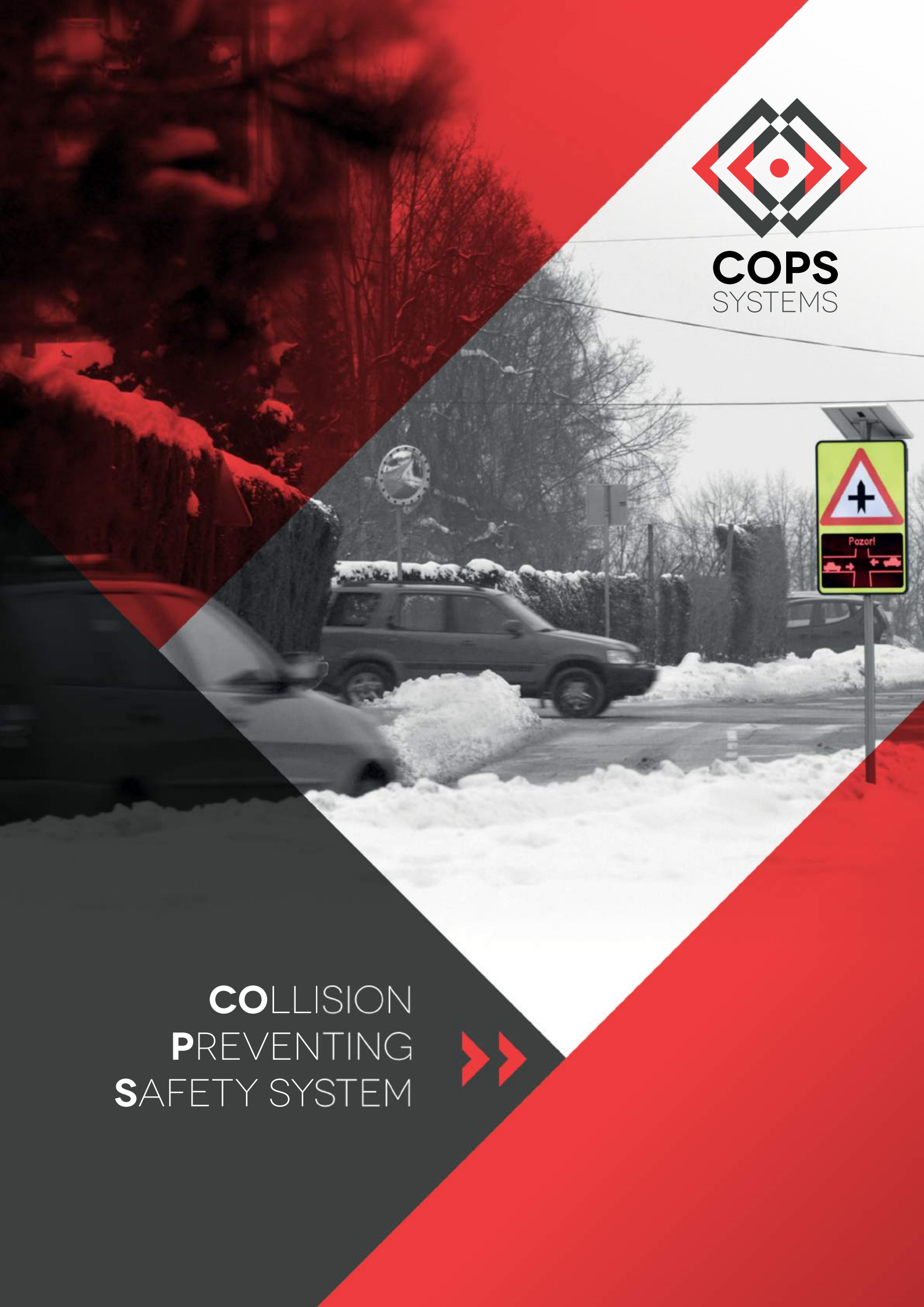




COPS
SYSTEMS



COLLISION
PREVENTING
SAFETY SYSTEM



In the desire to increase safety in dangerous road intersections, unsecured railway crossings, blind road sections, garages and factories, our company COPS systems d.o.o. has developed a system which significantly increases safety of traffic participants when they are in immediate danger of collision. The **system COPS@road** was very well received by experts and traffic participants. The system has received a silver award from GZS (Chamber of Commerce and Industry of Slovenia), a gold award from RGZC (Regional Chamber of Commerce and Industry of Celje) and an award from the municipality of Žalec for Innovation of the year.

