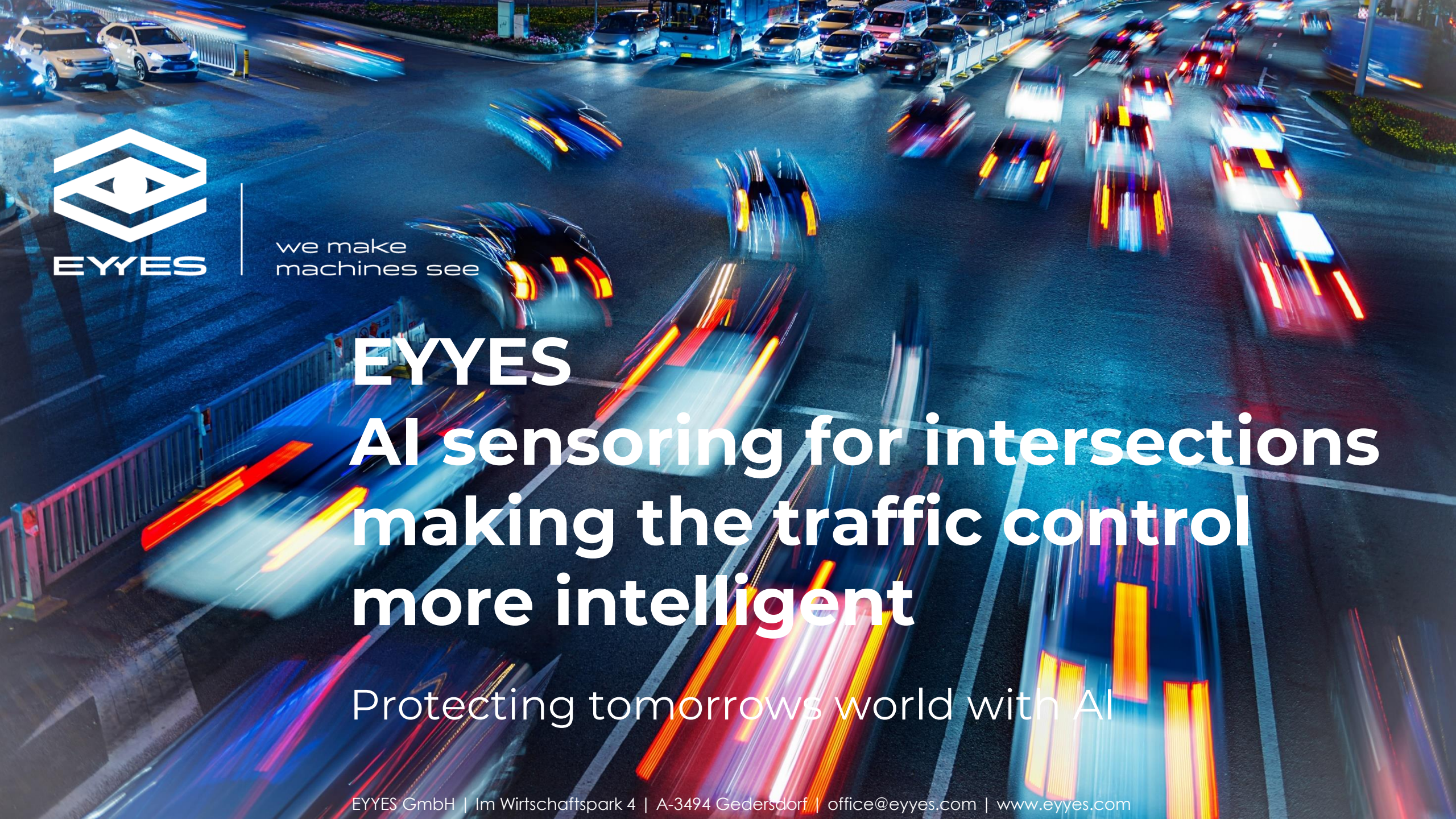


EYYES
AI sensoring for intersections making the traffic control more intelligent

Protecting tomorrows world with AI

EYYES GmbH | Im Wirtschaftspark 4 | A-3494 Gedersdorf | office@eyyes.com | www.eyyes.com

Leading in AI-perception and embedded AI for ADAS solutions - protecting tomorrows world with AI

We are EYYES

- Best in class **high-tech, AI-enabled platform** based on in-house developed software and hardware solutions
- High-performing use cases in the **automotive, railway, security and manufacturing industries**
- 30+ experts in **computer vision, machine/deep learning and embedded systems**
- Comprehensive patent protection with 13 registered and 7 granted patents
- **Founded in 2013** with HQs in Lower Austria and subsidiaries in Dresden & Aachen (GER)

What we promise

Advanced object recognition and perception, e.g. driver assistance and traffic control systems

