



*ADOSE Project no. 216049:*  
Reliable Application Specific Detection of Road Users  
with Vehicle On-Board Sensors

**Overall budget :** 10.198.456 € (EC funding 6.099.790 €)  
**Timeframe :** 01 Jan. 2008 - 30 Nov. 2011  
**Coordinator :** Centro Ricerche Fiat

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Institut  
Zuverlässigkeit und  
Mikrointegration



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# Overall objective

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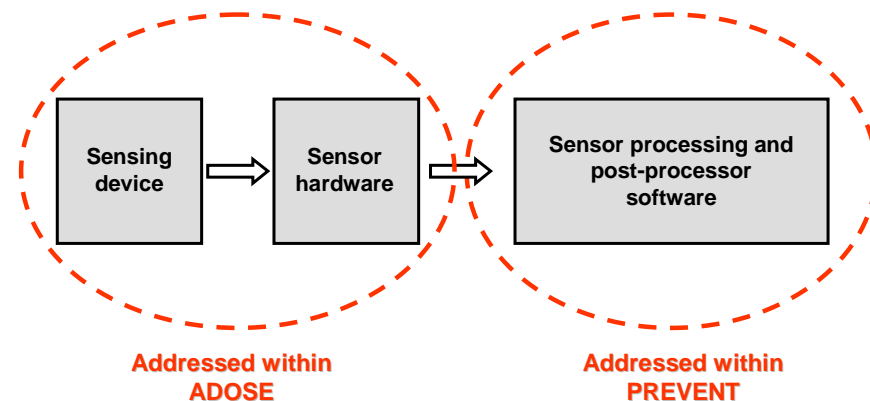


ADOSE addresses **functional, performance and cost limits of current sensors and Advanced Driver Assistance Systems** for their extensive market penetration.

The aim is the **enhancement of safety functions** through the **development of high performance and low cost sensing technologies** suitable for reliable detection and classification of obstacles and vulnerable road users.

ADOSE is a **product driven project** with the development and integration of smart systems and technologies.

It is a **complementary project to PREVENT**, being focused mainly on the sensing devices and the sensor hardware.



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## Specific objectives

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ADOSE addresses five **breakthrough sensing technologies**, with the goal to improve the current state-of-the-art in terms of costs, performance and reliability :

- ❖ **FIR-add-on sensor with sufficiently good thermal & spatial resolution at lower cost (FIR)**
  - ❖ **Low-cost multi-functional and multi-spectral CMOS vision sensor (MFOS)**
  - ❖ **High spatial resolution and low-cost 3D range camera (3DCAM)**
  - ❖ **Harmonic radar and passive/active tags (HR-PTAG and HR-ATAG)**
  - ❖ **High temporal resolution and low-cost silicon retina stereo sensor (SRS)**
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## Specific objectives

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Only **'technology-dependent' pre-processing algorithms** will be developed :

