

Uniting what's next in traffic.

Advanced Perception – AI-enabled ITS applications



Edge AI processing for real-time applications

Real-time digital twin of roads for AI-enabled ITS applications

Roadside **AI** box based on the latest NVIDIA platform connected with **standard IP camera**

Deep Learning for **detection and classification** of minimum pedestrian, cyclist, car, busses, trucks, motorcyclists

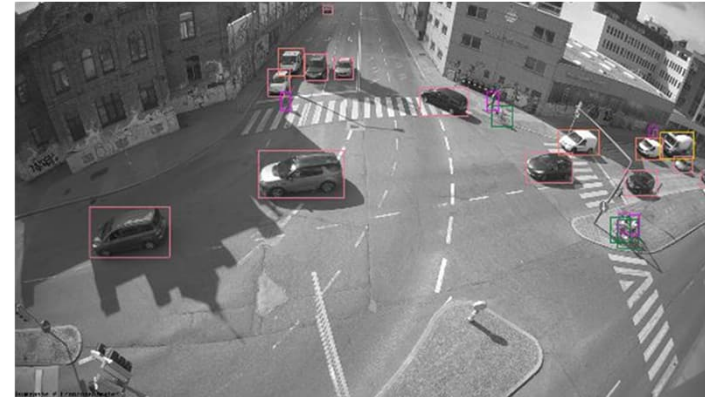
Determination of **speed, position and direction of movement** of individual objects

Local on-site video analytics ensures **data protection and privacy compliance** -> only results sent to cloud

Due to a **modular design**, several applications can be used at the same time

Connection to the **RSU** and Cxx, sX or third-party **controllers**

YUNEX
TRAFFIC



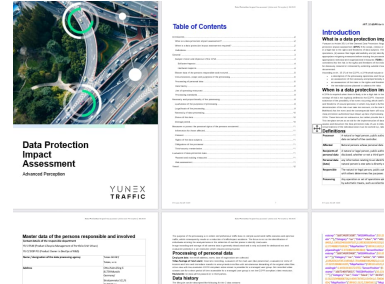
A complete system solution offer for our customers

YUNEX TRAFFIC



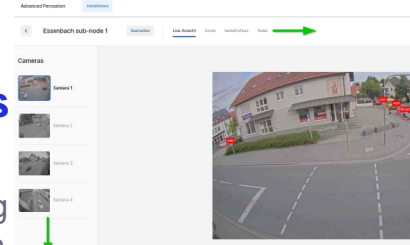
Project planning

per site incl. component location and cable lengths estimates and considering site plans



Data protection relevant documents and measures

such as an order processing contract or a data protection impact assessment incl. organizational measures



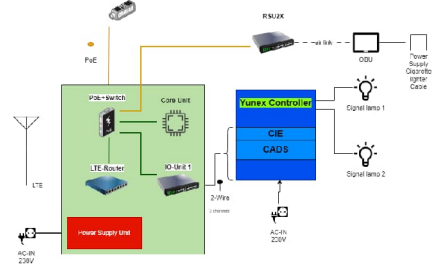
Continuous update and upgrade options incl. security mgmt.

to participate in the latest improvements as well as to upgrade applications and system components as needed for new requirements. Security is managed hat highest standard.

A holistic approach to every project

Requirements translated into system solutions

Individually, depending on the use case - e.g., with or without RSU, control unit, prioritization solution, etc.



