

EMMA – Embedded Middleware in Mobility Applications

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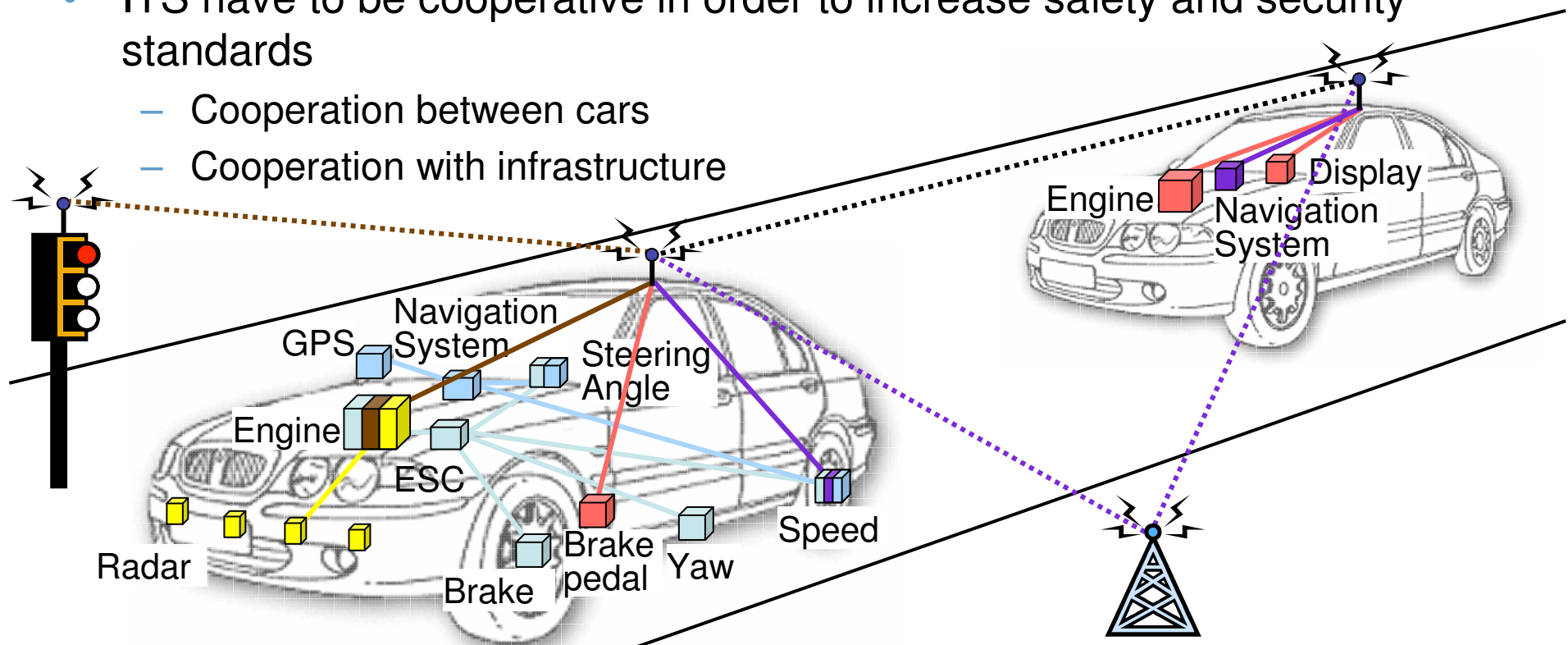
What is EMMA?

- Embedded Middleware in Mobility Applications
- Specific Targeted Research Project (STREP)
- Funded under 6th Framework Programme
- Duration: 01.05.2006 - 31.10.2008
- 8 partners
 - from Spain, UK, Poland, Italy, Germany and Korea
 - Automotive Manufacturers, Automotive Component Suppliers, Transportation Service Providers, Universities



Visionary scenario

- Many sensors and actuators in today's cars
- ITS have to be cooperative in order to increase safety and security standards
 - Cooperation between cars
 - Cooperation with infrastructure