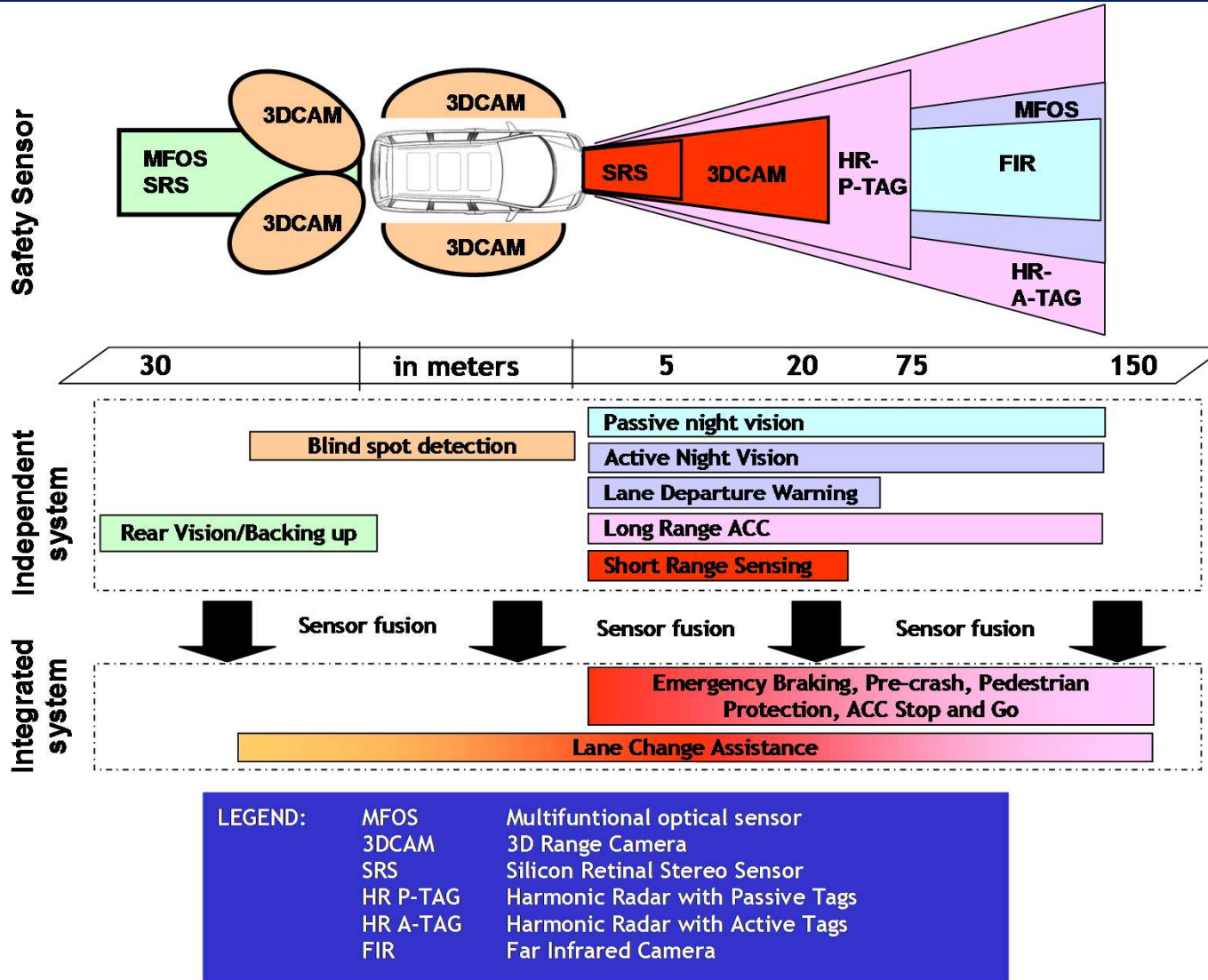
- ❖ **algorithms implemented into the sensor hardware;**
- ❖ **algorithms on raw data**, coming from the sensor hardware, implemented on a PC-based processing hardware, strictly related to the sensing technology and its demonstration.

**PROFUSION guidelines** (PREVENT) will be followed but algorithm developments will not be extended to Sensor Data Fusion.