AI based products and solutions for OEMs, Tier ones and the aftermarket;

Use of full software stack with the capability for **easy implementation** in existing systems;

Vertical applications in various sectors such as **mobility, manufacturing and traffic**

Global automotive leaders trust us

ADAC, Alexander Dennis, Volvo, Volvo Trucks, Magna, Magna Mirrors, Brigade, MAN, BPW, ZKW, EYYES, we make machines see, Harbinger

Global rail leaders trust us

DB Bahn, Knorr-Bremse, Alstom, BKV Zrt, Robel, TRSC, Schweerbau international, Stadler, Clevere Lösungen auf der Schiene, AVG, pesa, ÖBB, Zweiweg, Linsinger, Siemens, railoc, Costruzione, Vendita e Manutenzione di Mezzi Ferroviari, Wiener Linien

*) Convolutional neural network

Vector Informatik is our new owner and partner

Employees:
> 4,000
Vectorians

Turnover:
1.06 bn €
in 2023

Associations:
participation in
16 committees

Customers:
> 9,000 companies
in 76 countries

Subsidiaries:
33 locations in
14 countries

Affiliated Companies:
GiN | CSM

Development
partner for over 35
years

we
make
machines
see

EYYES solutions – updated offering

– WE MAKE MACHINES SEE –

Experts in machine and deep learning to make the world safer with AI – Industries trust in the camera and sensor technology of EYYES

AUTOMOTIVE

» Perception for Autonomous driving and ADAS (Advanced Driver Assistance System)

» ADAS products:
- » Front collision warning
- » Blind spot assistant
- » Moving-off assistant
- » Rear-view assistant
- » 360° Safety assistant

RAILWAY

» Electronic and digital rear-view mirror

» ADAS products:
- » Front collision warning
- » Blind spot assistant

» Railway station surveillance

» ICCTV
- » Empty Train
- » Passenger Load
- » Waste and Garbage

TRAFFIC

» **Intelligent traffic sensor**

» **Collision warning system**

» AI-based traffic analysis systems

» AI car parking monitoring

» Pedestrian and bicycle crossing detection

MANUFACTURING

» Quality and surface inspection

» Visual manufacturing process control

» Weld position detection

» Whole pattern detection

Traffic: AI-enabled traffic solutions

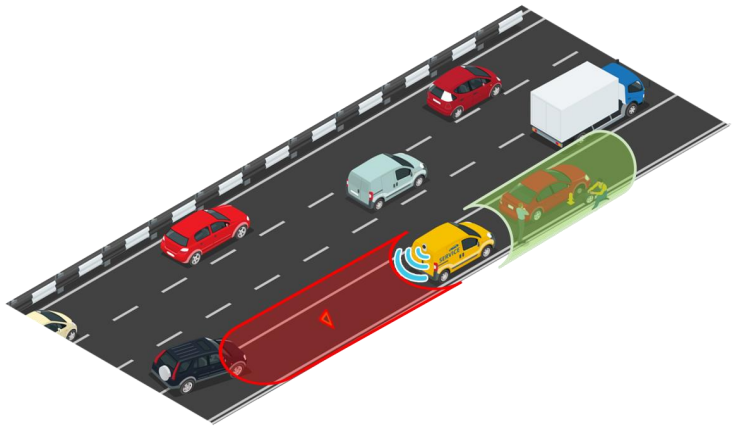
The applications are designed as intelligent traffic solutions, including collision warning and traffic surveillance, tailored for stationary operation. Thanks to AI, the traffic flows more smoothly. This saves resources such as energy and time.

ControlEye®
Intelligent traffic sensor

- Operational range from 3.5m up to 90mObject classifications: Car, truck, bus, train, bicycle, people, traffic lights, rails, ground markings,
- Detection of presence, near and far point, direction of travel, congestion, estimated time to arrival, number of objects, etc.
- Provides object lists for traffic overview

CollisionEye®
Intelligent collision warning system

- works **reliably** on highways at high speeds to warn working staff of breakdown service, construction sites & emergency vehicles
- reliably detects **potential collisions** between approaching vehicles on the highway and emergency vehicles on the hard shoulder.