Advanced Perception product-implementation

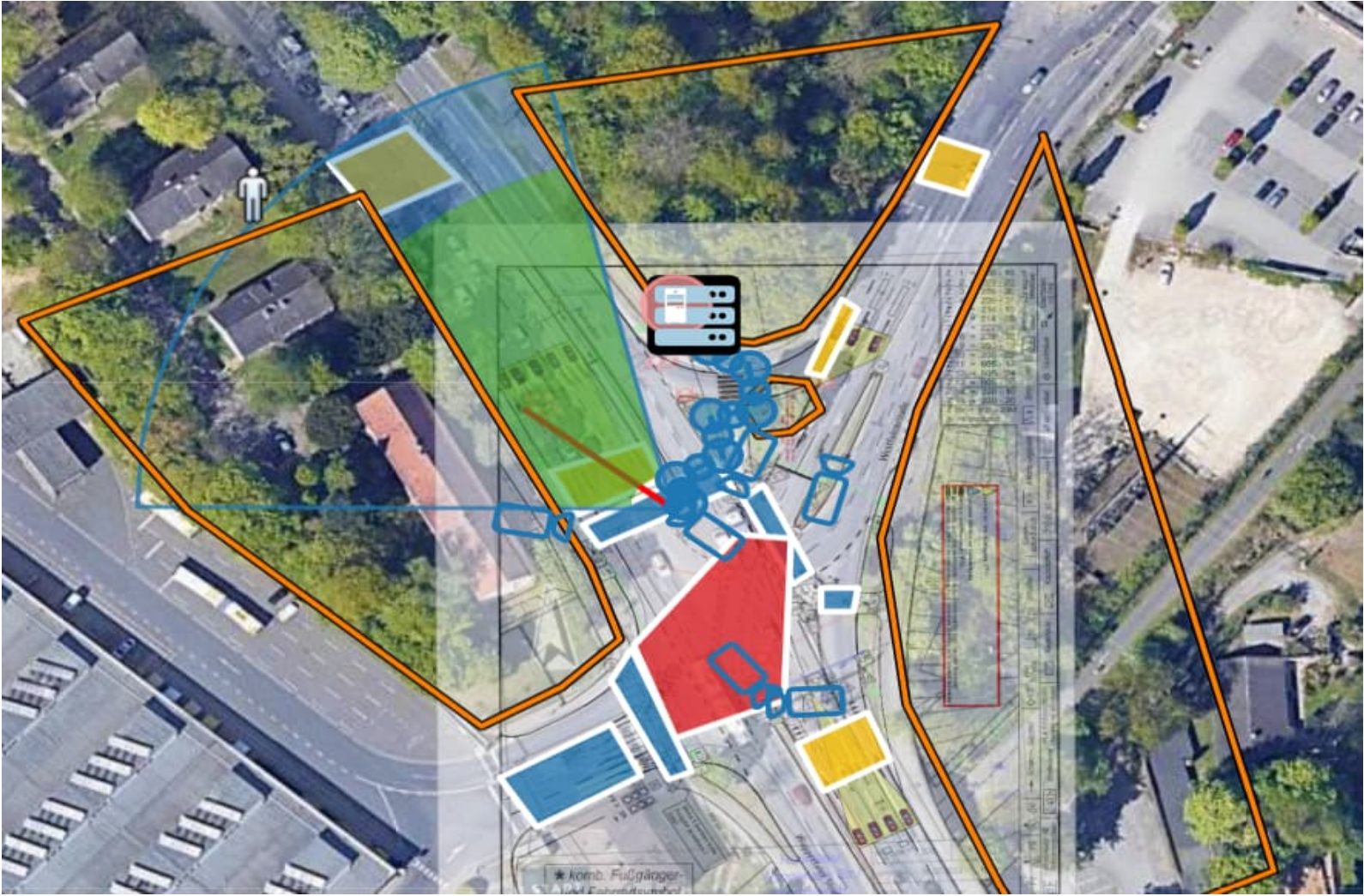
with all relevant preconfigured system components



