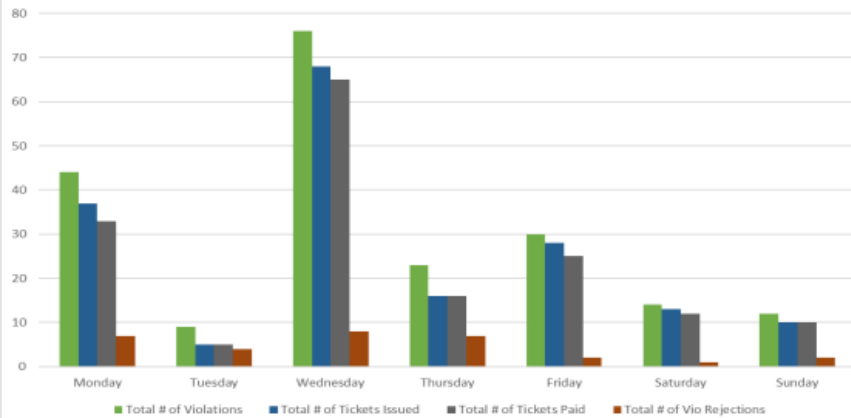
Location 1	25	19	0	0	44	37	7
Location 2	2	7	0	0	9	5	4
Location 3	39	80	0	0	119	76	43
Location 4	18	5	0	0	23	16	7

REASONS FOR REJECTED VIOLATIONS SHOWN ABOVE

Incidents Captured - Violation Exception Codes Violations Viewed

Location 1	44
14 - Licence plate obstructed	
3407	1
33 - Blocked Window - TPX	
3407	3
67 - Stop Bar Not Visible	
3407	3
OK	
3407	32
3409	5
Location 2	9
33 - Blocked Window - TPX	
3406	3
67 - Stop Bar Not Visible	
3406	1
OK	
3406	5

Location 1 - Ticket Statistics



CONFIDENTIAL

Financial reports

Statistics

Payment Portal

Reports

TraffiData's high-quality report generator enables mined data to be presented in various user-friendly formats. Reports can be administrator-customized to provide additional information such

as vehicle flows, vehicle counts, alert statistics, etc. "Standard" reports, which can be distributed via email, can also be configured to automatically generate daily statistics.



Dashboard Camera Status



Intercept Report



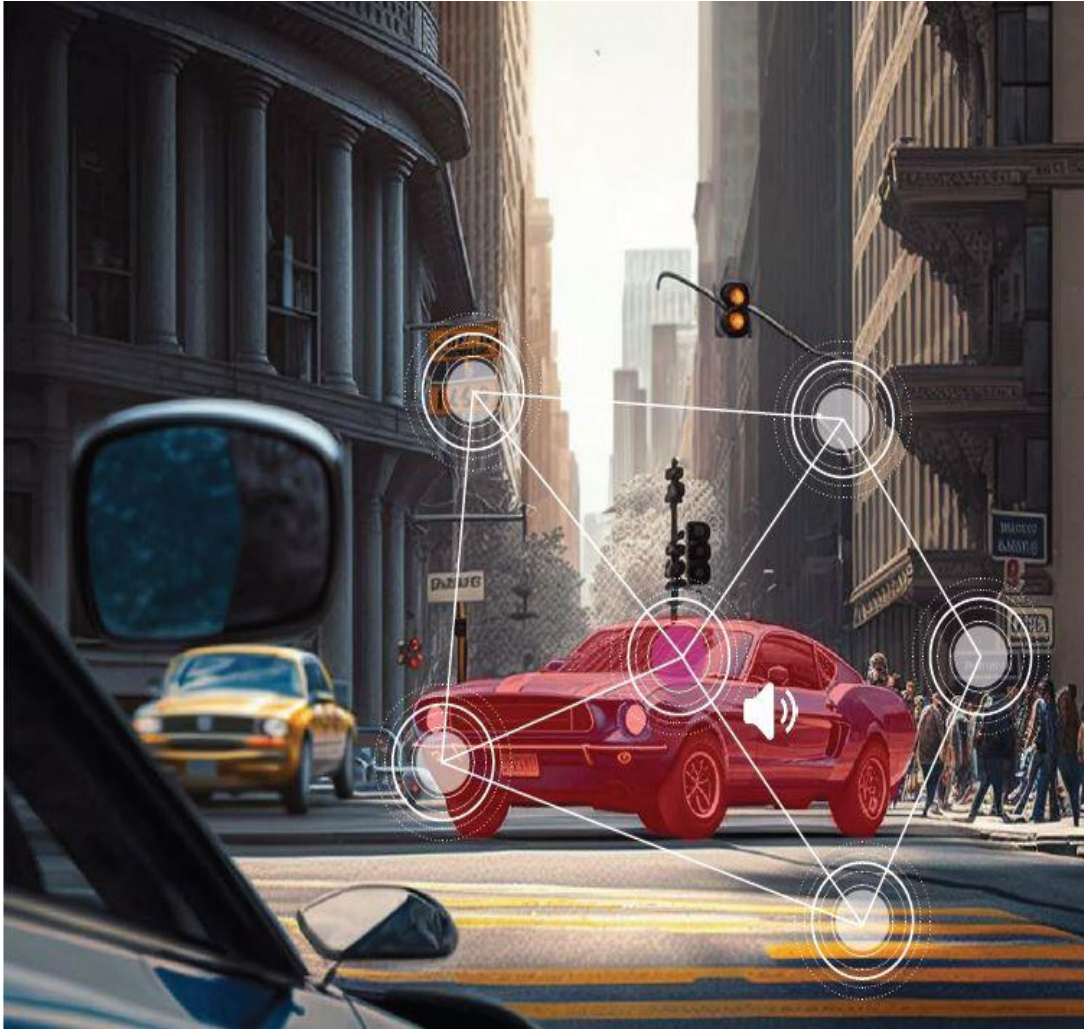
Fast processing of all operations thanks to ergonomic user interface.