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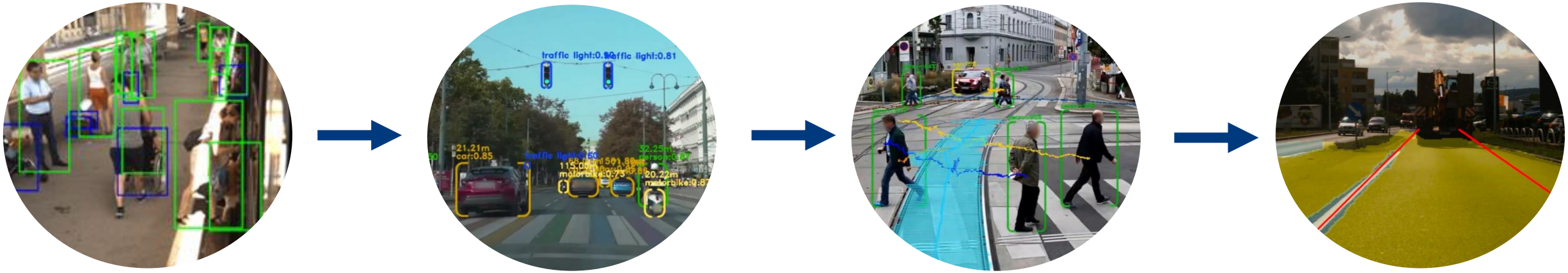
EYYES Perception

Artificial intelligence for safe vision, recognition and understanding.

- EYYES is delivering the digital capturing of the traffic scenery in front of the camera. The full chain off object detection, object classification, object tracking, and segmentation provides a digital object list. We provide Real-time streaming of object data and metadata.

DETECTING **CLASSIFYING** **TRACKING** **SEGMENTING**



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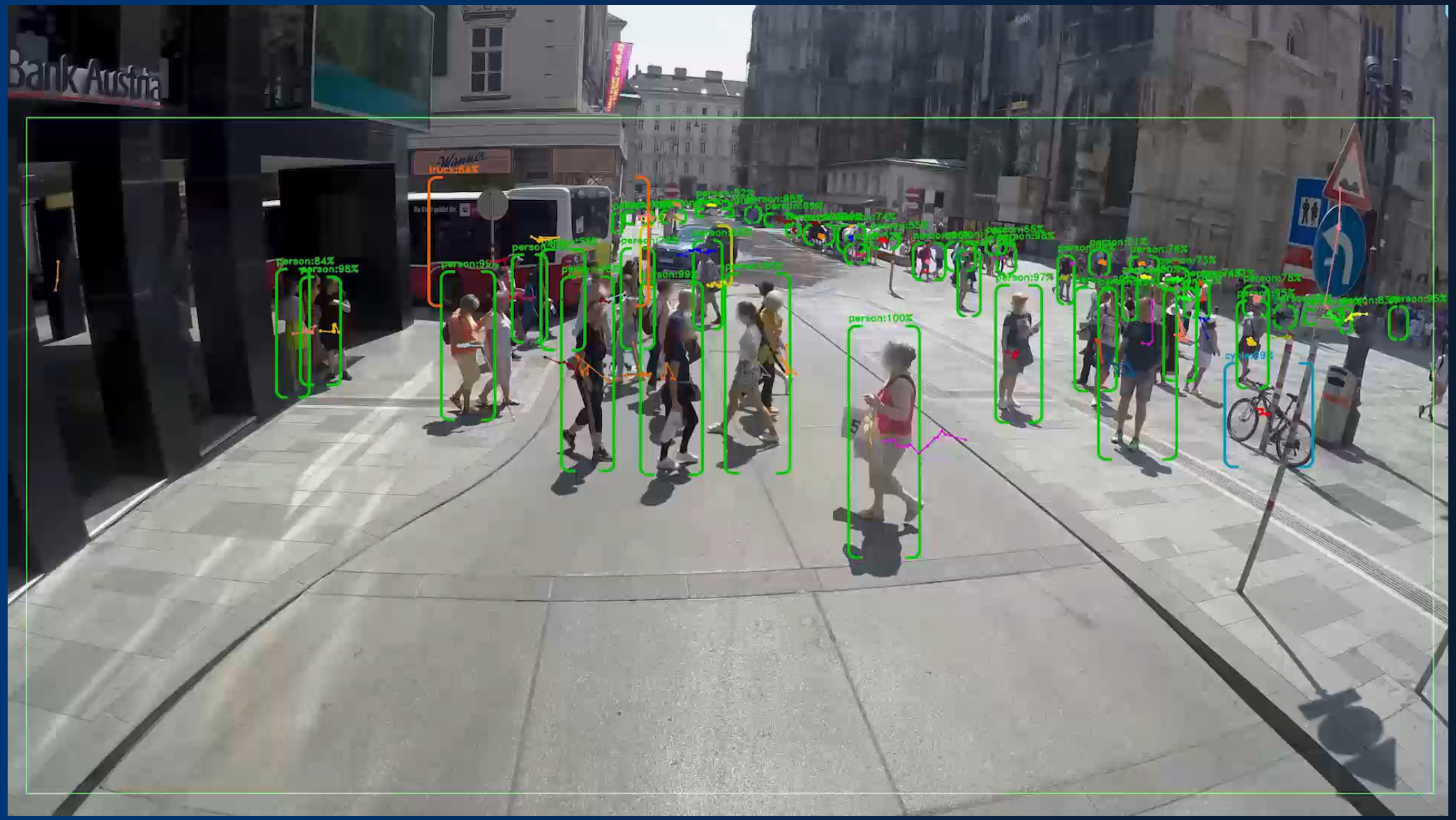
Video