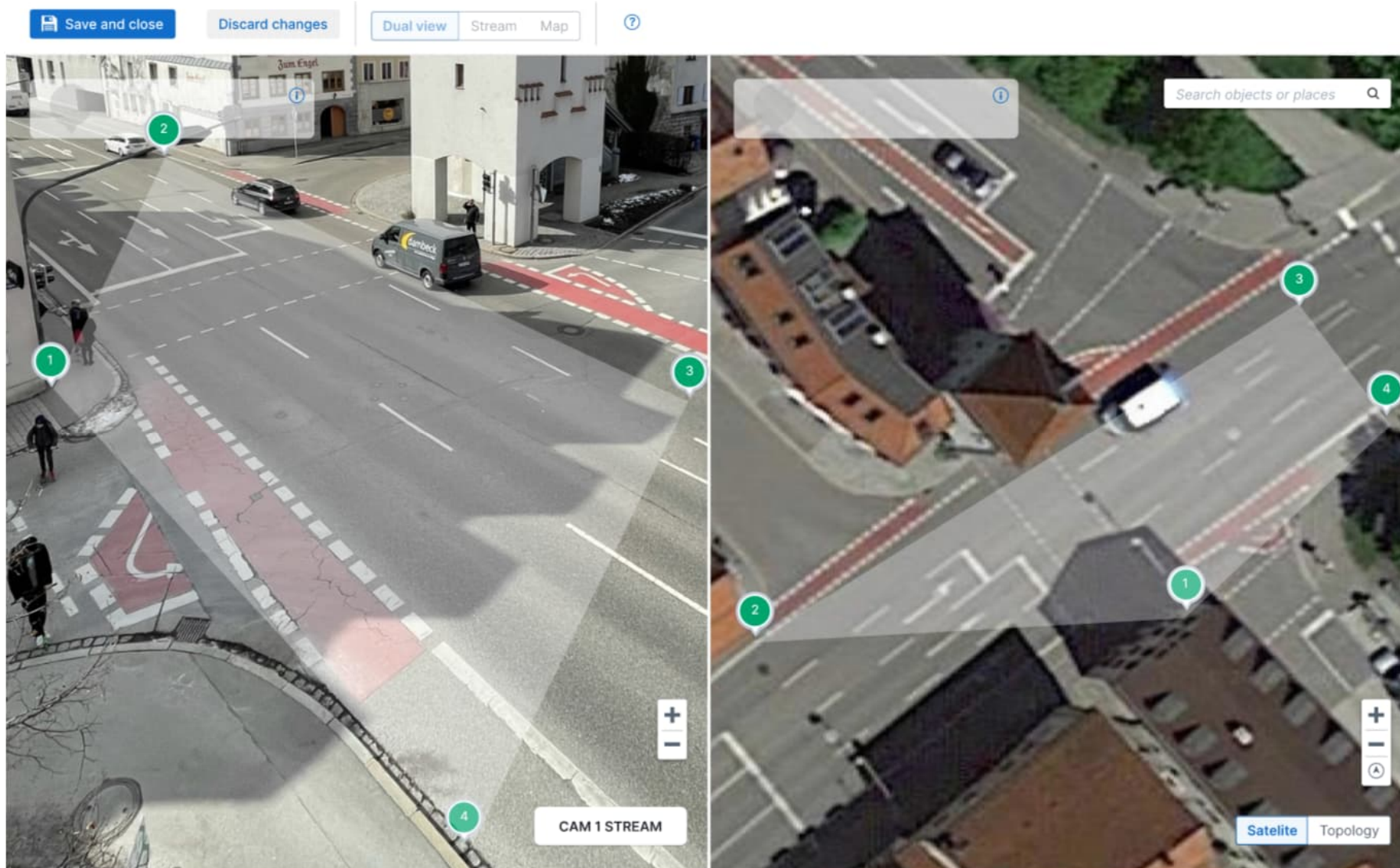
Installation and maintenance

Of new and existing plants

Project planning: per site, incl. component location, cable lengths & site plans



System Configuration: from camera view to combined overhead view



System Configuration: configuring in overhead view

Advanced Perception Platform

AP-123 Edit Overview **Zones** Traffic Flow Push button Live view

Edit zones

Satellite CAM

Zone 2

Export

Chronological Heatmap

All classes Weekly

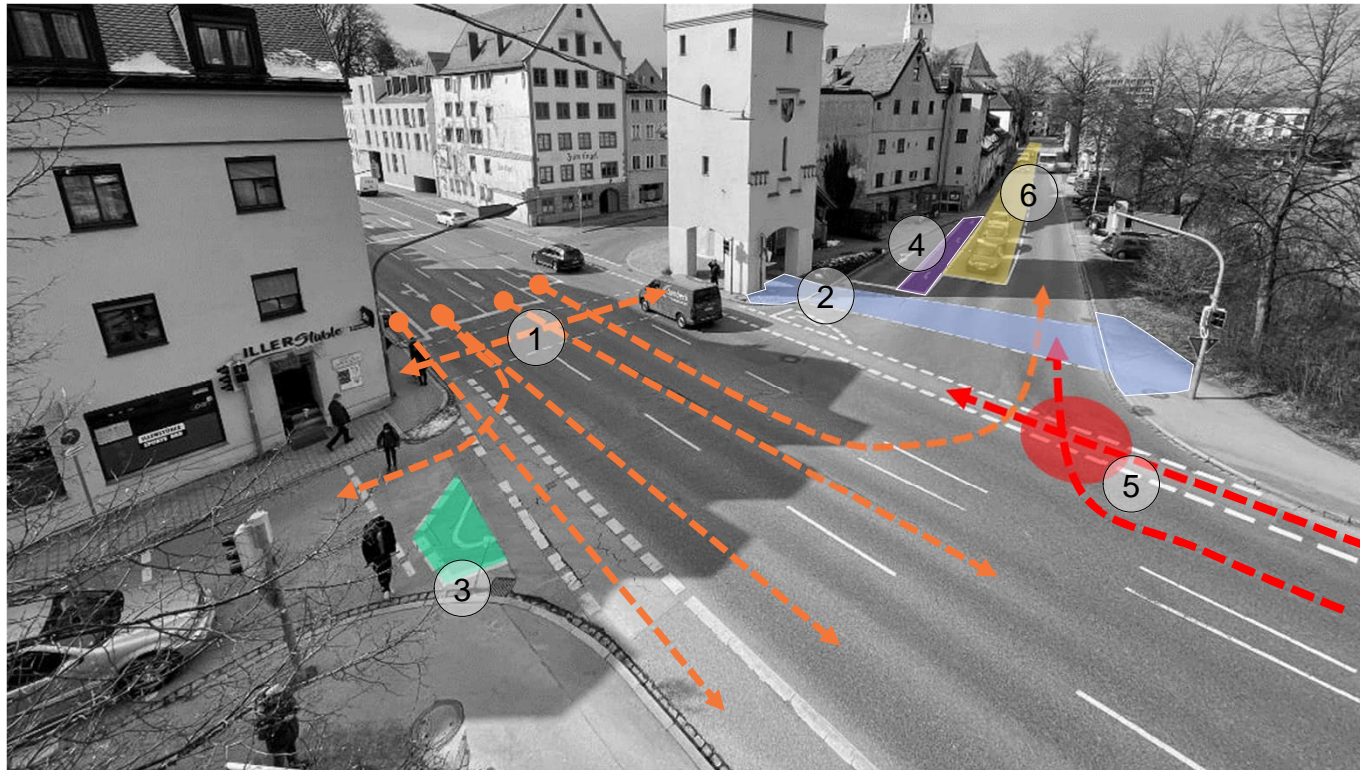
1.08.2022

1. 8. 2022 0:00 – 7. 8. 2022 0:00

Car Bus Pedest ... Cyclists

Metric	Car	Bus	Pedestrian	Cyclists
Count	~100	~50	~40	~10
Speed	~80	~70	~40	~30
Occupancy	~20	~30	~60	~10

