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The Relevance of Mobile Enforcement

ASECAP DAYS | Walter Planer | 14.05.2024



40 Years

Experience in traffic
technology

Leading supplier
of road traffic and
enforcement
systems

1.400

Employees worldwide

More than 16,000
road traffic systems
installed globally



Traffic enforcement



Tolling enforcement



New Mobility

The VITRONIC Group



Western Europe

Germany
Belgium
Denmark
Great Britain
Netherlands
Scandinavia
Spain
Italy
Portugal
France

Eastern Europe

Poland
Estonia
Latvia
Lithuania
Slovakia
Czech Republic

Central Asia & Africa

United Arab Emirates
Saudi Arabia
Morocco
Kazakhstan
Kurdistan
Oman
Rwanda

Southeast Asia

Malaysia
Indonesia
Philippines
Japan
Singapore
South Korea
Taiwan
Thailand
Vietnam

America

USA
Brazil
Chile
Canada
Mexico
Colombia

Asia

China

Oceania

Australia
New Zealand

The Challenge: Mobile Toll Enforcement in Poland

Paper ticket payment converted into modern GNSS-based electronic payment system *e-TOLL* (2021)

- Reliable mobile enforcement solutions for toll roads
- Support the new „free flow“ of traffic while securing revenues
- significant challenge to toll handling: the new solution makes it easy to bypass the payment, whether intentionally or accidentally

+550,000

vehicles registered in the *e-TOLL* system by the end of September 2021 – a **reliable mobile solution** for enforcing toll payments was needed as fast as possible



Project

Supply of 2 Types of Mobile Control Units

- I. 70 x “MJK” – Marked transporters
- II. 32 x “MPK” - Unmarked passenger vehicles

Operations: maintenance, servicing, repairs

Key Technology: VITRONIC ENFORCEMENT BAR

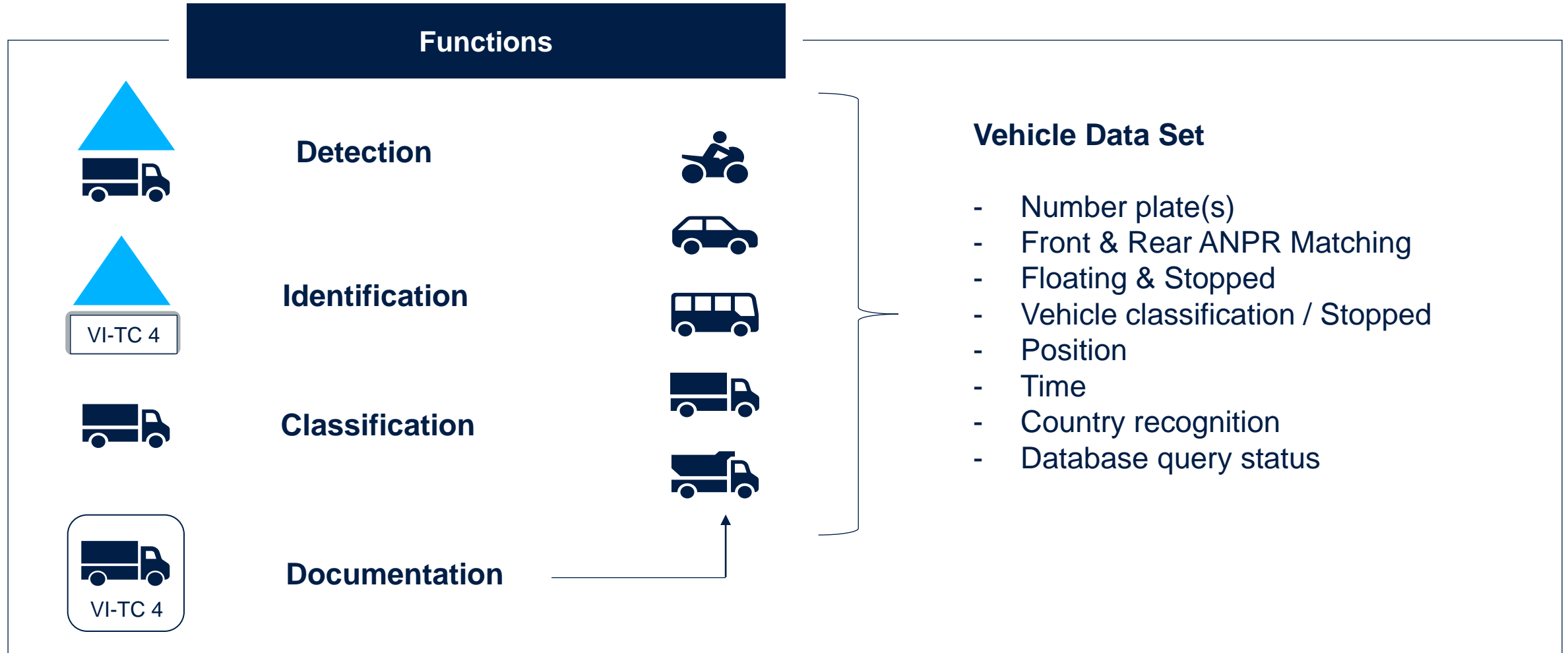
Scope of Delivery: Enforcement sensors (roof-mounted), vehicles, in-car technical equipment, in-car furniture, installation and integration