EYYES AI – Perception Detection Test – City of Vienna



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ControlEye:
Intelligent traffic sensor

ControlEye Overview intelligent traffic sensor

AI Use-Cases

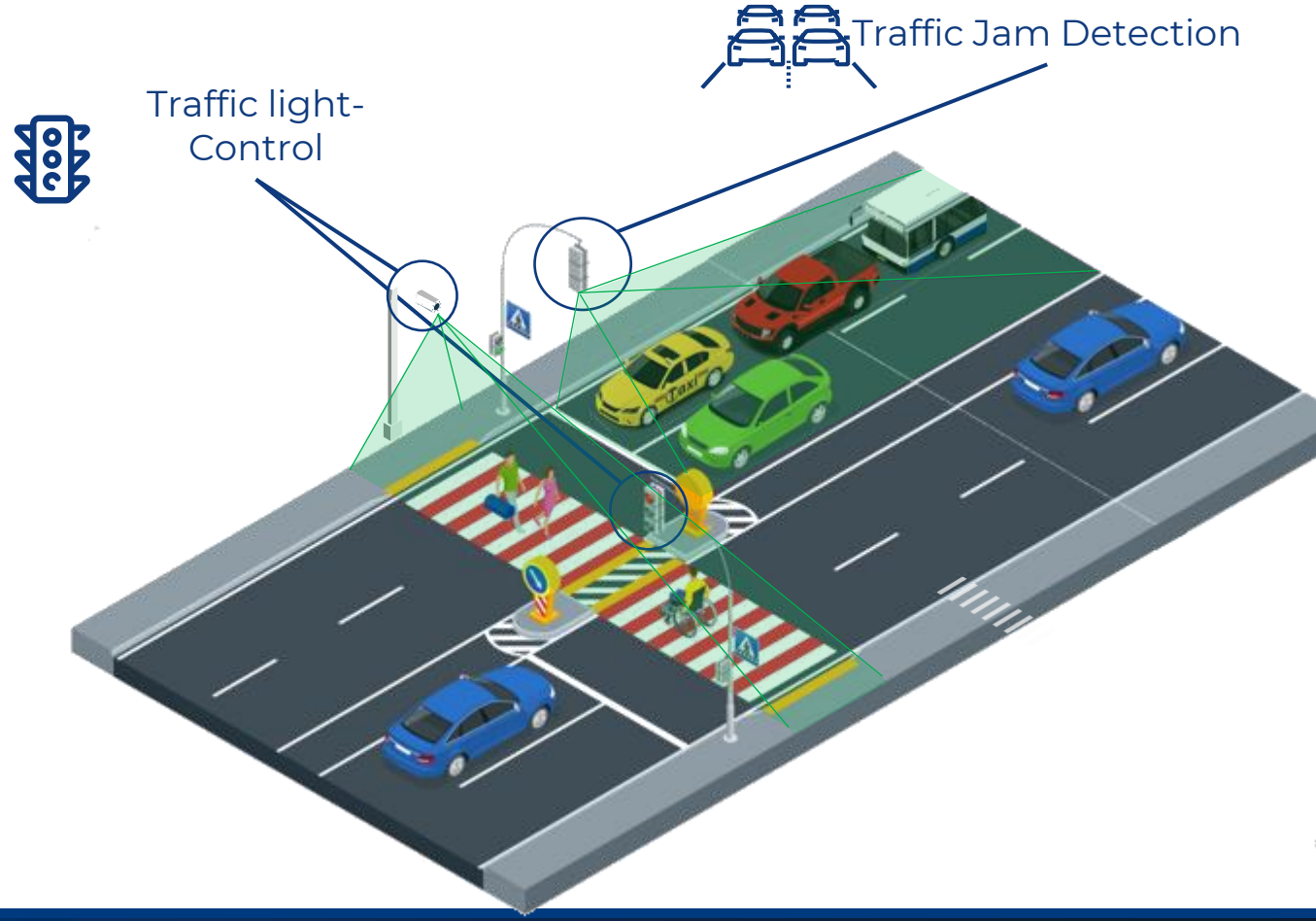
The intelligent traffic light control optimizes the green phases of the traffic light and increases safety in the entire intersection area. Thanks to advanced artificial intelligence, we detect all road users and provide all the information to continuously improve the flow of traffic at traffic lights.

