

NOVUS GLASS

Repair & Replacement

ADAS Technology

A Clear View of the Future





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Introduction

What are Advanced Driver Assistance Systems?

Advanced Driver Assistance Systems (ADAS) are here to make drivers safer. While the acronym and the public awareness of ADAS may be new, many of these systems have existed for more than a decade and are becoming increasingly common. ADAS, when operating properly, have the potential to decrease the number of fatal accidents now, and at a higher rate in the coming years.

As many of these systems are controlled by a camera looking through the upper portion of your windshield, the spread of ADAS makes it even more important that you know your auto glass needs are being handled by experienced, trained, and certified professionals—in other words, NOVUS professionals.

ADAS – Key Terms & Functions



ADAS Affected by a Camera Mounted Behind the Windscreen:

Collision Detection Warning (CDW) and Collision Avoidance System (CAS) – Combining several different systems, the vehicle uses cameras behind the windscreen and radar-type systems to identify when the vehicle is in danger of colliding with another vehicle, a pedestrian, or another obstacle in the roadway. Some vehicles simply give a warning in these situations, while others will apply brakes and/or steer to avoid the collision. Sometimes known as Forward Collision Warning/Avoidance.

Cross-Traffic Alert (CTA) – Cameras mounted behind the windscreen notify the driver when traffic is coming from the side toward the vehicle. Particularly useful in parking lots.

Intelligent Parking Assist System (IPAS) – These systems are designed to assist with parking the vehicle. In some cases, the system can park the car on its own.

Lane Departure Warning (LDW) and Lane Keep Assist (LKA) – These systems use a camera mounted behind your windscreen to recognize lane markings to warn the driver when they are drifting out of a lane or in some cases to steer the vehicle back into the center of the lane.

Traffic Jam Assist (TJA) – Integrating automatic braking, adaptive cruise control, and steering, this system can take control of the vehicle at low speeds in high traffic.

Traffic Sign Recognition (TSR) – Using the camera mounted behind the windscreen, this system can identify traffic signs to warn the driver or to react to them in semi-autonomous driving.

Other ADAS (often radar controlled):

Adaptive Cruise Control (ACC) – Cruise control that automatically adjusts to maintain a safe distance from the vehicle in front of you.

Automatic Emergency Braking (AEB) – When collisions are imminent, this system can apply the brakes without input from the driver.

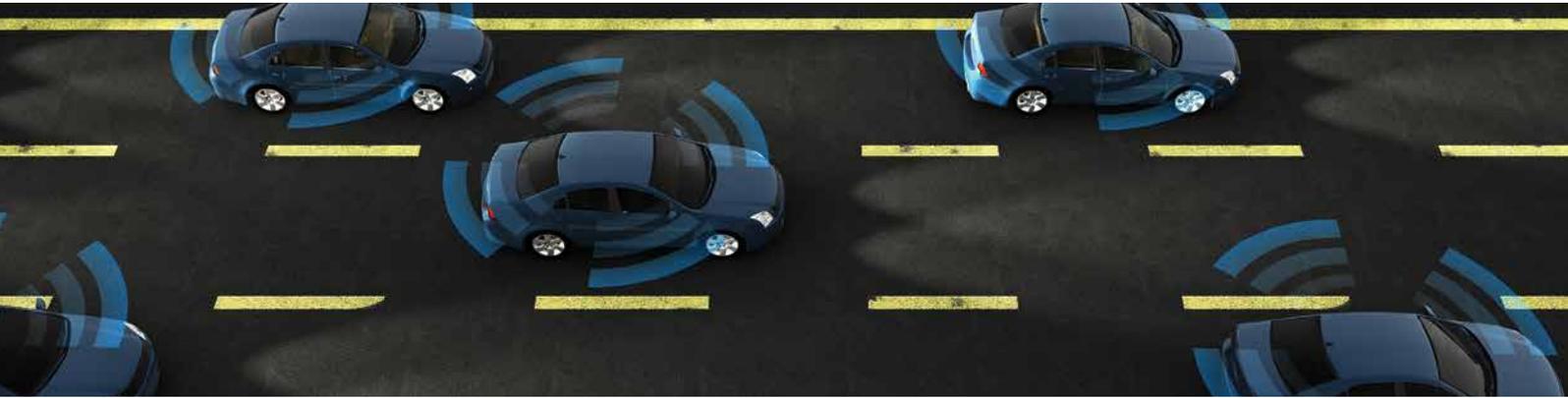
Blind Spot Monitoring (BSM) – Using a radar-type system, drivers will receive a warning when another vehicle enters their blind spots.