State of the art - problems

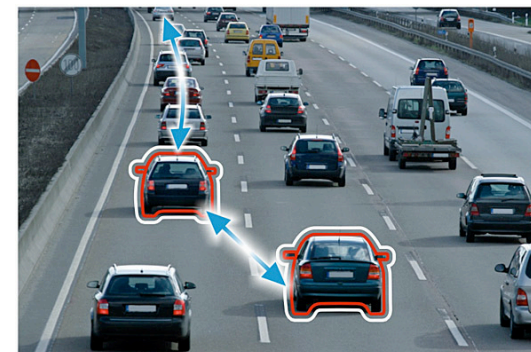
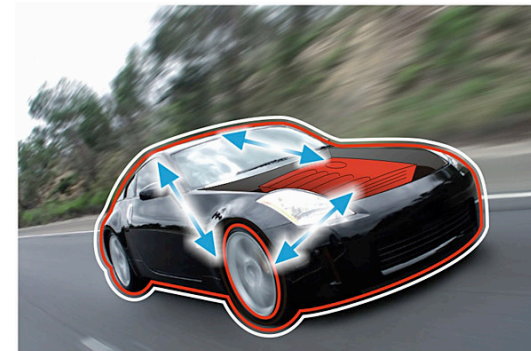
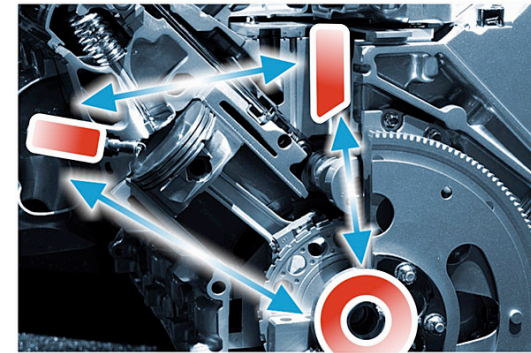
- Current sensor technology uses wired communication in a car (CAN, LIN, FlexRay, MOST)
 - All bus technologies have different interfaces
- Cars react to other cars (e.g. Adaptive Cruise Control), but do not cooperate between them
 - Communication technology is also different from wired technology
- Communication between cars and infrastructure (e.g. Floating Car Data) can be improved
 - Infrastructure devices are usually more powerful than car's
- Interactions altogether form a highly complex system!
 - Many interfaces required
 - Many dependencies to be taken into account

Strategic objective

- To open new prospects in the field of **embedded middleware** for **cooperating wireless objects (wicos)** in order to hide the complexity of the underlying infrastructure while providing open interfaces to third parties. The application **domain of transport** will be taken as a pilot example, where EMMA will foster cost-efficient **ambient intelligence** systems with optimal performance, high confidence, reduced time to market and faster deployment.

Sensing cooperation

- Within automotive system:
 - Several sensors within one system
such as elements of the engine
- At a car level:
 - Different sub-systems
such as radar and video sensor
- At outside-the-car level
with cars and infrastructure

