



Do You Know?

Top Ten Most Significant Vehicle Devices That Have Improved Road Safety

Vehicle safety technology has advanced significantly over the years, contributing to a marked reduction in road traffic fatalities and injuries and making modern cars far safer than those of previous generations. Here are 10 of the most significant vehicle devices with the greatest impact on improving road safety:

1. Seat belts

Significance: the most effective safety device ever introduced; restrains occupants during a crash, preventing them from being ejected from the vehicle or colliding with the interior; seat belts have saved millions of lives since their widespread adoption



2. Airbags

Significance: provide a cushion that protects occupants' heads and torsos during a collision, reducing the risk of serious injuries; modern vehicles are equipped with multiple airbags, including front, side, and curtain airbags, significantly enhancing occupant safety

3. Anti-lock Braking System (ABS)

Significance: prevents the wheels from locking during heavy braking, maintaining steering control and reducing the likelihood of skidding; ABS is particularly effective on slippery surfaces and in emergency braking situations



4. Electronic Stability Control (ESC)

Significance: helps prevent vehicles from skidding or losing control during sharp turns or sudden maneuvers; automatically applies brakes to individual wheels and reduces engine power to keep the vehicle stable, greatly reducing the risk of rollovers and severe crashes

5. Crumple Zones

Significance: designed areas of a vehicle that deform and absorb energy during a crash; by crumpling in a controlled manner, these zones reduce the force transmitted to the occupants, thereby lowering the risk of serious injury or death

6. Collision Avoidance Systems

Significance: includes automatic emergency braking (AEB) and forward collision warning (FCW); uses sensors to detect potential collisions and either alert the driver or automatically apply the brakes to avoid or mitigate the impact

7. Lane Departure Warning and Lane Keeping Assist

Significance: alerts drivers if they unintentionally drift out of their lane and can automatically steer the vehicle back



into the correct lane; crucial in preventing crashes caused by drowsy or distracted driving

8. Rearview and Surround-view Cameras

Significance: provide a clear view of what's behind the vehicle when reversing, significantly reducing the risk of backover crashes; surround-view cameras offer a 360-degree view around the vehicle, enhancing safety in tight spaces and during parking

9. Adaptive Cruise Control

Significance: maintains a set speed and distance from the vehicle ahead, automatically adjusting the speed to match traffic conditions; reduces the risk of rear-end collisions, particularly in highway driving; current standard cruise control requires drivers to adjust speed manually

10. Tire Pressure Monitoring System (TPMS)

Significance: alerts drivers when a tire is significantly underinflated, helping to prevent crashes caused by tire blowouts or poor vehicle handling due to incorrect tire pressure

Source: Information prepared by ASIRT Advisory Board Member Richard Finch