By working together we can increase safety in traffic.

Team COPS systems d.o.o.

Traffic accidents are the result of the traffic culture of individuals and poorly designed road structures and influences of the surroundings, which make relatively safe roads into high risk areas.

At COPS systems d.o.o. we are aware of the significance of road safety and we believe that the number of accidents which are the result of undetected intersections, blind road sections, crossroads, unsecured railway crossings etc. can be largely prevented. It is time that we stop to despondently observe recurring often terrible traffic accidents due to poor visibility, blind corners or traffic signs that are not well seen.



THE MAJORITY OF FATAL ACCIDENTS
OCCUR ON INTERURBAN ROADS,
ONLY 8 % ON MOTORWAYS.

»» COPS@road

We have developed the system **COPS@road** (**C**ollision **P**reventing **S**afety System at road), which is an **active modular warning system** consisting of a large number of units which, using illuminated traffic signs with variable content, **improves the safety of dangerous and low-visibility road sections**, such as intersections, sharp bends, tunnels, etc. Using a multitude of detectors and advanced program algorithm the system identifies the potential danger of collision and alerts the traffic participants by using light signals.

»» VISION

We are a young company which made it its mission to increase safety in road and railroad traffic. Our vision is to set up active traffic signalization which will contribute to greater safety for all traffic participants. We are striving to set up new smart or active traffic signs at locations where there is a greater risk for traffic accidents.

This is the reason why we will continue to develop active traffic signalization which will contribute to greater safety on our roads.

- With **COPS systems** it is possible to improve safety traffic instantly – **without major infrastructural intervention**.
- **COPS systems** provide drivers with **real-time information**.
- **The road should forgive mistakes. With COPS systems it does!**

We are the first company in the world to implement real-time alerts in this way without major interventions in the existing infrastructure.

>> DANGEROUS ROAD SITUATIONS

Disregarding rules of priority is the second most common cause for accidents.



The view from the non-priority road
(poorly visible intersection)

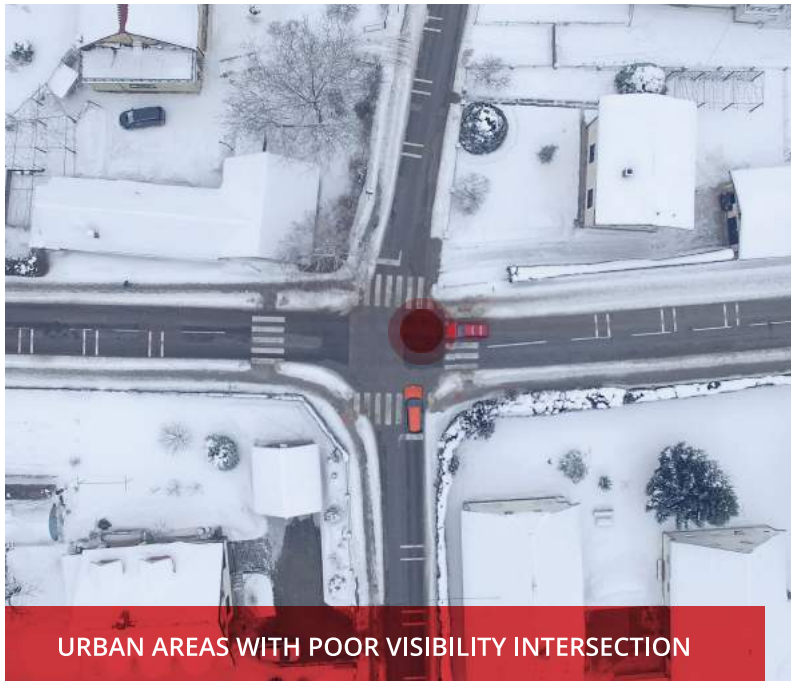


"THE EU HAS THE SAFEST ROADS IN THE WORLD, YET 70 PEOPLE STILL DIE EVERY DAY, over 25,500 per year, and that is far, far too many."

