

INTER SAFE2

AMAA 2009 Berlin

Intersection Safety in the view of Cooperative
Systems

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Unterensingen, 06.05.2009



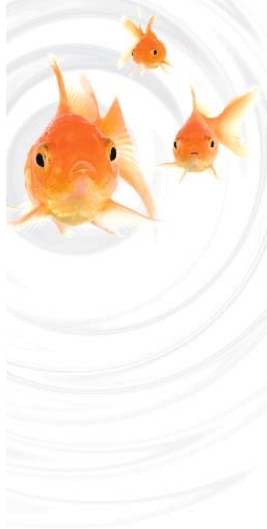


We keep (y)our traffic in motion



Influences to intersection safety

- Practical experiences
- Actions in INTERSAFE-2
- Standardisation
- Future functionality



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Traffic light controlled intersection

- A lot of traffic
- Many lanes
- Pedestrian and cyclists crossing
- Public transport prioritisation



The traffic lights are used to make the traffic flow more efficient and much more safe.

But there are still a lot of accidents with serious injuries.



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Failures in signalling (safety)

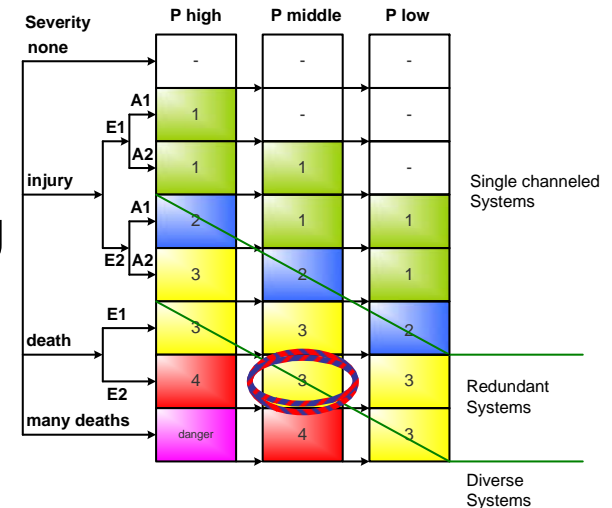
- Development under a process according to Safety Integrity Level 3 (IEC 61508)
- Certified conformity by TÜV-Rheinland

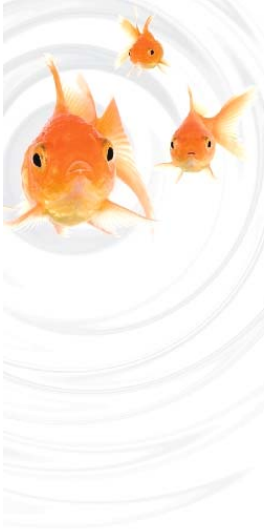
Break down

- Painsstaking tests while development, manufacturing and installation
- Periodic maintenance according to European Standards

Power down

- Energy saving signal heads
- Traffic dependent application program





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Advisedly

- Pedestrian not willing to wait for go
- Cyclist driving on sidewalk
- Drivers using “dark yellow”


Unintentionally

- Truck driver ignoring VRUs in blind spot if right turning
- Driver misunderstanding signals
- Left turning against opposite flow

This is the field to operate with cooperative Systems



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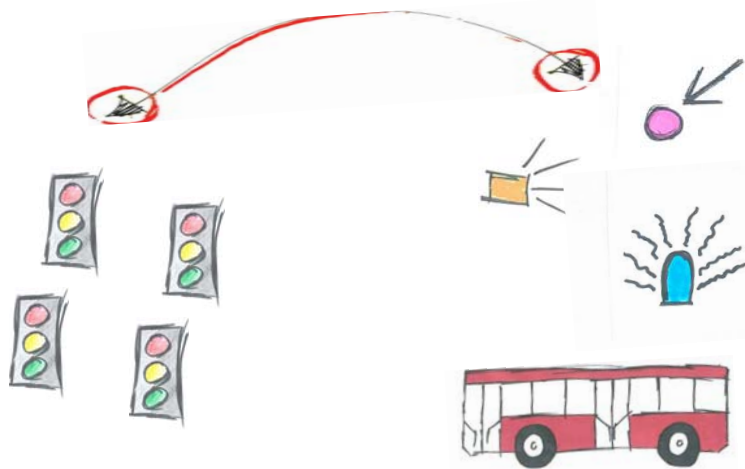
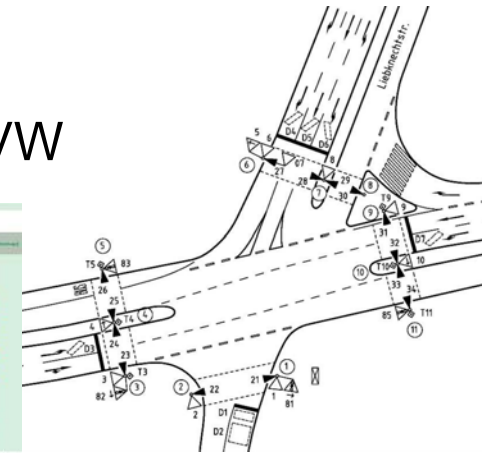