Traffic light control optimization by

- Presence Detection
- Design (before traffic light)
- Direction
- Count
- Congestion Detection
- ETA

Traffic data collection

- Velocity
- Classification of cars, trucks, bicycles
- Classification 8+1, according to TLS (including other TLS data such as occupancy rate, distance, etc.)
- Direction



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ControlEye System Overview

System overview intelligent traffic light sensor

- AI Edge Plattform
  NVIDIA Jeston based
  processing box onsite
  - Power Supply: 12 or 24 VDC (30W)
  - Ingress Protection up to IP 69k

- Rugged IP cameras with
  Full HD resolution

- EYYES Software platform
  - **Patented EYYES AI Net**
  - Software Framework
  - Image processing
  - UDP Object list data stream
  - Web configuration

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ControlEye Overview intelligent traffic sensor

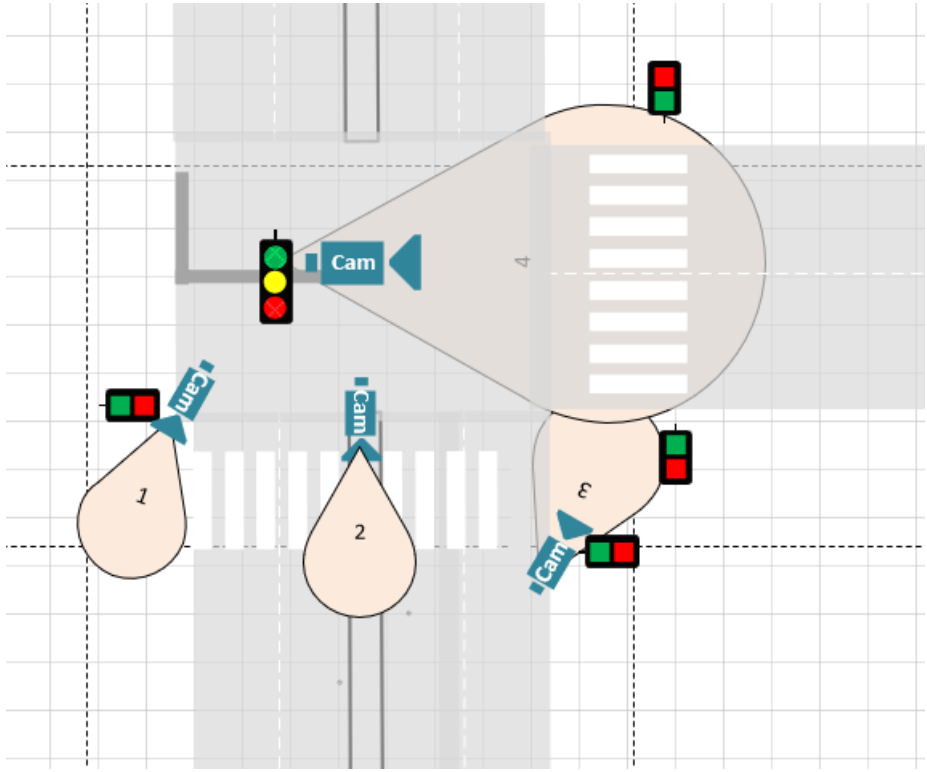
Functional overview traffic light sensor

Configuration

- Select camera configuration for the intersection
- Select field of view
- Configure zones of interest

System Functions

- Object recognition: cars, trucks, buses, bicycles, people, wheelchair users
- Application range from 3.5m up to 90m
- Mounting height of the camera: from 3m
- Flexible configuration option for individual zone settings
- Recording of presence, near and far point, direction of travel, traffic jam, estimated time to arrival, number of objects, etc.



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Video

EYYES AI – Intelligent traffic light sensor – city of Vienna

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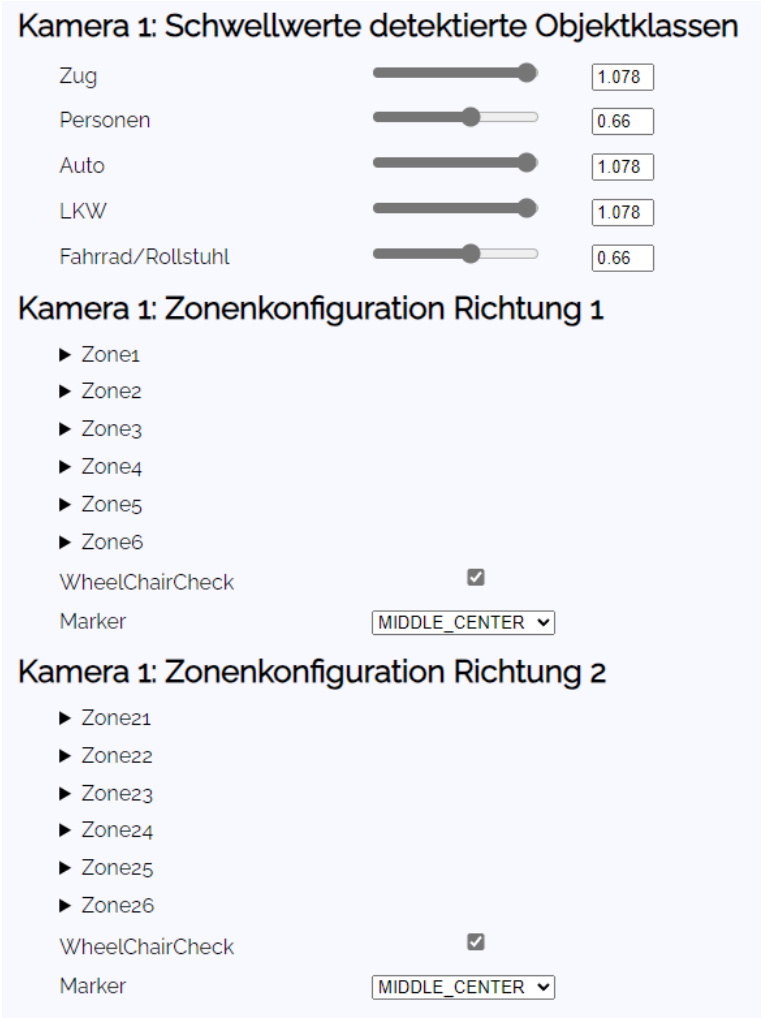
ControlEye Overview intelligent traffic sensor