MORE LIGHT

Built for the future of Smart Mobility, Today!

TaceVia: Noise Pollution Detection & Enforcement



TaceVia – Reducing vehicular noise pollution

TaceVia is an innovative solution that is capable of detecting vehicular noise pollution. This new technology enables cities, towns, and municipalities to make city traffic both quiet and safer with effective enforcement capabilities. Using an array of microphones, the TaceVia can register the location and sound level of a vehicle. If the sound is over a specified threshold, the VECTOR ALPR camera will capture images of the offending vehicle in all weather conditions up to 180 mph. An alert and/or enforcement package will be created and can be reviewed by officials in the Back Office Facility (BOF) software.



Wireless signal detection



TraffiCatch: Next Generation Detection

TraffiCatch is a next-generation solution for enhanced **lifestyle profiling** and **digital fingerprinting** of vehicles and persons of interest.


- Discreet device capable of detecting:
 - Bluetooth
 - Bluetooth Low Energy
 - Wi-Fi
 - Cellular
- Standalone or in tandem with a VECTOR
- Completely passive, non-intrusive, and anonymized (hashed)

The screenshot displays the TraffiCatch v1.2.25 interface. The top bar shows the application name and version, along with status indicators for BOP (To:347821 / To send:7) and GPS (No Data). The main interface is divided into three sections: WiFi, Bluetooth, and BLE. Each section shows a list of detected devices with their respective IDs and timestamps. The WiFi section lists 14 devices with MAC addresses starting with 44:1C:12:95:7F and AA:D5:9D:54:3A. The Bluetooth section lists 2 devices with MAC addresses 0C:72:D9:FD:74:D6 and 00:06:66:80:85:1F. The BLE section lists 2 devices with MAC addresses 8A:D5:9D:54:3A and 8E:F2:9E:8F:A6:88. A physical device is shown in the foreground, partially overlapping the interface.

WIFI		Bluetooth		BLE	
RxD: 6973326	TxD: 5480458	RxD: 142035	TxD: 102967	RxD: 625728	TxD: 429214
44:1C:12:95:7F:D6	29/07/2019 10:43:36	0C:72:D9:FD:74:D6	29/07/2019 10:43:44		
44:1C:12:95:7F:DB	29/07/2019 10:43:36	00:06:66:80:85:1F	29/07/2019 10:43:35		
44:1C:12:95:7F:D7	29/07/2019 10:43:36				
44:1C:12:95:7F:DA	29/07/2019 10:43:36				
44:1C:12:95:7F:D8	29/07/2019 10:43:36				
44:1C:12:95:7F:D9	29/07/2019 10:43:36				
44:1C:12:95:7F:D5	29/07/2019 10:43:36				
AA:D5:9D:54:3A:79	29/07/2019 10:43:35				
86:F2:9E:8F:A6:88	29/07/2019 10:43:35				
8A:D5:9D:54:3A:79	29/07/2019 10:43:35				
8E:F2:9E:8F:A6:88	29/07/2019 10:43:35				
78:F2:9E:8F:A6:88	29/07/2019 10:43:35				
82:F2:9E:8F:A6:88	29/07/2019 10:43:35				