Violeta Bulc,
European Commissioner for Transport



Disregarding rules of priority resulted
in 25 deaths in Slovenia in 2016.
1832 people were injured.



URBAN AREAS WITH POOR VISIBILITY INTERSECTION



The view from the non-priority road
(poor visibility at stop line)



The view from one side of narrow
curved bridge (poorly seen car
from the other side)

TRAFFIC SAFETY SHOULD
BE A PRIORITY OF EVERY
TRAFFIC PARTICIPANT AS
WELL AS THE PRIORITY OF
SOCIETY AS A WHOLE.

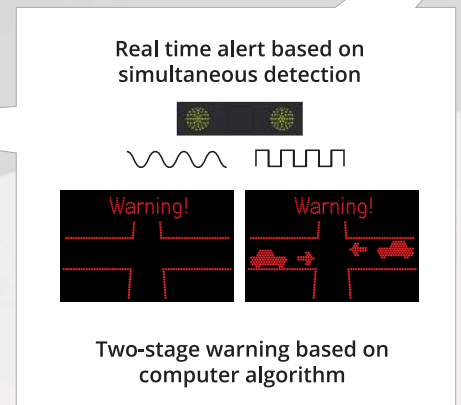
THE EU AIMS TO HALVE THE NUMBER OF
FATALITIES BETWEEN 2010 AND 2020.

UN Special Envoy for Road Safety Jean Todt:

*"Let's not forget that more than 1.2 million
people die on the world's roads every year.
That's 3,500 lives every single day. This loss of
life is preventable and unacceptable."*

>> COPS@road SYSTEM

The COPS@road system consists of various units in the form of traffic signs with variable content, independent or in combination with contrasting plates, and remote detection units. Some typical implementations:



OPERATION AND COMMUNICATION OF COPS@road

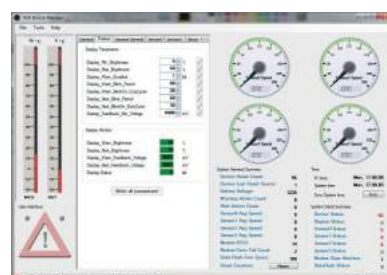
Based on vehicles detection and speed measurement the COPS units alert participants for potential collision in **real time by two-stage warning**. The system simultaneously warns drivers on the **side and priority roads** and thus **reduces the risk** of collision. Based on the **speed measurement** the system efficiently **slows down the traffic** using adjustable warn signals.

RF connection link between modules of the COPS@road system **within the range of 1 km** and detection range of microwave detectors **over 200 m** allows for building of **arbitrary COPS@road network** for **in-time warning** of drivers about oncoming **critical traffic sections and situations**.

MANAGEMENT OF COPS@ROAD

COPS@road system is **connected to the control server** via the embedded GSM/GPRS modem for:

- the **status of components**,
- the **operation of the entire security system**,
- traffic statistics** (traffic density, vehicle speed, etc.).



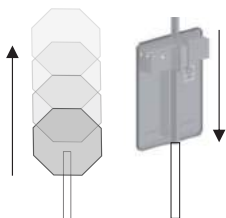
Traffic statistics



Diagnostic, control and management of COPS@road



Holders developed for easy installation on existing infrastructure



INSTALLATION

No major construction work is required; it is necessary to provide only the supporting pillar of the appropriate diameter (depending on the size and weight of the unit), which can be installed by the client or the contractor.

Field work: 1 day (depending on the complexity of the system and weather conditions), which includes installation and testing of the system.

**COPS@road IS SET UP
WITHIN ONE BUSINESS DAY!**

ADVANTAGES

- ✓ Real-time collision warning
- ✓ Various alert levels
- ✓ Green energy
- ✓ Autonomous operation
- ✓ Speed measurement
- ✓ Traffic frequency recording

MODULARITY OF COPS SYSTEMS

Choosing a COPS system unit, the location and the mode of operation all depend on the specific needs and requirements of the traffic segment in question.