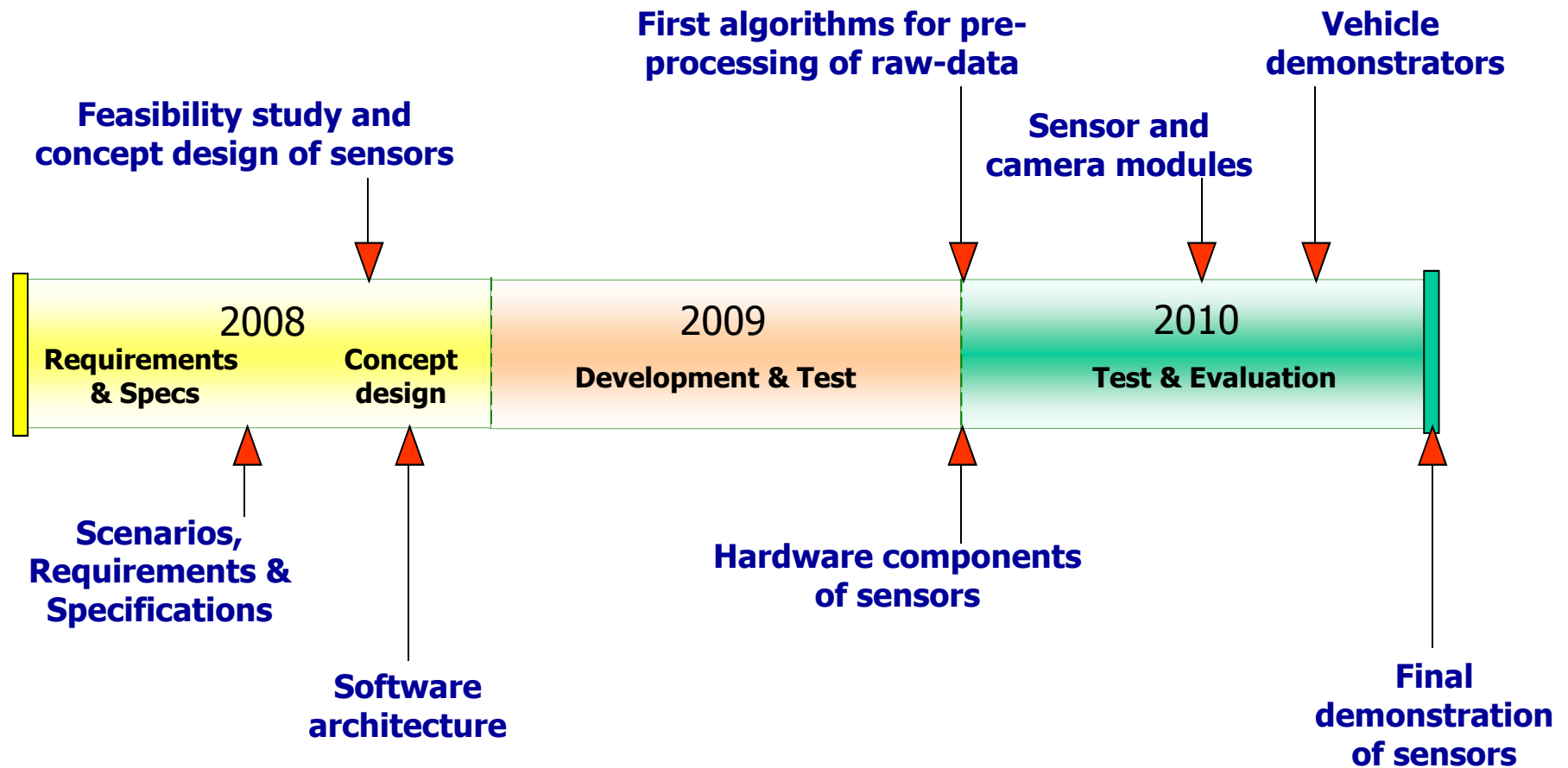
Demonstration will be limited to **functional sensor prototypes installed on the concept cars** without integrating the complete safety system.

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# Potential application scenarios



# Main Milestones plan



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# Major achievements

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- ❖ **Five sensor module prototypes:**
  - FIR camera (FIR)
  - Multifunctional CMOS vision sensor (MFOS)
  - 3D range camera and eye-safety illuminator (3DCAM)
  - Harmonic radar with passive and active tags (HR P-TAG, HR A-TAG)
  - Silicon retina stereo sensor (SRS)
  
- ❖ **Pre-processing algorithms ('technology dependent')** for each sensor, compliant to PReVENT-PROFUSION guidelines
  
- ❖ **Two demonstrator vehicles:**
  - CRF vehicle: MFOS sensor, FIR and 3DCAM cameras
  - ARC vehicle: SRS sensor and harmonic radar
  
- ❖ **Updated product specifications and cost/benefit analysis**