Customer: Ministry of Finance, Poland

Date of contract signature: January 2021

Deliveries: June – November 2021

ENFORCEMENT BAR



ENFORCEMENT BAR

Characteristics

- 360° all around control / 4 sites
- Control while driving as well as in stationary mode, for control operations in the city, on parking areas, on country roads or highways
- Day / night and weather independent due to IR illumination
- Elegant and proven design
- ANPR and vehicle classification



ENFORCEMENT BAR

Standard Features

- Blue light and Red light
- Matrix display
- Siren and announcements



VITRONIC Features

- ANPR
- DSRC
- Classification of 15 classes
- Online Data connection to the control center
- GPS positioning – localization of the vehicle
- Video for self-protection



ANPR



Classification

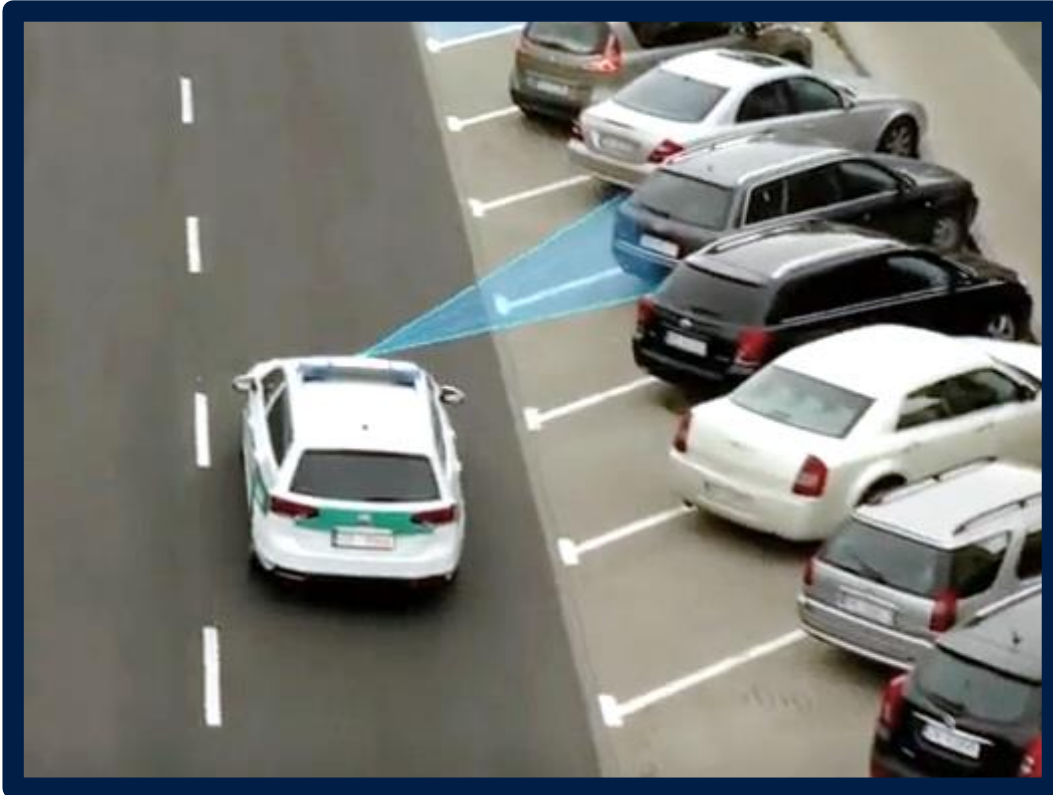


Online Data



GPS positioning

ENFORCEMENT BAR

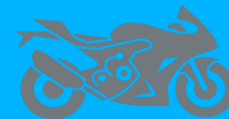


Advantages

- Quick registration number reading
- Simple interface to view ANPR results
- Flexible monitoring (front/rear, left/right)
- Effective data protection
- 98% efficiency of recognition of registration numbers
- Readings up to 250 km/h
