

# Global market review of driver assistance systems – forecasts to 2013

2007 edition



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By Matthew Beecham

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Seneca House  
Buntsford Park Road  
Bromsgrove  
Worcestershire  
B60 3DX  
United Kingdom

Tel: +44 (0)1527 573 600

Fax: +44 (0)1527 577 423

Web: [www.just-auto.com](http://www.just-auto.com)

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### Holly Nash

Research manager, just-auto.com

Tel: +44 (0)1527 573 609

Email: holly.nash@just-auto.com

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# Preface

## Research methodology

This report is intended to provide an overview of the vehicle driver assistance systems industry, providing top-level market fitment, volume and value forecasts through 2013. Our forecasts are not extrapolative but dependent on the underlying drivers of supply and demand. Our forecasts are largely based on interviews with the author's extensive international network of industry contacts. This allows us to consider and explain the meaning and implications of industry events, rather than offer simple description based on incomplete data.

Our approach is divided into two distinct methodologies:

- qualitative interviews – these are generally opinion-based, which aim to build knowledge about future driver assistance market trends and company strategies; and
- quantitative interviews – typically fact-based, focused on establishing market values, shares, and volumes.

## Report coverage

In this, the third edition of this report, just-auto reviews the key market drivers for driver assistance systems, and updates the market analysis. Following our market overview in Chapter 1, just-auto's product fitment forecasts in Chapter 2 predict in some detail how the driver assistance market will evolve mainly in Europe and Japan from 2003 through to 2013. Chapter 3 provides an updated review of new product developments.

## The author

Since 2000, Matthew Beecham has served as an associate editor for just-auto. He authors a range of global auto components' market research reviews, including batteries, braking systems, coatings, clutches, cockpits, driver assistance systems, door modules, electric motors, engine cooling systems, exhaust systems, front-end modules, fuel injection, fuel tanks, glass, interiors, lighting, mirrors, roof systems, shock absorbers, spark plugs, rotating electrics, tyre pressure monitoring systems, tyres, wheels and wipers. Matthew has also



written a number of features for magazines including *Car Graphic* (Japan), *JAMA* (Japan) and *Automotive Engineer* (UK). He earned his PhD in automotive technology transfer at Cranfield University.

# Chapter 1 Introduction

Research has shown that driver error is one of the most common causes of traffic accidents. Driver assistance technologies provide a helping hand in times of trouble. Electronic driver assistance systems are increasingly being incorporated in cars across the board, from luxury vehicles to small city cars. Many of these systems are being fitted as standard equipment. The impact of these technologies is helping to avoid accidents and take the stress and strain out of driving.

In this report, we consider Adaptive Cruise Control, lane change assistance, parking assistance systems, collision warnings and night vision systems. Vehicles equipped with these driver assistance system features could detect potential accident situations, provide warnings or automatically engage a vehicle's brakes to maintain a pre-set distance between vehicles.

## Chapter 2 The market

### Defining the technology

Driver assistance systems – either on the road or still on the drawing board – divide into three distinct categories:

- **Collision-warning systems** – this is the original term for forward and side radar systems which simply alert the driver but do not control engine speed. Driver support systems without active intervention can be viewed as a pre-stage to vehicle guidance. They only warn the driver or suggest a driving manoeuvre.
- **Collision-mitigation systems** – in addition to sending out a warning to the driver (either through audio, visual or vibrating the steering wheel), these systems aim to assess the danger ahead and activate various active safety features, such as pretensioning the seatbelts.
- **Collision-avoidance systems** – using these systems mean that some degree of control is taken over from the driver if he doesn't react in time to avoid a crash. Although there are some technologies available today that fit inside this group.

In defining driver assistance technologies, an auto executive told us: *“We prefer to talk about collision mitigation rather than collision avoidance. That’s because we can’t see accident free traffic happening for some time. In the meantime we will look for everything to help to avoid accidents but we know that we will not be 100% successful. So what we see in the near future is driver assistance, ie systems that support the driver in his or her tasks, relieving them of the mundane activities. It also helps in critical driving situations. When we started developing driver assistance systems, they were perceived as comfort and convenience systems. But now it has changed a little bit in the direction of safety. That means that the driver feels that he or she has a safety technology when buying a driver assistance system. And we see that trend increasing in the future.”*

While all of these driver assistance systems – from collision warning through avoidance – is feasible either now or at some point through this decade, there are significant problems in software control, not least in how to make the various systems work together to form a true protection zone around the

## Chapter 3 Technical review

### Good vibrations

Vibrating the hands, bottoms, and feet of car drivers could cut accidents by xx%, according to research at the UK's Oxford University. Researchers predict that such vibrating warning devices, pioneered by Citroën in the C4 and C5 models, could be commonplace by xxxx. For example, the Citroën C4 is the first car to offer vibrating panels to warn the driver of a hazard. The optional system detects when the car is wandering across lanes and vibrates the side of the driver's back that matches the direction of the drift. This alerts the driver to the lack of control, but without the sudden burst of noise of a conventional warning that might cause the driver to overreact and steer suddenly in the other direction. Citroën has also clearly separated the warning lights from the regular lights on the dashboard. Normally, all warning lights are in the same place in the instrument panel. But in the C4, the lights for routine functions, such as indicators, full beam and so on, are in one place on the dashboard and the warning lights for hazards are in a separate place. This means that the driver knows that if any light comes on in the second area, it must be a hazard that requires an immediate response.

The university researchers also believe that "earcons" – directed audible warnings that will call a driver's attention to the direction of an approaching hazard – will be a common feature in cars within a few years. Up to half of car accidents are caused by a lack of attention, be it to speed, road conditions or other hazards. The research carried out by Oxford University revealed that drivers can quickly suffer from an information overload as they try to react to warning signals while trying to establish a way to avoid an accident. The research programme has shown that alternative methods of providing warning signals are required and that these need to be graduated and directional, so that the level of warning is commensurate with the hazard. The warning signal – whatever it is – will also indicate the direction from which the hazard is approaching, the source of the problem and means of overcoming it. The study has looked at providing drivers with warning signals by placing vibrating panels in the seats, seatbelts, pedals and steering wheel, along with devices that produce audible warnings in different places around the car. This would mean that if a hazard was approaching, for example, towards the rear of the car, that is where the warning sound would come from. Or if a problem could be solved