Collaborated in INTERSAFE

- Primary technical partners: BMW and VW

Information distributed

- Static intersection configuration
- Node status (OK/fail)
- Dynamic signal group status
- 10 Second change prediction



Information received from car

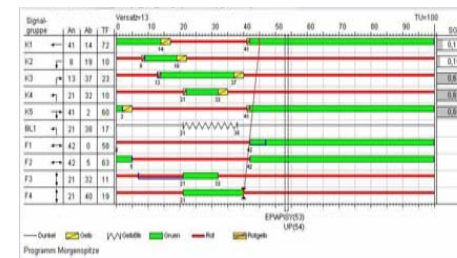
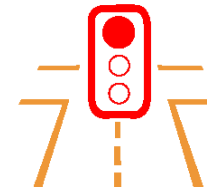
- Dynamic object vector
- Signalling e.g. turning indicator
- Incident information
- Emergency signals
- Priority (public/individual)



Usage of the results


The INTERSAFE system is installed at an intersection in the city of Wolfsburg for tests with VW

- **Display of signalling status**
- **Prediction of signalling status**
- **Vehicle information**
 - Not used in planning due to operator reservations

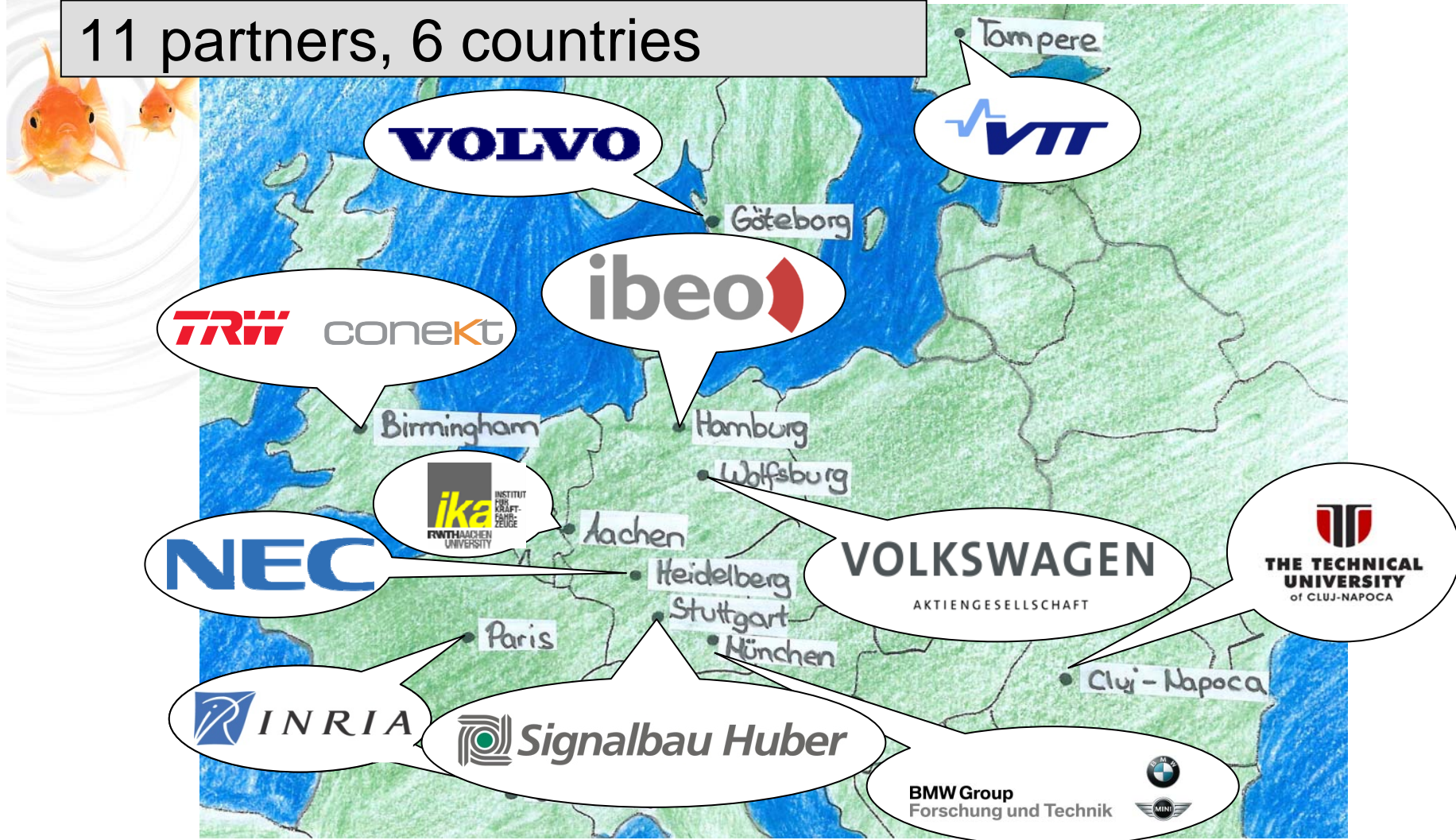




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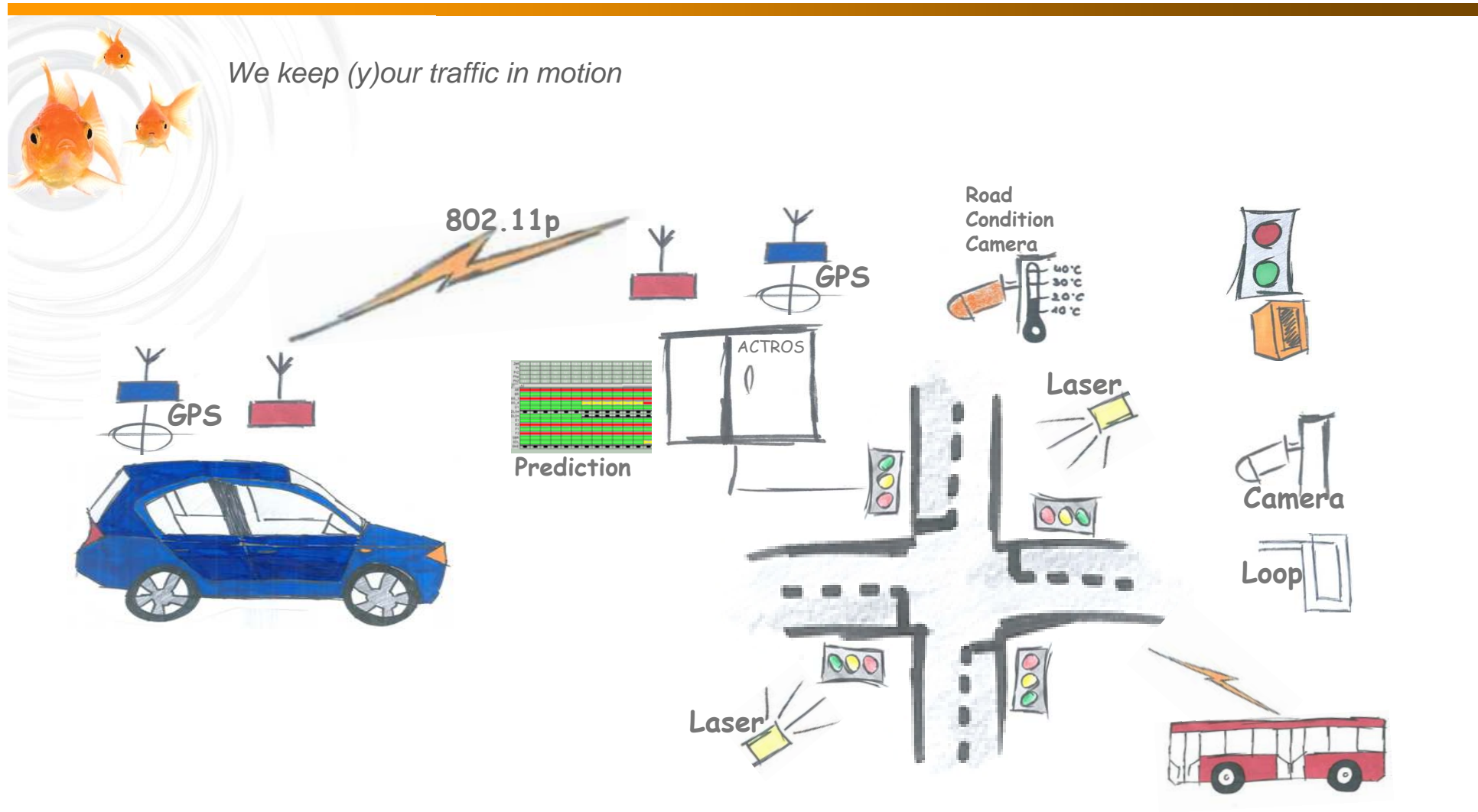
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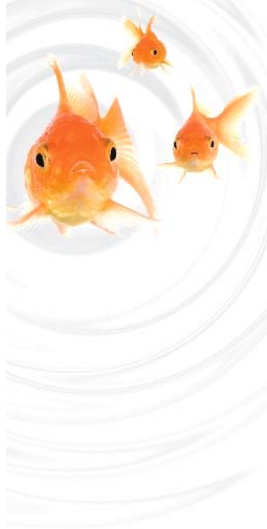
11 partners, 6 countries