- 24/7 during day and night

15 Vehicle Classes

1	Motorcycle			
2	Passenger vehicle			
3	Passenger vehicle with trailer			
4	Bus			
5	Bus with trailer			
6	Small bus			
7	Small bus with trailer			
8	Van			
9	Small van			
10	Van or small van with trailer			
11	Truck			
12	Truck with trailer			
13	Tractor unit			
14	Tractor unit with semi-trailer			
15	Tank truck (without/with trailer, with semi-trailer)			



„MJK“ Marked Transporter



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VITRONIC supports the Polish National Revenue Administration with mobile toll enforcement technology to secure revenues and investment scope



I. Specification of Marked „MJK“

Control Transporters

Ford Transit Custom 70 units (MJK)

Enforcement Equipment: 2 x ENFORCEMENT BAR for ANPR + vehicle classification, back-office integration

Equipment: additional power supply module, tablet, router, office buildings, printer, additional air-conditioning, additional lighting, road equipment (bollards, traffic lights, weather station, flashlights)

Performance:

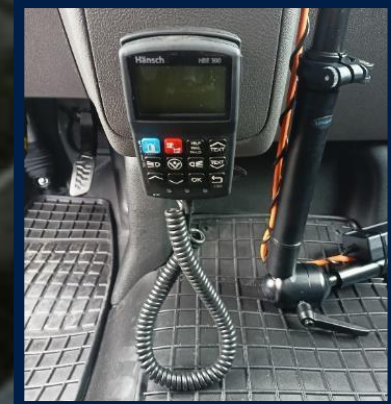
- ANPR 99%
- Classification - 98%
- Recognition of 15 classes