A technical solution for a wide range of standard and advanced ITS applications



- 1

Traffic Flow Insights
for real-time motion analysis of all road users such as pedestrians, cyclists, vehicles in the entire intersection area

Traffic Optimization

- 2

Safe Pedestrian Crossing
for contactless request and adjustment of green time

VRU protection

- 3

Dynamic Spot Detector
for counting, speed measurement and occupancy of all road users for any zones

Traffic Optimization

- 4

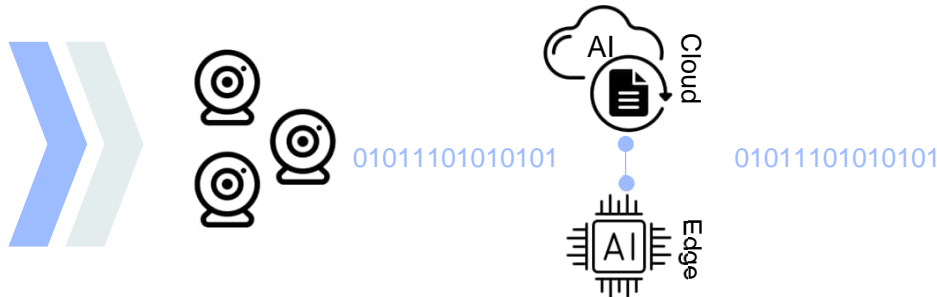
Intelligent Priority
individually for all classes of road users

Traffic Optimization

- 5

VRU Conflict Awareness
To reduce accidents between non-motorized and motorized traffic.

VRU protection



YU Products

Symphony	FUSION
RSU	sX
OBU	...