Rear View Camera (RVC) – A camera mounted in the rear of the vehicle to identify obstacles behind the vehicle.

The Future of ADAS

As ADAS evolve rapidly, regulations concerning them are changing just as rapidly. Australian laws will continue to evolve in relation to ADAS and NOVUS® Auto Glass wants to remain at the forefront of ADAS Technology and Services.

Make no mistake, the path toward more advanced and integrated ADAS is the path toward Self-Driving Vehicles.



The National Highway Traffic Safety Administration (NHTSA) in North America has categorised automation in vehicles at five levels:

- **Level 0 (No-Automation):** The driver is in complete and sole control of the primary vehicle controls – brake, steering, throttle, and motive power – at all times.
- **Level 1 (Function-specific Automation):** Automation involves one or more specific control functions. e.g., cruise control, automatic braking, and lane keeping.
- **Level 2 (Combined Function Automation):** Automation of at least two primary control functions designed to work in unison to relieve the driver of control of those functions. e.g., adaptive cruise control and lane centering.
- **Level 3 (Limited Self-Driving Automation):** Vehicles enable the driver to cede full control of all safety-critical functions under certain traffic or environmental conditions. The Google car is an example of limited self-driving automation.
- **Level 4 (Full Self-Driving Automation):** The vehicle is designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip. This includes both occupied and unoccupied vehicles.

Automation at levels 1 and 2 are quite common on roadways today. Levels 3 and 4 are the future goal, with companies like Honda claiming they will have Self-Driving Vehicles by the year 2020.

One of the keys to reach this goal is Vehicle-to-Vehicle (V2V) Communication. The ability of vehicles to exchange information about road and traffic conditions, in addition to broadcasting their road position and intended direction changes a fraction of a second in advance, makes the roads safer for everyone.

Integration of all ADAS, V2V, and infrastructure improvement will lead to level 4 automation in the near future. Self-Driving cars will enable autonomous public transportation, autonomous freight fleets, and autonomous fleets of cars for hire, completely changing the transportation, shipping, insurance, and automotive safety landscapes.