I. "MJK" Transporters

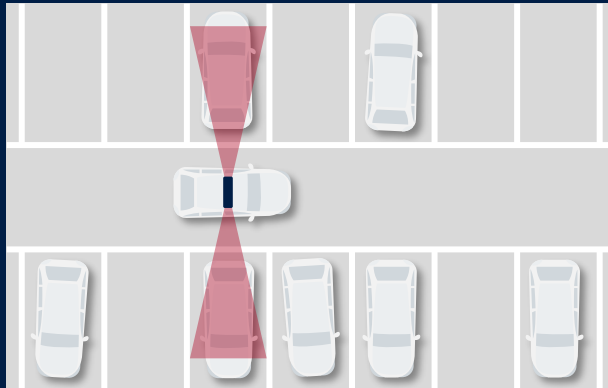


I. "MJK" Inside



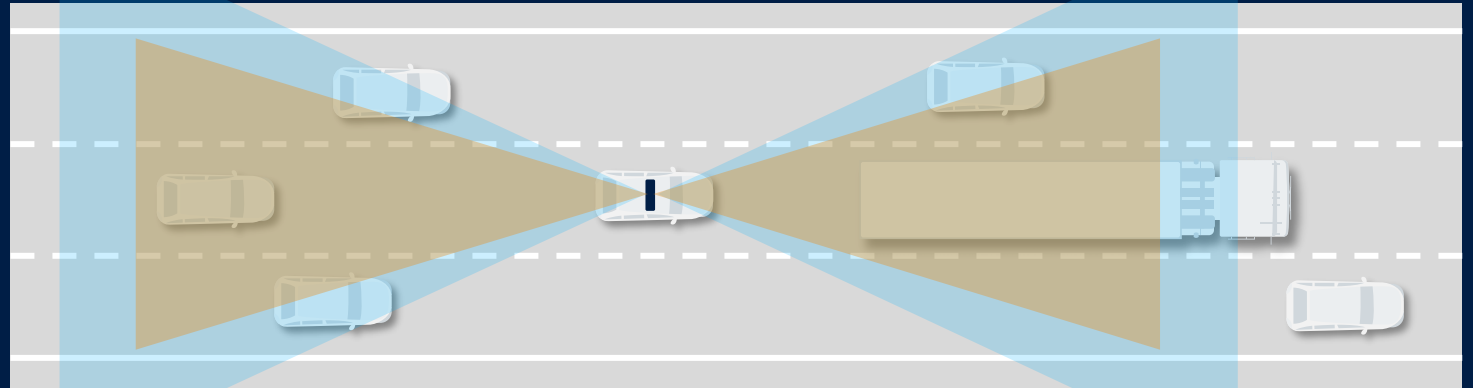
I. „MJK“ Side Reading / Front and Rear Reading

Side reading



■ Field of view

Front and Rear reading



driver can choose

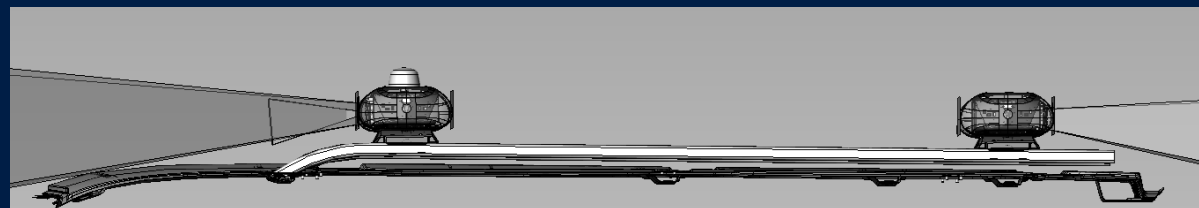


between side or front/rear reading

■ Field of view from radar

■ Field of view from the camera

Enforcement Bar
Side view



Enforcement Bar
Radar Version for Vans



„MPK“ Unmarked Passenger Vehicles



Krajowa
Administracja
Skarbowa

gov.pl/ka

II. Specification of Unmarked „MPK“



Achievements

Ford Focus Trend 32 units

Enforcement Equipment: 1 x POLISCAN ENFORCEMENT BAR for ANPR and vehicle classification, back-office integration

Other: Additional power supply module, tablet with GUI, router

Engine: 120 HP with 6-speed manual transmission, auxiliary power module installed

Enforcement Performance:

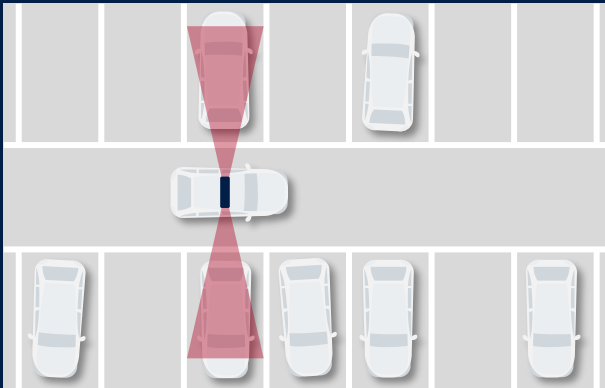
- ANPR - 98%
- Classification - 98%
- Recognition of 15 vehicle classes