(Infra)Structure

INTERSAFE2

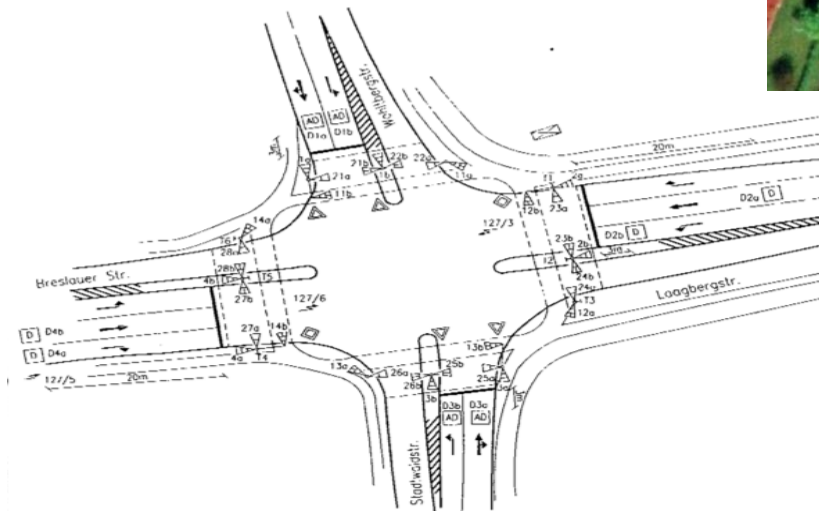




We keep (y)our traffic in motion

Gothenburg/ Sweden

- V2I communication
- Traffic safety functions for trucks
- Local demonstration activities for trucks




Wolfsburg/ Germany

- V2I communication
- Infrastructure sensing
- Demonstration activities



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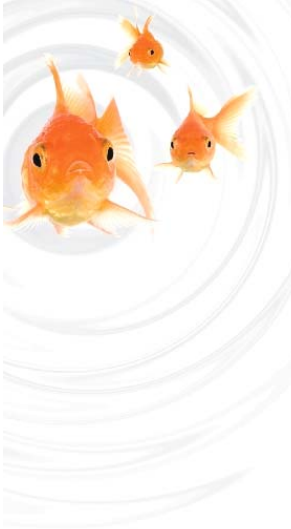
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Due to EU ITS directive

- Include enhanced applications at infrastructure side to the standards
 - Engagement at ETSI TC ITS and at CEN TC 278
 - Prediction of air quality with possibility of early temporary and local reaction
 - Reduction of fuel consumption by collaboration of the systems
- Define safety requirements for each application according to e.g. IEC 61508
 - Secure a unique understanding for implementation requirements
 - Secure that the application requirements fit to the capabilities of the lower layers and vice versa



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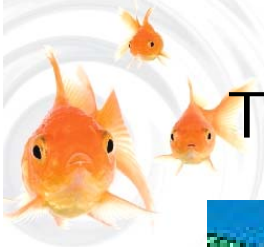
Future functionality



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Using cooperative systems opens potential for increasing safety for unequipped road users

- Basic Safety Application (BSA) with the main focus on vehicles are actual defined in ETSI TC ITS together with CAM and DNM Messages.
- Information also for unequipped vehicles by lane lights, signalling on danger
- Increase the acceptance of pedestrians and cyclists by signalling waiting time.



Thanks for your attention



Contact

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