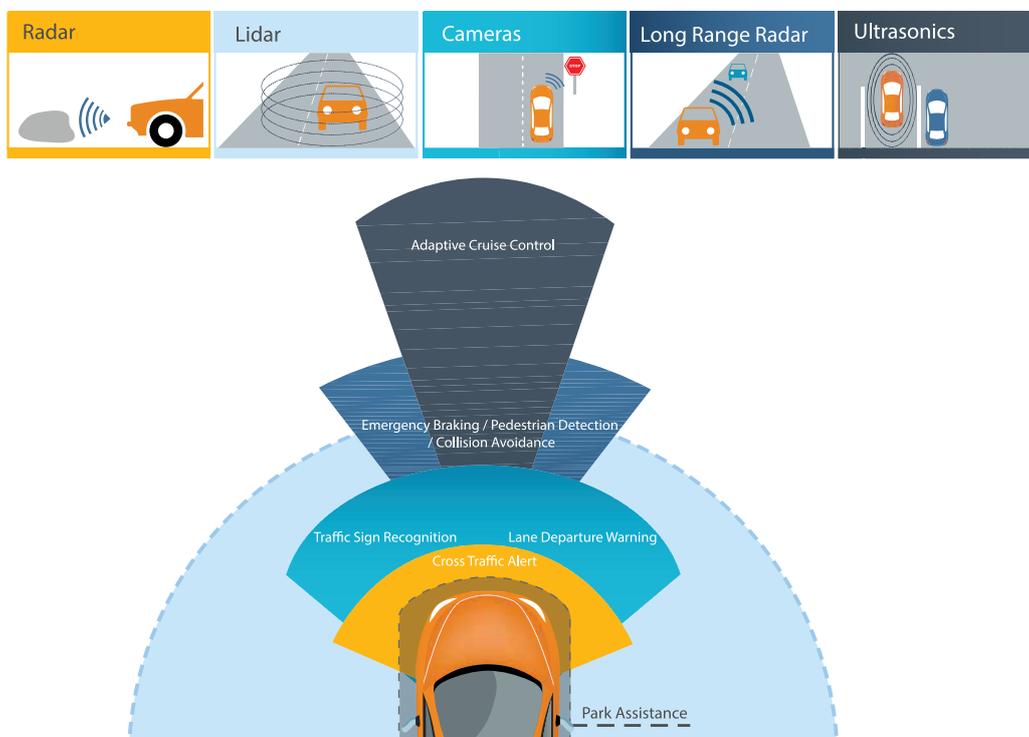
The Impact of NOVUS on ADAS

As noted on page 3, many of the current ADAS features and future vehicle automation will rely upon forward-facing cameras mounted behind the windshield, often integrated with the rearview mirror. When a windshield is replaced, the camera's angle of view is almost always changed as it is transferred to the new windshield. This requires a recalibration of the ADAS features to be sure they are working as intended. Imagine a camera looking off center that was intended to identify lane markers to keep your vehicle centered in the lane. The vehicle could very easily attempt to keep your vehicle 2 feet over the center line.

NOVUS repair limits expensive recalibration. \$130 to \$800 could be added onto the cost of your windshield replacement to recalibrate the ADAS associated cameras. NOVUS regularly saves customers the cost of the replacement AND the recalibration by repairing damages that no other auto glass company will attempt. NOVUS can repair rock chips of most sizes and cracks up to 18 inches long. Doing this repair work does not move the windshield or break the original factory bond, so the camera does not move and recalibration is not required. Some NOVUS shops repair up to 75% of the damages they inspect.

NOVUS can repair damages directly in front of ADAS cameras. Thanks to the windshield repair resins developed by NOVUS' chemists specifically for use on ADAS equipped windshields, NOVUS can repair what no one else can. When a chip damage occurs directly in front of the camera controlling your ADAS systems, the systems will very commonly fault. Having that chip repaired by a NOVUS professional, using NOVUS' specially formulated ADAS Resin, will structurally repair the windshield and allow the camera to see what it needs to see to keep you safe.

When replacement is necessary, NOVUS replaces and recalibrates. Some windshields cannot be repaired. When that is the case, it is important to know that the technician working on your vehicle is trained and certified, that the glass and materials used are of the highest quality, and that the recalibration will be done correctly. With NOVUS, you can be sure that your vehicle and glass are in the safest hands.





Choose NOVUS.

You Can't Beat a True Original

As the innovator of windshield repair, we have successfully repaired over 40 million windshields worldwide. Through our state-of-the-art technology, methods, and materials, we lead the industry in repairing the most types of breaks in just a fraction of an hour. We were the first and continue to be the best option.

Our Pros Never Stop Learning

Not only is our training the most rigorous, because we offer the highest degree of technology and most extensive service offerings, our drive for innovation never ends. That means more patents, both improving our current methods whenever possible and discovering new solutions.

Have Other Repair Shops Turned You Down?

Experience, training, and access to proprietary methods all determine the range of breaks a windshield repair pro can handle. We tackle the traditional breaks like stars and bull's-eyes, but remain versatile enough to diagnose and treat complex cracks that defy categorization. This means less money spent, a quicker repair time, and the prevention of more costly replacements that can compromise Advanced Driver Assistance Systems.

Learn more about how NOVUS can solve your auto glass service needs.

▶ Visit www.novusautoglass.com.au

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