[Sighting](#)[Signature Details](#)[Next/Prev](#)[Last 10](#)



Type 	Signature	Meta-data
Nero	14:22:DB:BF:09:E4	{"Data":{"bssid":"14:22:DB:BF:09:E4","type":"0","lcpackets":"97481","datapackets":
Nero	14:22:DB:BF:09:E6	{"Data":{"bssid":"14:22:DB:BF:09:E6","type":"0","lcpackets":"91784","datapackets":
Nero	14:22:DB:BF:09:E8	{"Data":{"bssid":"14:22:DB:BF:09:E8","type":"0","lcpackets":"97007","datapackets":
Nero	44:1C:12:95:7F:CD	{"Data":{"bssid":"44:1C:12:95:7F:CD","type":"0","lcpackets":"63799","datapackets":
Nero	44:1C:12:95:7F:CF	{"Data":{"bssid"
Nero	44:1C:12:95:7F:D0	{"Data":{"bssid"
Nero	58:19:F8:F6:E5:F8	{"Data":{"bssid"
Nero	78:F2:9E:8F:A6:88	{"Data":{"bssid"
Nero	7A:D5:9D:54:3A:05	{"Data":{"bssid"
Nero	7A:D5:9D:54:3A:79	{"Data":{"bssid"

Vehicle Sighting For GCVT78

Australian Ave @ 1st Street: Lane 2 [2019-02-03 08:41:01]

Compass: **S**

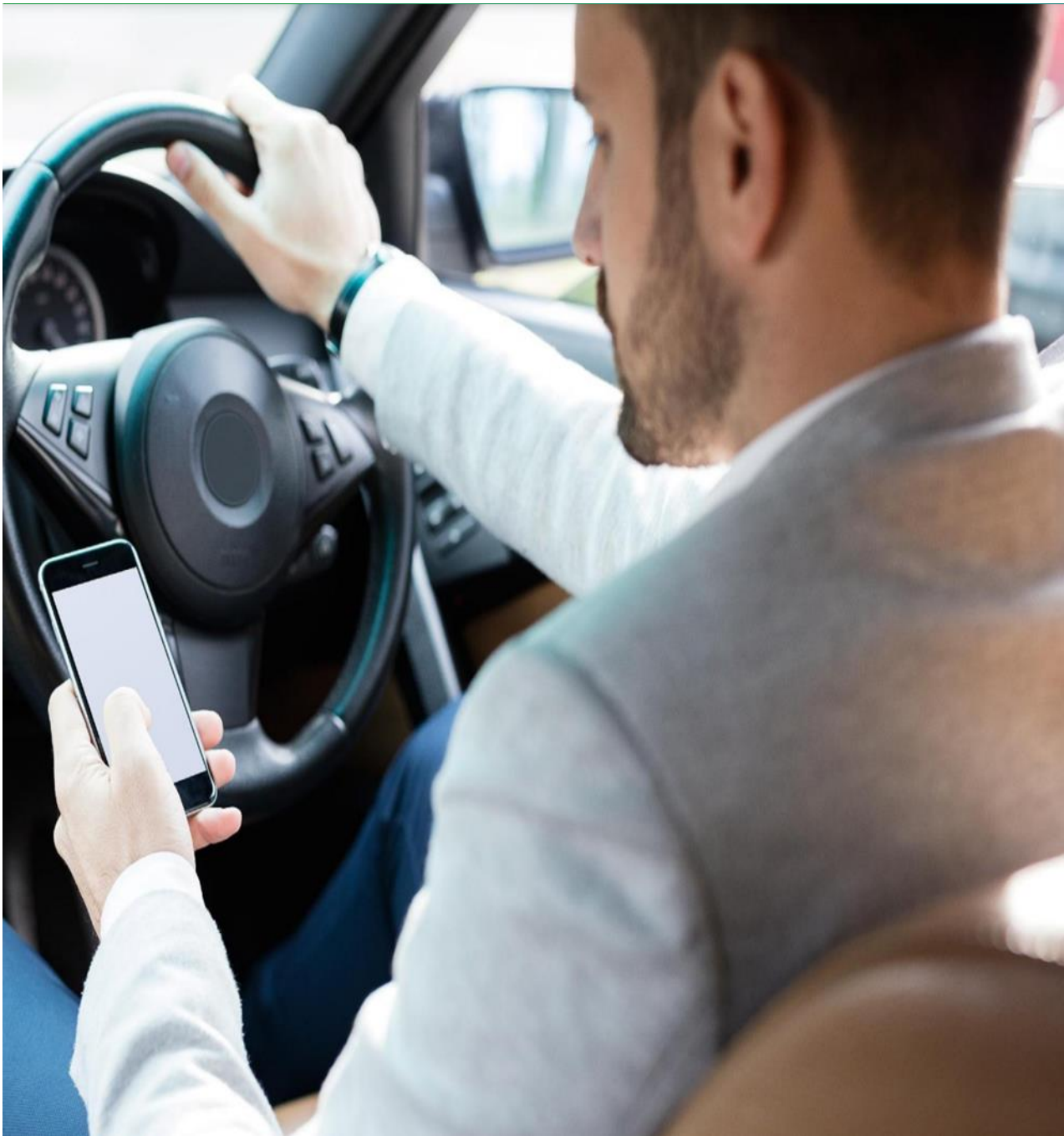
[Sighting](#) [Next/Prev](#) [Last 10](#)