COPS@road

The installation of the **COPS@road** system can display warnings of potential danger for traffic participants in low-visibility road sections. With the installation of any permanent traffic sign, units of the **COPS@road** system are suitable for most traffic locations, also the narrow bridges or tunnels etc., where permanent traffic signs are installed.



COPS@rail

This is a special version of the **COPS@road** system, which is intended to equip unsecured level crossings. The customized **COPS@rail** system uses a one-stage alert method. The alert is activated when the traffic participant approaches the level crossing regardless of the presence of a train, warning the participant to proceed with caution.

The program algorithm of the **COPS@rail** system determines whether the participant is adjusting the speed while approaching the level crossing, and in case of not detecting a slowdown, the flashing frequency is increased, which adds to the warning about the approaching dangerous site.





COPS@factory

The system **COPS@factory** works on the basis of vehicle and pedestrian detectors. It actively signals for the increased attention of participants to further avoid the risk of collision at critical points. The modularity of the system enables adaptation to the complexity of the sections in indoor and outdoor premises of factories and enables the adjustment of displayed images according to the needs and wishes of the client. **COPS@factory** also allows monitoring the flow, speed and movement of employees and transport vehicles in hazardous locations via telemetry. With the obtained data, you can raise safety awareness among employees and plan transport vehicle manipulations when the movement of employees on critical routes is at its lowest.

COPS@garage

The **COPS@garage** warning system for low-visibility sections in car parks is a device that alerts users to the risk of collision via active signalization. The system works on the basis of microwave sensors that detect moving vehicles and warn the drivers of increased risk of collision in real time. This ensures that traffic in the car park is safer, more fluid and more user friendly.

COPS@garage also allows monitoring the flow, speed and movement of vehicles via telemetry. With the obtained data, you can raise safety awareness among visitors in garages or parking lots.



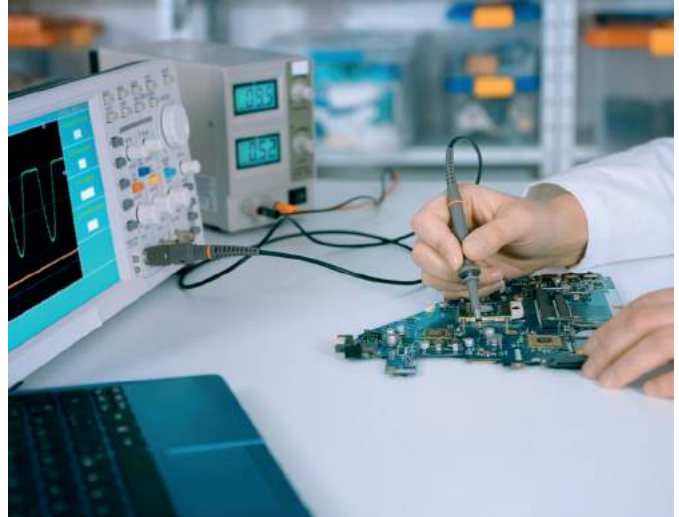
»» COPS SYSTEMS DEVELOPMENT

We are proud to contribute to traffic safety every day. In order to offer tailor-made solutions for every situation, we develop, produce and test all products of the COPS systems ourselves.