Configuration Interface

- User-friendly web interface
- Easy-to-understand
- Adaptable to each use case
- Separate camera stream can be specified
- Adjustable motion filter, to detect the trajectory of objects and prevent false positives
- Selection of up to 5 object classes
- Up to 6 individually adjustable zones per camera
- Forwarding of the results via anonymized object lists

Zone configuration

Result of zone configuration



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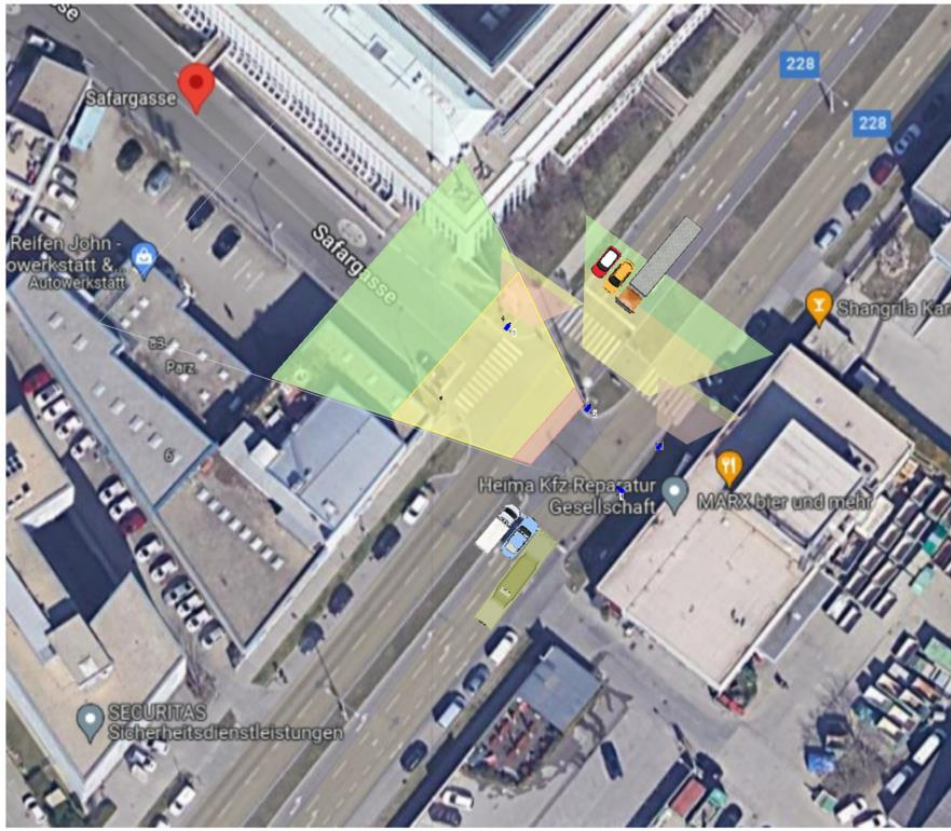
ControlEye Overview intelligent traffic sensor