Application – Traffic Flow Insights 1

24/7 data acquisition for turning relations for traffic analysis

Part of release 1

YUNEX
TRAFFIC

Customer benefit

In-depth understanding of the current and historical state of traffic volumes - [origin-destination table](#)

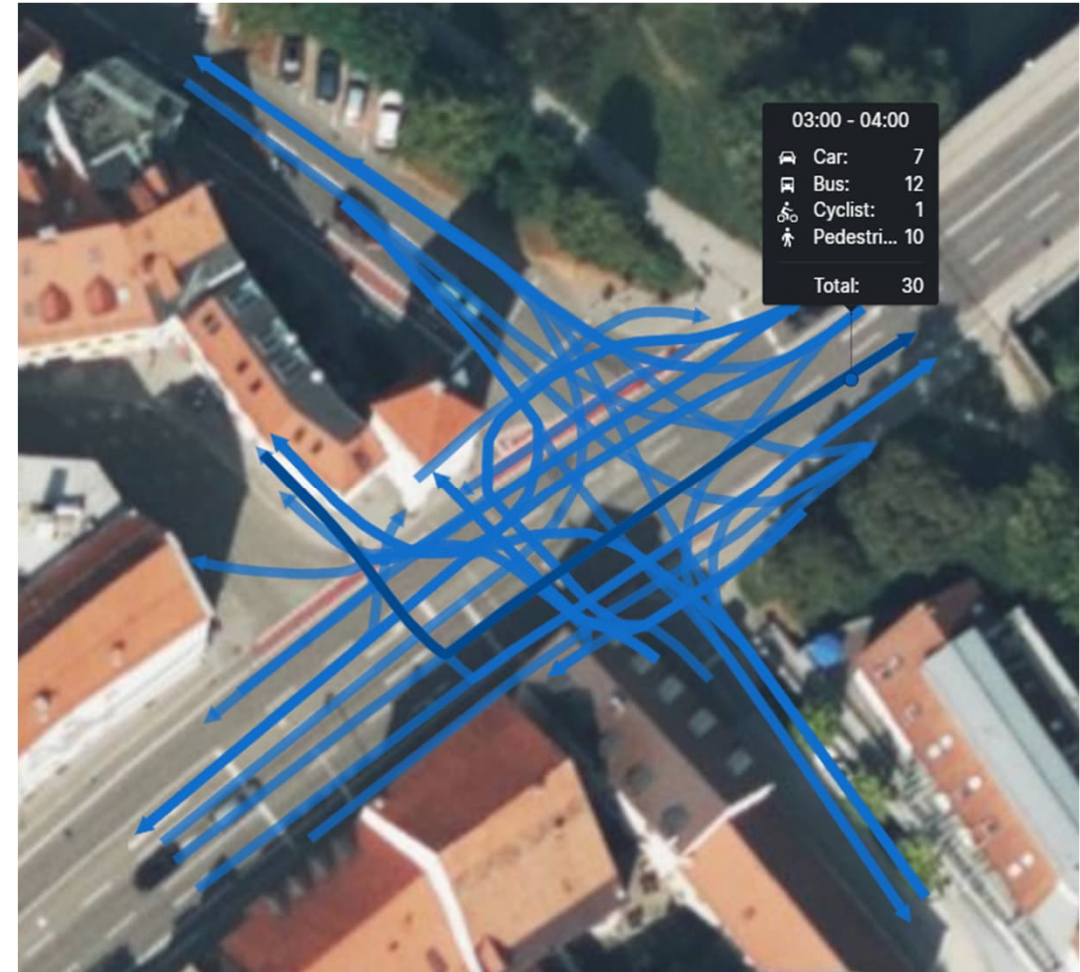
Automated traffic data collection for control adjustment – manual traffic counting is replaced

Functional description

Evaluation of the turning relationships of all road users per camera view

Filtering options in time and object classes

Export of historical data to CSV files



Application – Safe Pedestrian Crossing 2

Enhance safety and efficiency for your intersection crossings

Customer benefit

Reduced waiting time and **contactless request**

Safe crossing by **variable greentime**

Lower false requests

Functional description

UI for configuration of parameters like waiting time, speed, count or class selection

Communication of demand requests to control units



Application – Intelligent Priority ⁴

Any logic for demand request can be created

Customer benefit

Classes selective [request for prioritization](#)