GCVT78

Source Camera: Australian Ave @ 1st Street: Lane 2
System: Australian Ave @ 1st Street
Time/Date: 2019-02-03 08:41:01
Latitude: 26.7644
Longitude: -80.071404
Direction: Towards
Country: USA_FL
Make: Unknown
Model: Unknown
Colour: Unknown
Description: Unknown
Checked: false

[Overview](#) [ANPR](#) [Mark As Checked](#) [Correct VRM](#)



MORE LIGHT

Distracted Driver Technology

July 2022

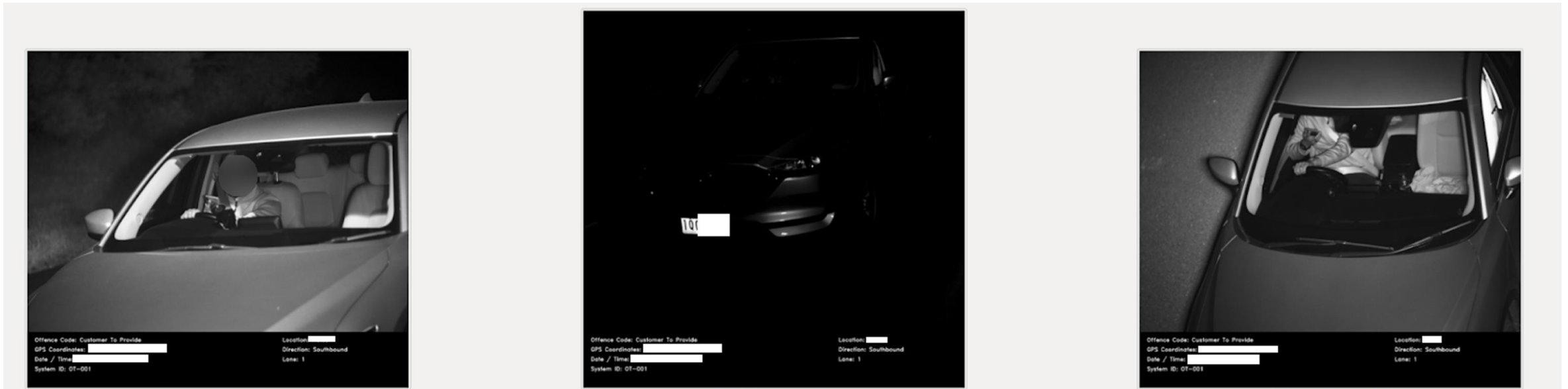
Distracted Driver In-Cabin Enforcement Technology



- Clear phone and seatbelt detection
- Advanced Camera Systems
 - Clear images in all weather and lighting conditions
- Artificial Intelligence processing
 - Automated, real-time evaluation
- Easy deployment in both fixed and mobile capacity.
- All traffic conditions
 - Not limited by speed or congestion levels

Distracted Driver in-Cain Enforcement Technology - Information Captured

3 Images captured for each offence showing drivers face (optional), vehicle registration and all types of phone/seatbelt offences