Configuration and engineering result for the complete intersection



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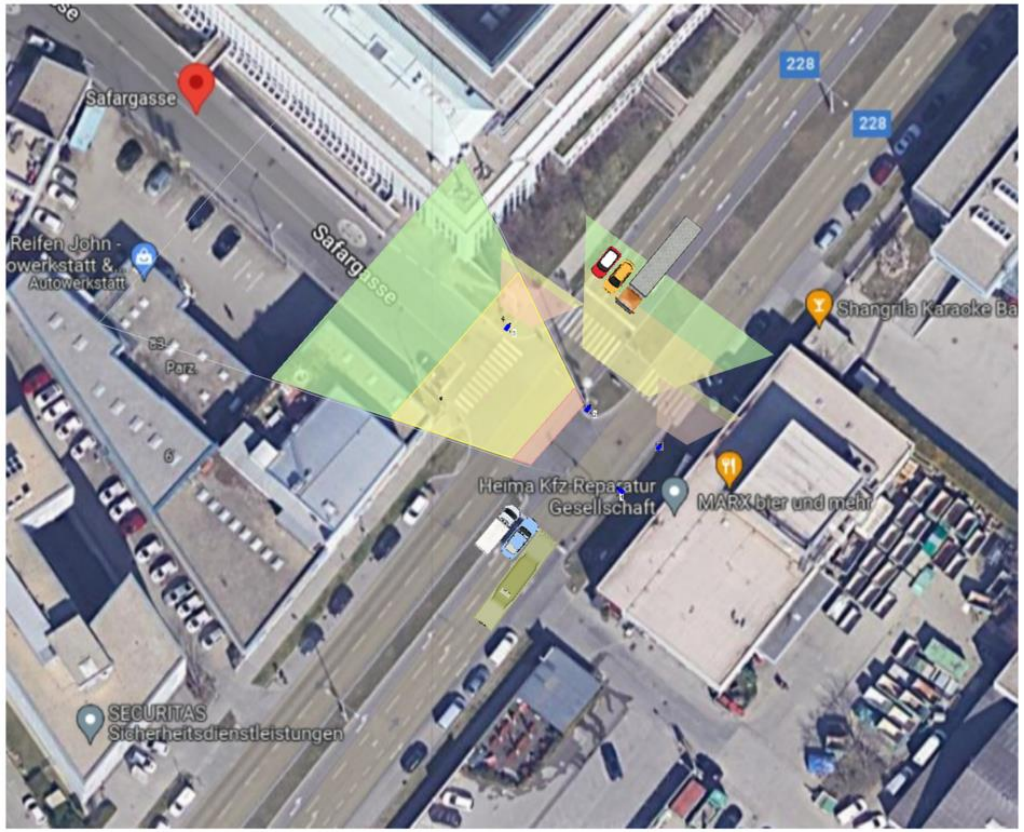
ControlEye Overview intelligent traffic sensor

Summary

Advantages

- Optimization of green light phases
- Increase of safety in the entire intersection area.
- Use of various algorithms for counting and prediction available
- Easy to integrate into new and existing the traffic light systems
- **Patented EYYES AI Net**.



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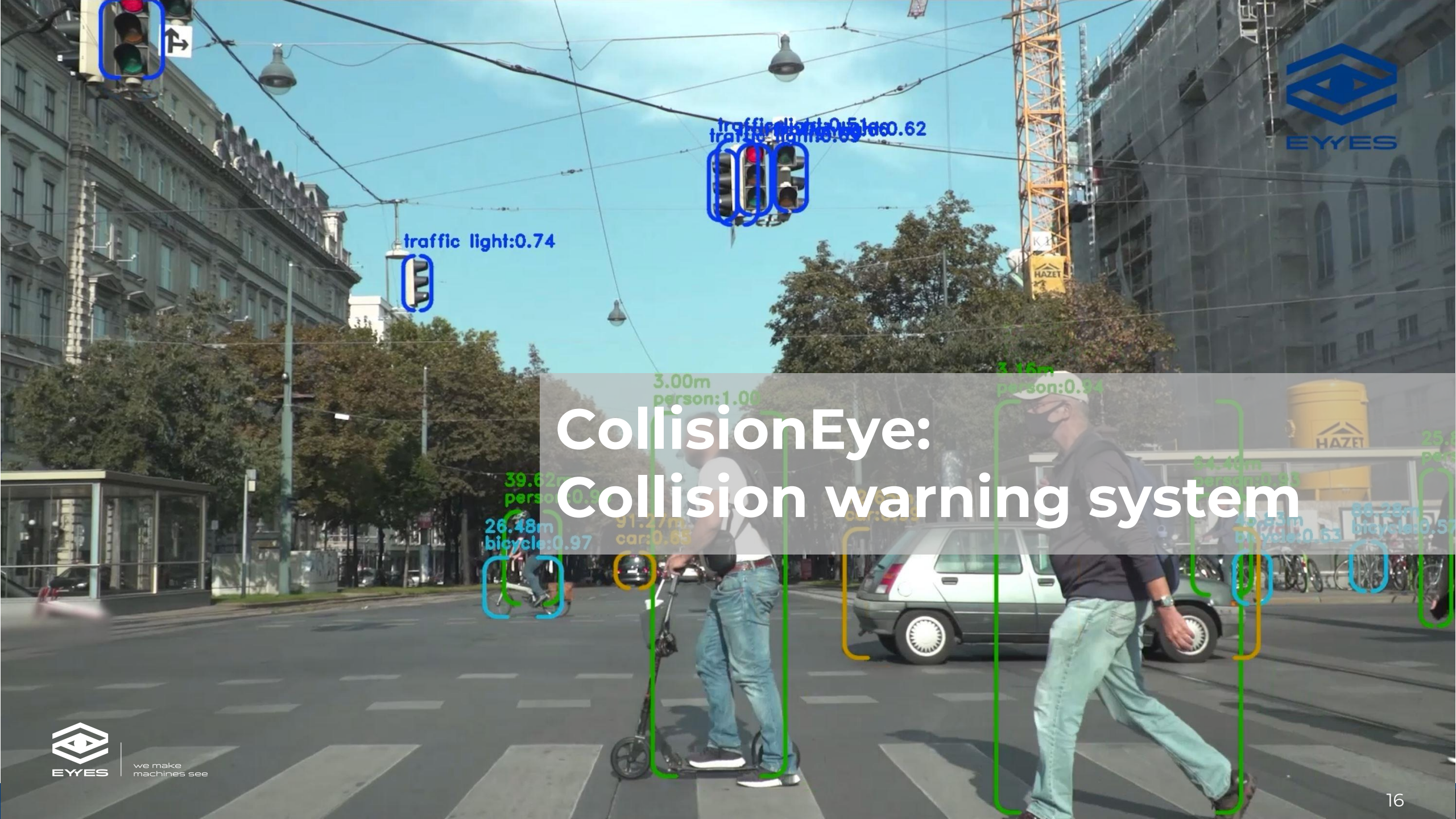