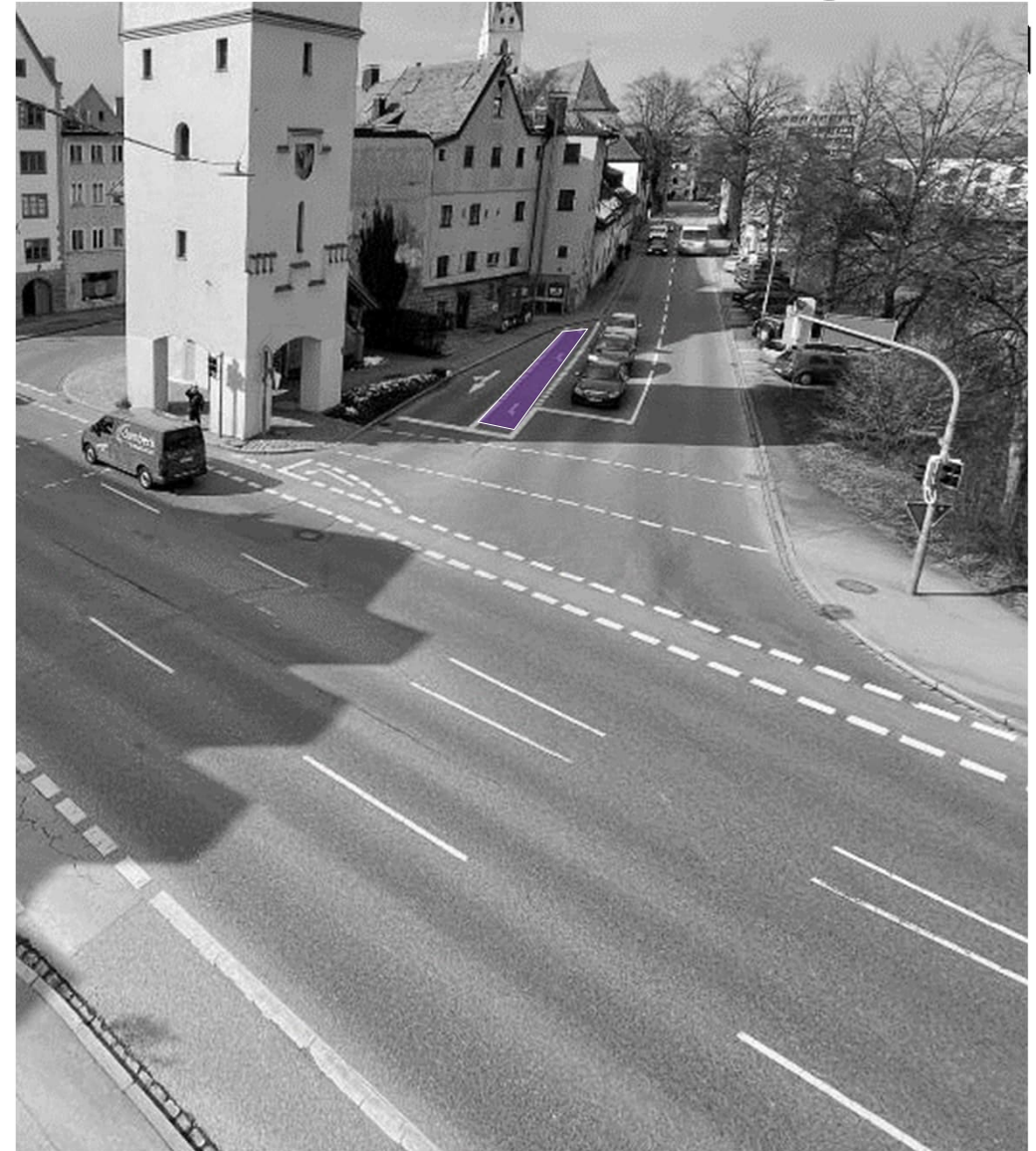
[Configurable at any zones](#)

Functional description

UI for configuration of parameters like count and class selection

Communication of individual actions to controller

Logging of all events for evaluations



Application – VRU Conflict Awareness 5

Increase safety for VRUs for critical spots like vehicle right turns and their conflict to pedestrians