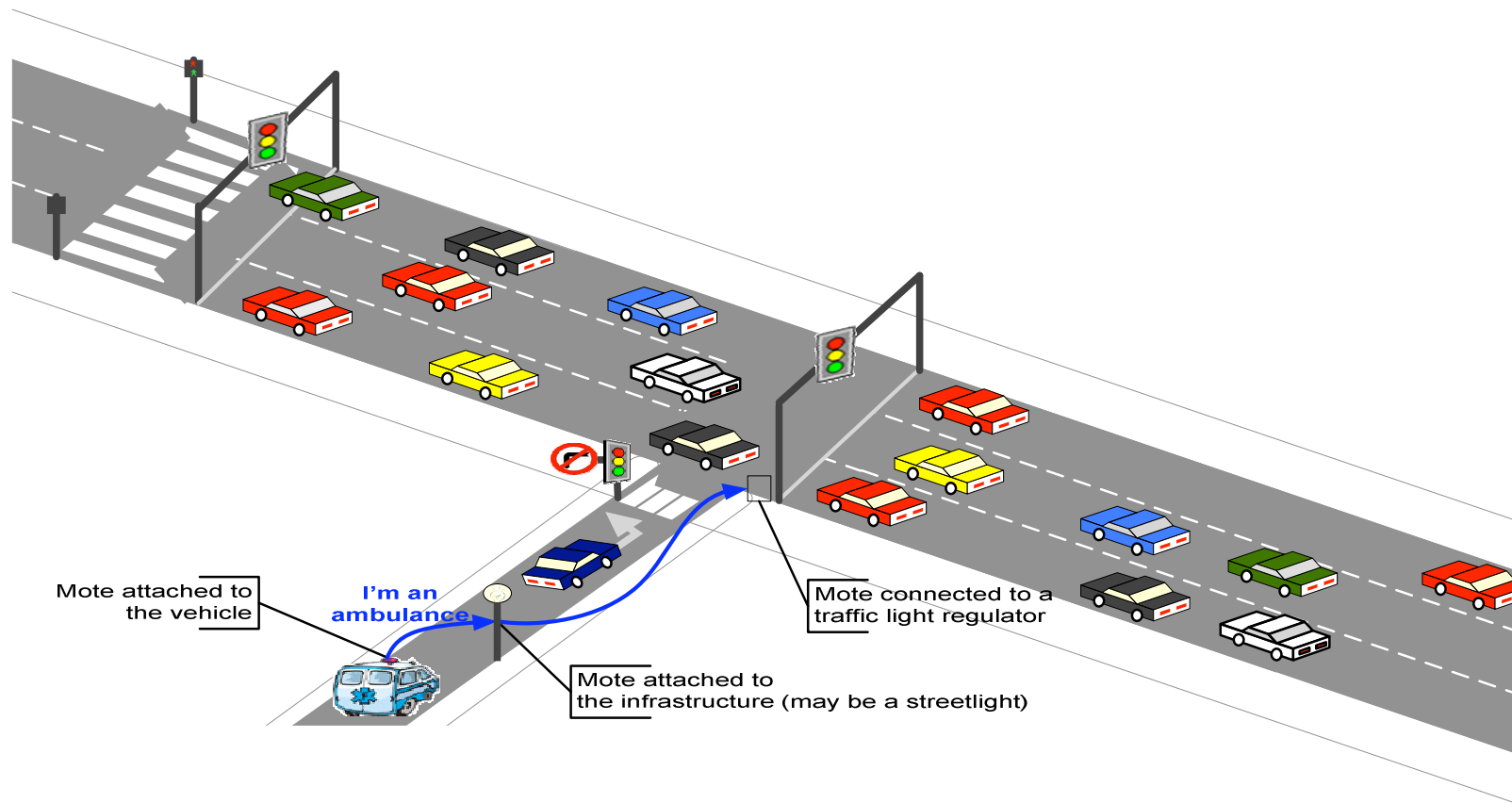


Specific objectives

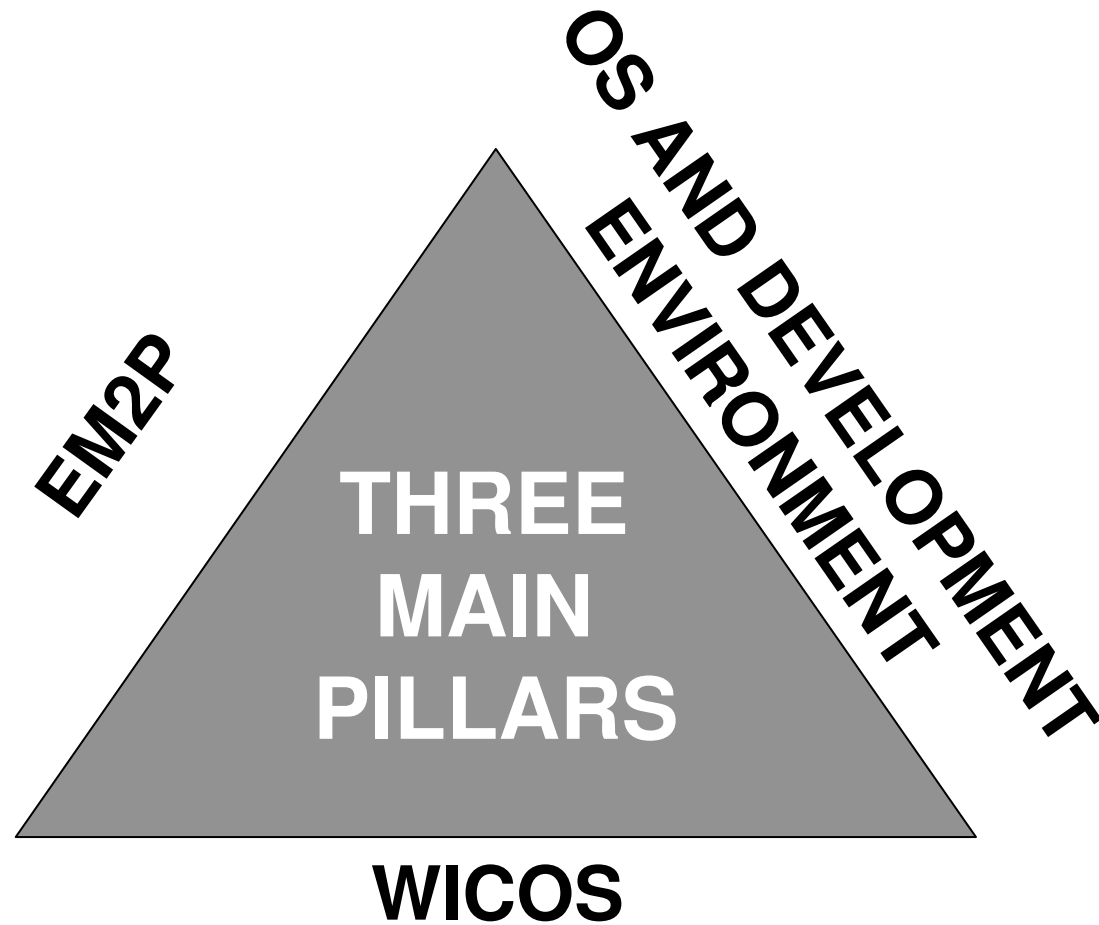
- To build a middleware platform and a development environment
- To lab test this middleware on a number of **wireless cooperative objects**
 - Within an automotive subsystem
 - At a vehicle level
 - At the supra-vehicle level
- To provide an adapted OS to cooperative sensing applications
- To validate EMMA wicos in the context of a number of applications
- To feed the project results into automotive industry

Application at supra-vehicle level

❖ Giving priority to emergency vehicles



Implementation plan



EMMA 2nd Workshop

- **2nd EMMA Workshop** on Wireless Systems Research

- 26th March 2008
- Newcastle, United Kingdom

1st EMMA Workshop took place within the ITEA2 Symposium in Berlin, October 2007

- Presentation of project results to date, demonstrations of hardware early prototypes
- Opportunity to learn about the EMMA middleware and its potential applications within the transport domain
- Presentation of developments in similar projects

Thank you for your attention!

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