

Vision and IR Sensor Systems and Proximity Sensors for Driving Assistance in Automobiles

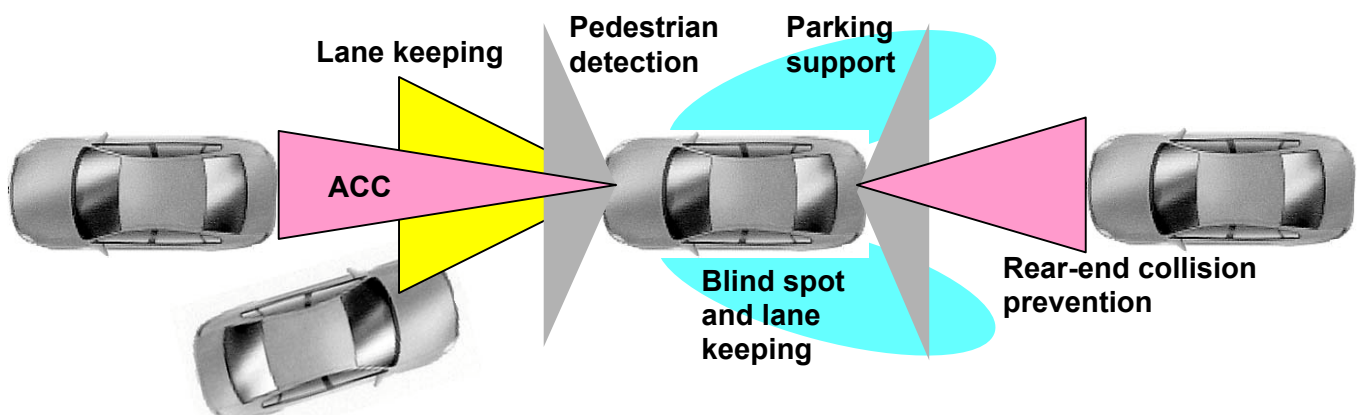
Road traffic is the principal means of commercial and private transport. The traffic density continues to grow even in countries, which have competing traffic infrastructures such as railroads. The drivers are increasingly stressed under heavy traffic conditions. Forward, sidewise and rearward "looking" sensors provide information, which assist the driver in recognizing the surrounding traffic and an eventual dangerous situation.

The automobile becomes increasingly a platform of sensors and associated devices assisting the motorist in driving. This report describes the various sensor systems, which compete with each other in providing the most suitable information. In particular the following systems are examined:

- adaptive cruise control (ACC), long range RADAR competing with LIDAR
- lane changing control, short range RADAR compared with LIDAR and video
- night and fog vision, IR cameras competing with RADAR
- lane keeping, LIDAR competing with video
- road course prediction, GPS (also Galileo after 2008) and conformal imaging
- automatic driving, is the ultimate, long term objective

The price tag to be added to the one of the automobile varies between 1000 to 10,000 € depending on the systems installed. This seems to be high but is comparable to the annual accident costs per car in Europe which amounts to about 9000 €. The objective of European legislators is to half above cost to the society and individuals by sensors systems assisting drivers and other measures.

In using these driving assistance systems the driver is subjected to an increased information flow, which may ultimately overload the mental capacity of a non-professional driver. Eventually these developments will lead to automatic driving as a very long-term objective.



More information and the Table of Content of this useful 100 page report can be obtained from **sgt Sensor Consulting Dr. Guido Tschulena**, who has written the report together with Felix Trojer from Netlab GmbH in Düsseldorf. Tel: + 49 6081 56 168, Fax: + 49 6081 57 222, Mail: info@tschulena.de

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Table of content

	EXECUTIVE SUMMARY
1.	Automotive safety- reasons for driver assistance systems
1.2	Safety related technologies
1.3	Legislative motivation for safety and driving assistance
2.	PASSIVE SAFETY SYSTEMS
2.1	Pedestrian protection
3.	ACTIVE SYSTEMS
3.1	Need of pre-crash sensing
3.2	Short range RADAR
3.3	Scanning laser
3.4	Video Surveillance
3.5	Ultrasonic sensors
4.	DRIVING ASSISTANCE SYSTEMS
4.1	Adaptive cruise control
4.2	Lane changing control
4.3	Lane keeping
4.4	Road course prediction
4.5	Automatic driving
5	NIGHT-FOG VISION
5.1	Natural radiation and atmospheric conditions favor IR vision systems
5.2	Night vision originates with military
5.3	Night vision systems for automotive applications
5.4	Active night vision systems
5.5.1	Illumination
5.5.2	Charge coupled devices (CCD) IR cameras
5.5.3	Complementary metal oxide semiconductor (CMOS) IR cameras
5.6	Passive night vision systems
5.6.1	Ferro-electric image sensors
5.6.2	All Si-micromachined bolometers
5.6.3	Micro-cantilever IR image sensors
5.6.4	Thermopiles
5.6.5	Micro-resistance bridge array
5.6.6	Silicon on insulator (SOI) image sensor
5.7	Scanning systems
6.	Comparison of IR imaging systems
7.	Cost determining factors
8.	Trends, Market forecasts and Strategic choice
8.1	Mega-trends
8.2	Technical trends
8.3	Market forecasts
8.4	Strategic choice
9.	CENTERS OF TECHNOLOGICAL EXCELLENCE
10.	LEADING EUROPEAN COMPANIES
10.1	Examples of automotive suppliers
10.2	Small companies with attractive technologies
11.	EUROPEAN R & D PROGRAMS
12.	Procedure of investigation

Total about 120 pages

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sgt Sensor Consulting Dr. Guido Tschulena
Reichenberger Str. 5
D- 61273 Wehrheim, Germany
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