Part of release 1



Customer benefit

Accident reduction of motorized and non-motorized traffic

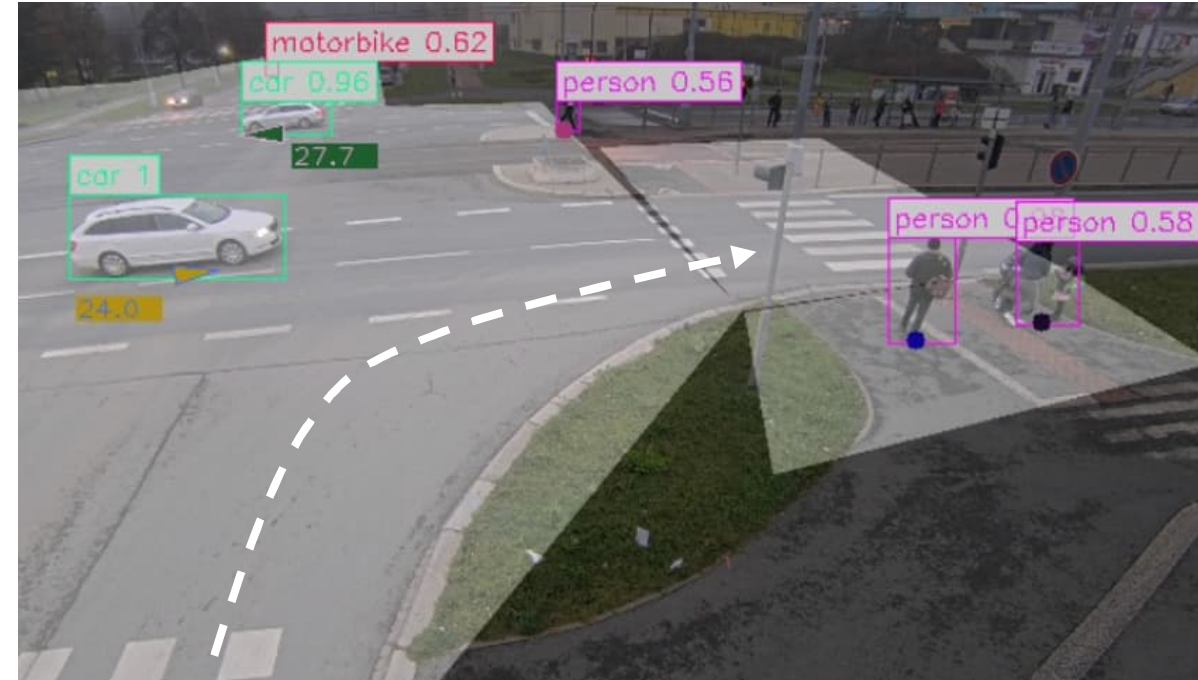
Warning to connected vehicles and non-motorized traffic participants like pedestrian

Functional description

Parameterization of conflict classes, speed intervals and lane selection individually per intersection via an input file