CollisionEye: Collision warning system

CollisionEye®
Intelligent collision warning system

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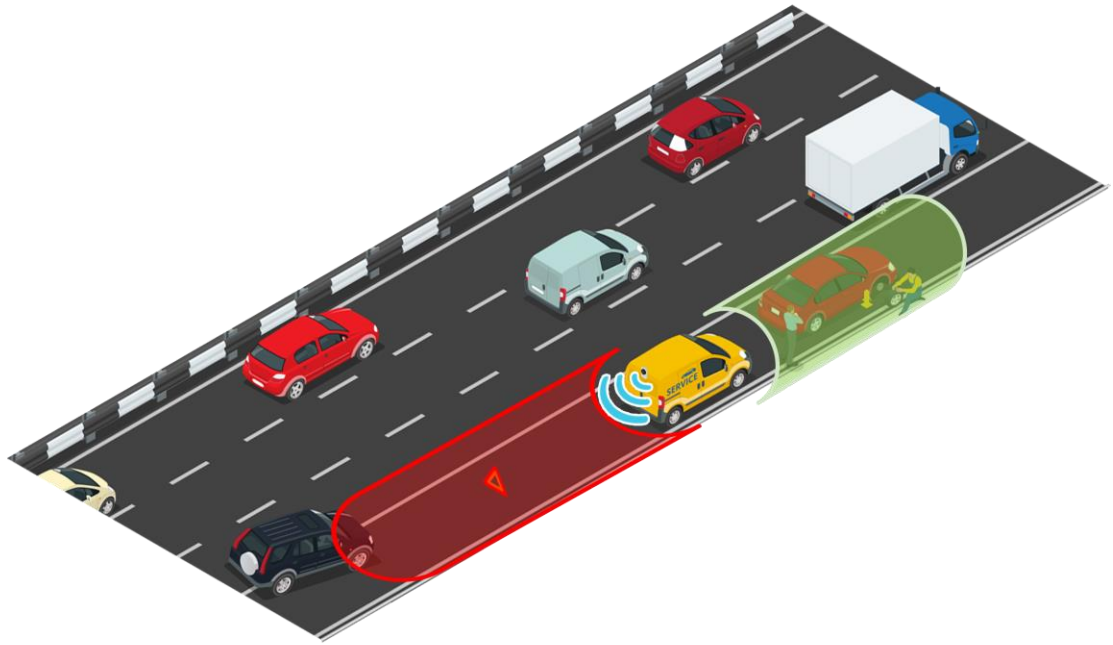

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CollisonEye: warns service and assistance employees on the highway

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CollisionEye Warning Assistance System

Protect roadside assistance

IP-camera

Signaller via Dig I/O

Advanced
Driving Control Unit

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CollisionEye warning pilot at German highways

Protection of mobile construction sites

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CollisionEye Overview intelligent traffic sensor

Summary

Advantages

- AI detection since 2017 with **patented EYYES AI Net and methods**
- Saves lives through early warnings in front of a collision
- Easy to integrate into new and existing trailers

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Thank You for Your Attention

Please visit us on our booth 3.109

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EYYES
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