Data bar added at time of capture

Offence Code: Customer To Provide	Location: [REDACTED]
GPS Coordinates: [REDACTED]	Direction: Southbound
Date / Time: [REDACTED] [REDACTED]	Lane: 1
System ID: OT-001	

Jenoptik delivers one of the world's first distracted driver programs in Victoria, Australia



CONFIDENTIAL

Distracted Driver Enforcement Technology – Deployment Options



Fixed Option:

- The system can be attached to fixed infrastructure such as bridges and gantries.
- This is best suited to high volume roads and enables the system to detect offences amongst large amounts of vehicles.



Mobile Deployment Option:

- The mobile deployment option is self supplied platform that can be placed by the side of the road.
- The unit is self powered and can be left at a single location for months at a time.



Tripod Setup Option:

- The system can be deployed on portable tripods which setup in under 30 minutes.
- These tripods are set up on above the road locations such as overhead bridges or pedestrian bridges.

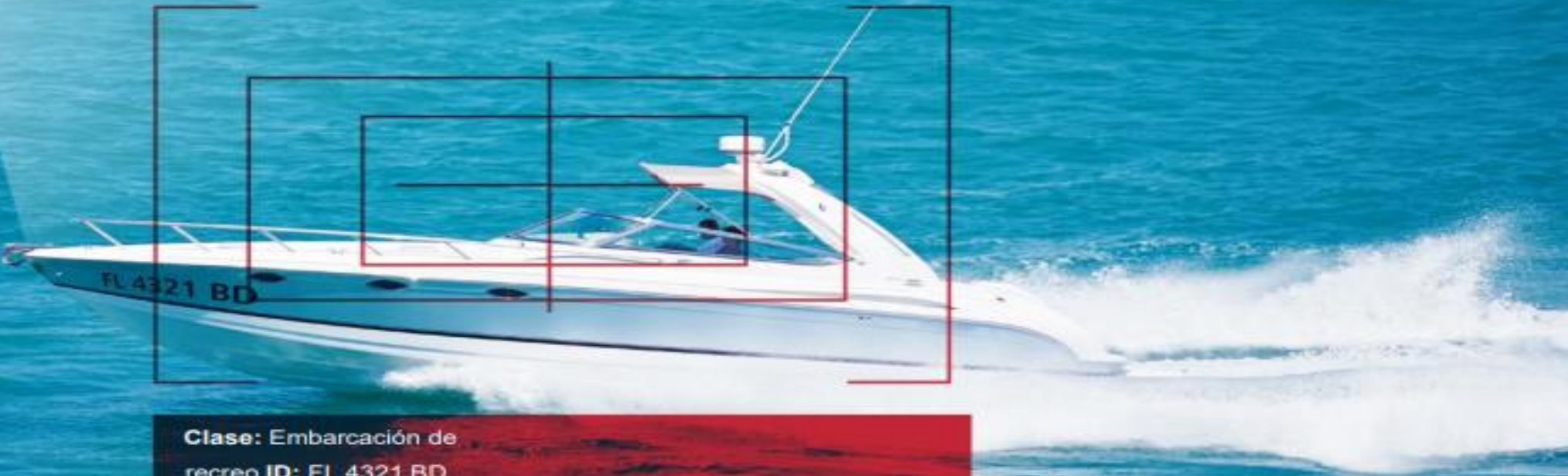


MORE LIGHT

Vessel Detection



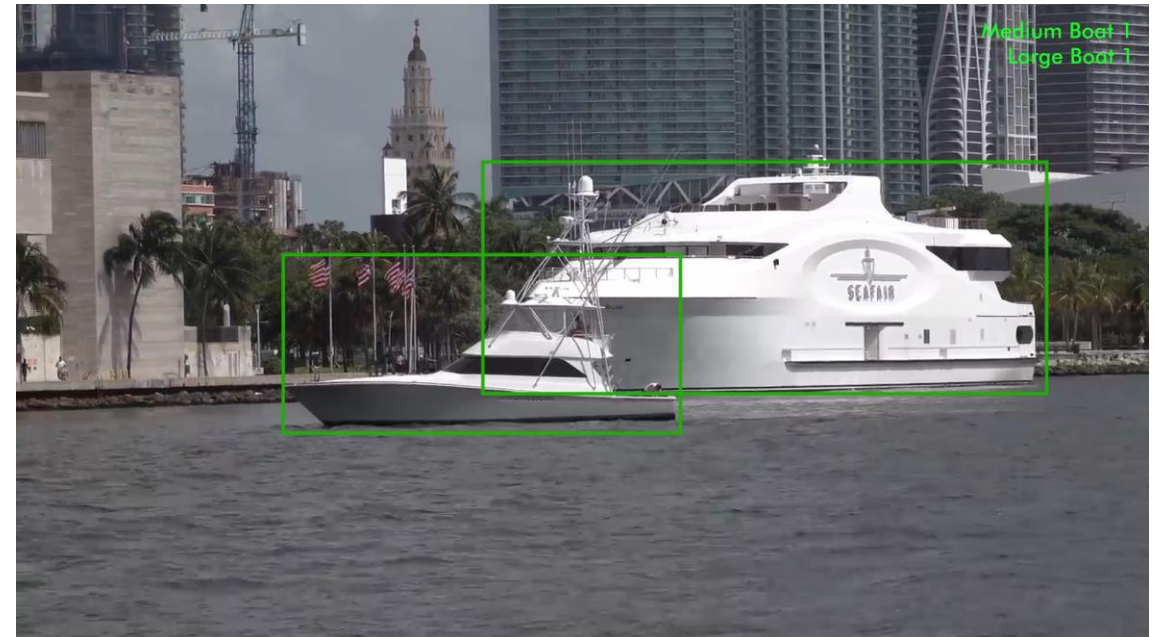
Clase: Embarcaciones de recreo
ID: FL 1234 GD



Clase: Embarcación de recreo
ID: FL 4321 BD
¡ALERTA DE EMBARCACIÓN SOSPECHOSA!