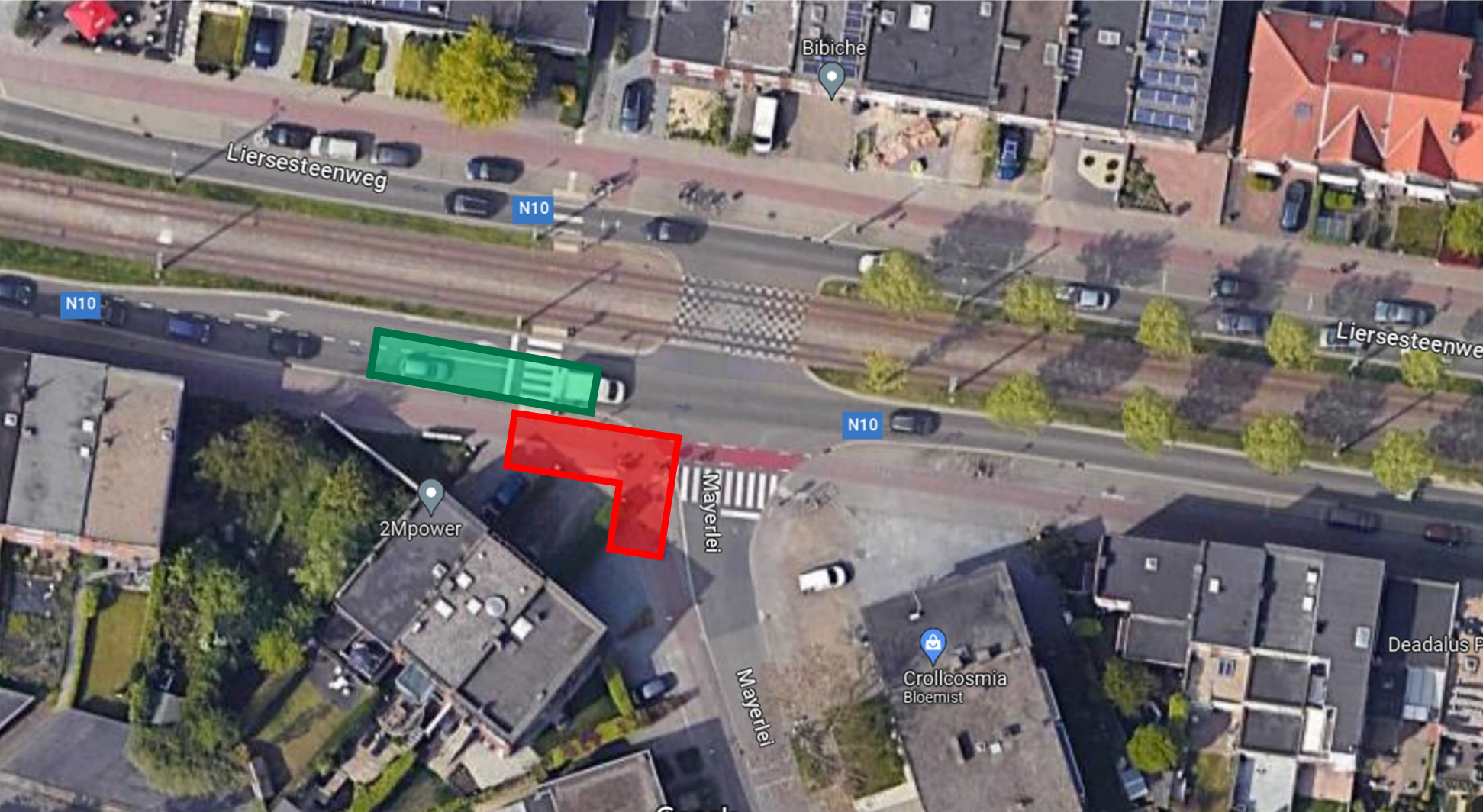
Communication of DENM via the Yunex RSU (or via flashlight)

Supports the classes vehicles, cyclists and pedestrians



**blind spot accident
(dodehoeksongeval)**

Use case: blind spot accident (dodehoeksongeval)



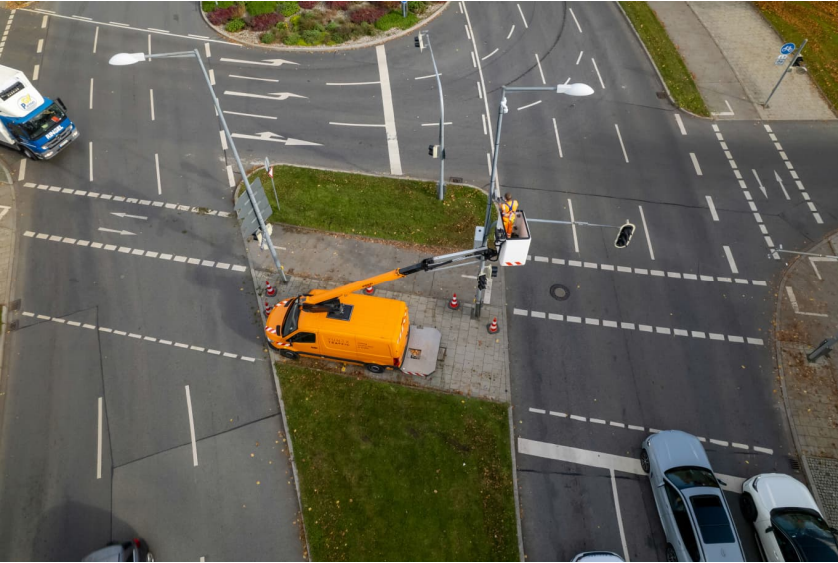
2

Safe Pedestrian Crossing
for contactless request and adjustment of green time

VRU protection

Project TEMPUS München – Impression

YUNEX
TRAFFIC



5

VRU Conflict Awareness
To reduce accidents between non-motorized and motorized traffic.

VRU protection

Hans De Ruyscher

Sales manager Yunex Belgium

+32 473 785 538

hans.de_ruyscher@yunextraffic.com