Driver Assistance Systems (DAS) 
Intelligent Accident Prevention in Road Traffic

«ICT and Road Safety»
WISS Forum 2011-05-19, Geneva

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Definition

Driver Assistance Systems (DAS) are extra electronic features in motor vehicles.

DAS support the driver in certain driving situations. Often considerable safety advantages exist. DAS are a very effective form of accident prevention.

With DAS, 50% of serious road traffic accidents could be avoided.

Worldwide there are 1.3 million road traffic fatalities per year.
Driver Assistance Systems

Input: Sensor  
Processing: ECU  
Output: Information, Warning, Intervention
Handling in Emergency Situations

Anti-Blocking System ABS
Handling in Emergency Situations

Brake Assistant Systems

BAS (Brake Assistant System)
Linear Flow Controls

Collision Warning Systems
FCW (Forward Collision Warning)

Collision Avoidance Systems
ACA (Advanced Collision Avoidance)
CMS (Collision Mitigation System)
Handling in Emergency Situations

Electronic Stability Controls

ESC (Electronic Stability Control)
Linear Flow Controls

Speed Assistance
ISA (Intelligent Speed Assistance)

Active Gas Pedal
Linear Flow Controls

Distance Controls

ACC (Adaptive Cruise Control)
Lateral Controls

Lane Departure Warning
LDW (Lane Departure Warning)

Lane Keeping Support
LKS (Lane Keeping Support)
Monitoring

Drowsiness Detection
Driver Alertness System

Alcohol Interlocks
Alcolock (Alcohol Ignition Interlock)
Cooperative Systems
Campaigning

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Marke: Bitte Wählen
Modell:
Typ:

Jetzt zeigen >
Wie intelligent ist Ihr Auto?

Überprüfen Sie hier die Fahrer-Assistenz-Systeme

Wählen Sie ein Fahrzeug aus:

<table>
<thead>
<tr>
<th>Marke</th>
<th>TATA</th>
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<tbody>
<tr>
<td>Modell</td>
<td>INDICA</td>
</tr>
<tr>
<td>Typ</td>
<td>Indica 1.4 (1406)</td>
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</table>

TATA Indica 1.4 - Lim/5

Treibstoff: diesel
Hubraum: 1405 ccm
PS: 49

Sicherheits-Austattung und Relevanz

Das ausgewählte Fahrzeug verfügt über keine offiziell registrierten Fahrer-Assistenz-Systeme
But there are also terrible ones...
Thank you!
Some more Charts ...
Emotions play a central role in buying a car

Safety is a feature with little appeal

The subjective employment of DAS is modest as one usually assesses one’s own accident risk as low

European car drivers are sceptical of DAS that intervene in driver autonomy

Car drivers are inadequately informed about DAS and see little personal need

DAS are not products that are spontaneously and casually purchased

Readiness to buy and pay increases when the buyer has personal experience of DAS

Optional DAS that are available to buyers are not adequately and actively advertised in the marketplace

Selling and advertising strategies of the car industry inadequately address the lack of information and the lack of subjective need recognition.
## Causes of Accidents

<table>
<thead>
<tr>
<th>Area of Error</th>
<th>Steps in Process</th>
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<tbody>
<tr>
<td>Perception</td>
<td>Access to information</td>
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<td></td>
<td>Uptake of information</td>
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<tr>
<td>Decision</td>
<td>Processing of information</td>
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<td>Goal-setting</td>
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<tr>
<td>Action</td>
<td>Handling</td>
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*Guido Furer*  
*Quelle: AARU, 2009*
System Groups

- Handling in emergency situations
- Linear flow controls
- Lateral controls
- Monitoring
- Vision optimisation
- Recognisability
- Future (cooperative) systems
Lateral Controls

Lane Change Assistance

LCA (Lane Change Assistance)
BSD (Blind Spot Detection)
Monitoring

Accident Data Recorder
ADR (Accident Data Recorder)
EDR (Event Data Recorder)

Journey Data Recorder
JDR (Journey Data Recorder)
Longitudinal Adaptive Light Assistance

Adaptive Frontlichtsysteme AFS  Adaptive High Beam Assistance

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Lateral Light Control

Static curve / turning headlights

Dynamic curve headlights
Night Vision Devices

NIR
- Active
- Infra-red light source
- 150 meters

FIR
- Passive
- Thermal radiation
- 300 meters
Recognisability

Adaptive Brake Lights