II. "MPK" Inside



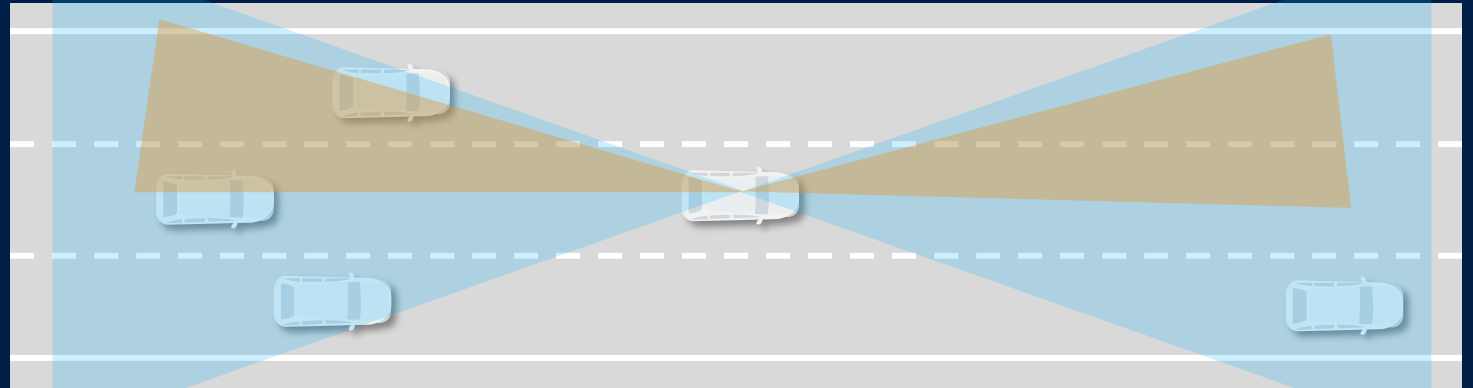
II. „MPK“ Side Reading / Front and Rear Reading

Side reading



■ Field of view

Front reading



■ Field of view from lidar

■ Field of view from the cameras

driver
can choose
↔
between
side or front
reading

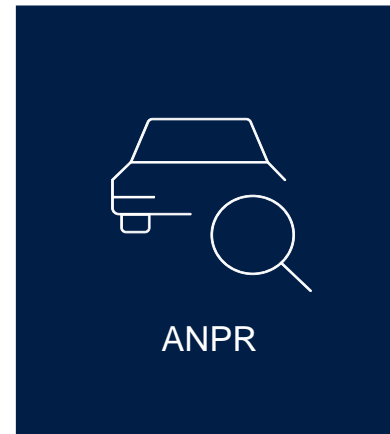
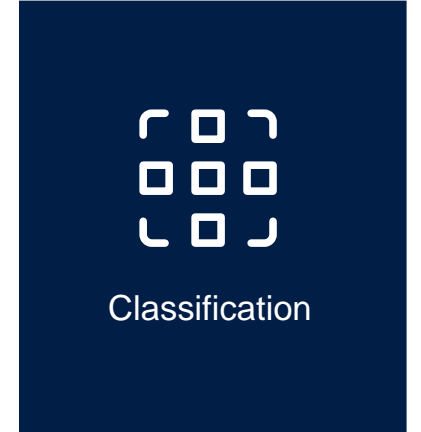
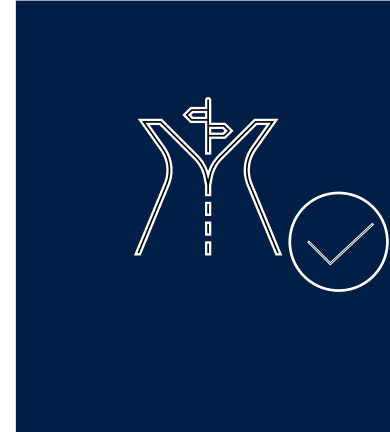


Enforcement Bar
Front view

Mobile Enforcement

Project Achievements

- High-volume **mobile toll enforcement across three lanes** – without interfering with traffic flow
- **Reliable Image acquisition** via front, rear and side cameras in all weather conditions, day and night
- **Automatic** number plate **recognition** (ANPR) and **classification** of vehicle type by cutting-edge OCR systems and respective sensors / detectors
- **Matching** of captured vehicles with e-Toll **database**



VIDEO



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Let's connect



HIGHLIGHTS

- ✓ High detection rates
- ✓ High front and rear ANPR rates incl. matching
- ✓ Floating & stopped
- ✓ Automated warnings while driving
- ✓ 15 vehicle classes

THE WAY AHEAD

- ✓ Going beyond mobile tolling enforcement
- ✓ Combining automated mobile / stationary / portable control systems
- ✓ Convergence with other public control duties
- ✓ Automated Truck Enforcement (Tachograph, Hazardous, Goods Length/Height)
- ✓ Search of wanted cars