Combining AIS and Vessel Classification & Registration Recognition (VCRR) for safer ports and waters.

- Artificial intelligence can be used to classify vessels entering ports; e.g. “Class A” (> 300 GT) or “Class B” (non SOLAS); Cruise Liner vs. Cargo Ship
- Artificial intelligence can also be used to read identifiers (e.g. ship names and registration)
- Data fusion can generate appropriate alerts: a vessel enters a port with zero AIS visibility = SUSPICIOUS VESSEL ALERT

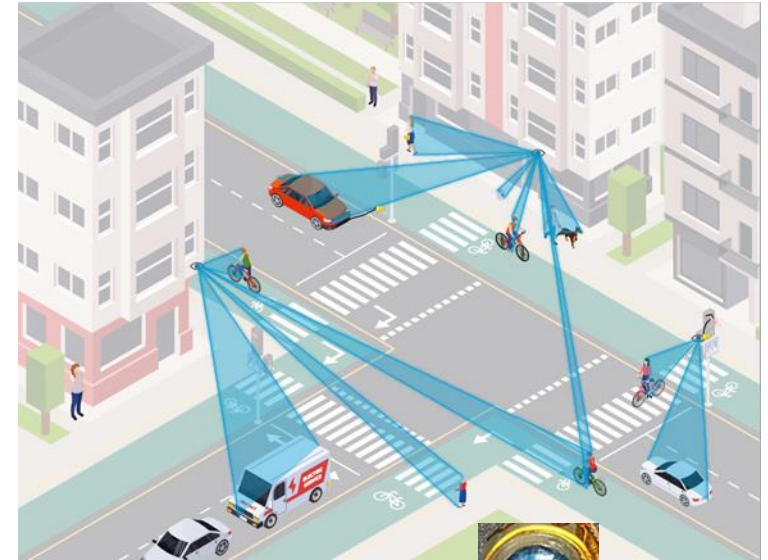


Autonomous Transportation with EagleEye



Joint development for public transport and cities

- **Sense:** system at difficult driving positions to improve navigation of the vehicle
- **Perceive/Predict:** Edge computing to understand the street scene & predict any upcoming dangerous situations
- **Communicate:** Exchanging information with the vehicle and operations center



No view into the right street (right turn)



No view because of buildings T-junction (left turn)



Thank you for your time and attention...



MORE LIGHT

Dorian Grubaugh

Vice President

JENOPTIK North America, Inc.
16490 Innovation Dr.
Jupiter FL 33478-6428 USA

Phone: +1.561.881.7400

Mobile: +1.513-259-3317

E-mail: dorian.Grubaugh@jenoptik.com

www.jenoptik.us