OUR DEVELOPMENT

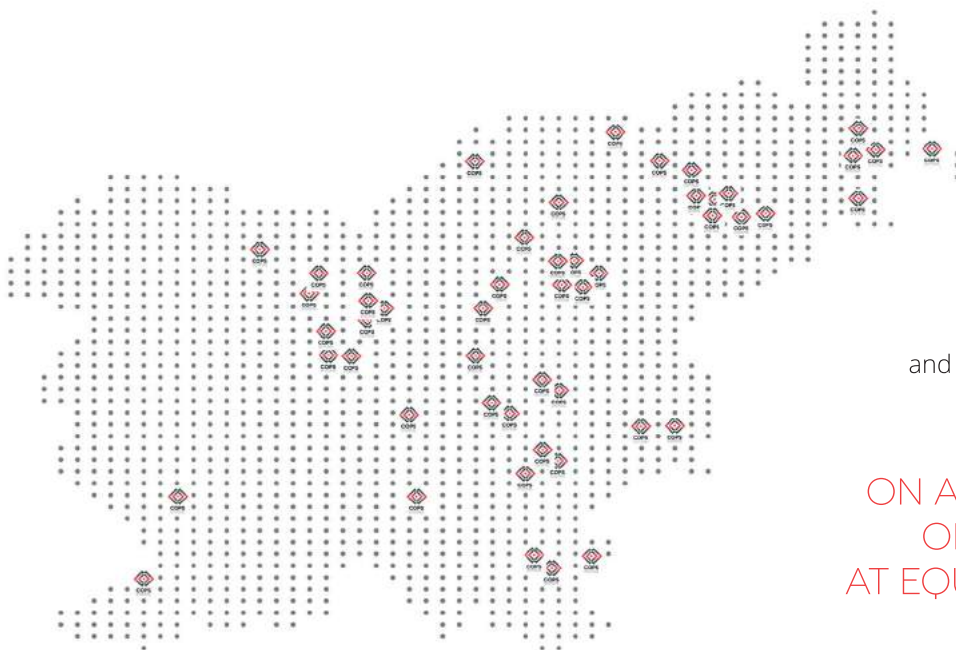
We have invested over 6 years into developing the COPS@road system. The system was tested on 50 different locations.



PRODUCING AND TESTING

We have developed unique circuits and traffic equipment to create a system which will work autonomously in all conditions and provide participants with reliable information at the moment of a potential collision.

»» COPS SYSTEMS IN SLOVENIA



MORE THAN 60 COPS SYSTEMS ARE INSTALLED IN SLOVENIA.

Working with Zavarovalnica Triglav, the largest Slovenian insurance company, we have equipped 24 dangerous road sections - crossroads, overpasses, and tunnels, where the danger of traffic accidents was greater.

ON AVERAGE, THE NUMBER
OF TRAFFIC ACCIDENTS
AT EQUIPPED SECTIONS HAS
DECREASED BY 80 %.

Partners who trust us



triglav



NOVARTIS



Russian Railways

»» RESULTS

AFTER INSTALLATION OF COPS@ROAD SYSTEMS, THE TRAFFIC ACCIDENTS WERE REDUCED BY 80 %!

“The COPS@road system can help reduce traffic accidents that result from reckless driving. Due to the latter, 32 people died on Slovenian roads in the last two years. Many traffic accidents also happen because of lack of concentration, which could surely be prevented by such a system as it warns drivers about potential danger. I fully support this innovation.”

mag. Ivan Kapun,
Head of the Traffic Police Department

NUMBER OF TRAFFIC ACCIDENTS



Before COPS SYSTEMS After

Novo mesto

6 years	1.5 years
28	0

Ribnica

10 years	1.5 years
56	0

Hoče Slivnica

1 year	1.5 years
4	0

Prevalje

14 years	1 year
20	0

Ptuj (underpass)

10 years	1 year
10	0

“Not only for dangerous sections, the COPS@road system is a welcome addition to any unsecured railway crossing. It also costs much less than the crossing with signals and gates.”

mag. Elvis A. Herbaj,
Head of Traffic Department PU Celje

“The COPS@road system in the municipality of Ribnica at the new kindergarten has been in operation for one year. The traffic participants accepted the system. The townspeople we talked to had a positive opinion of the installed system and there was no negative response. The system works flawlessly at all times and we are pleased with it.”

Ladislav Mate,
security, rescue and traffic management consultant, Municipality of Ribnica

“On behalf of the Sector for Public Transport, and in my personal opinion, COPS@road has contributed greatly to improving road safety. We can say that the system has improved safety by 100%, as no traffic accidents have been recorded in the last year. Before, accidents happened here at least every two months.”

Denis Kocbek,
Communal and Transport Sector,
Municipality of Maribor

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