

Alert Today–alive Tomorrow

Akshay Deshpande

IV Sem B.E, SDM College of Engineering and Technology Dharwad.

1. Introduction

According to the World Health Organization, India and other countries in Asia will witness a staggering 65% increase in vehicle population by 2020. While India is home to just 1% of the global vehicle population, the country accounts for 10% of road accidents worldwide - a telling statistic on the vehicle safety quotient. Over 33% of all vehicular accidents occur at night while only 20% of all vehicular traffic travels after nightfall. What's more, traffic death rates are three times greater at night than during the day.

2. Why vehicle safety?

While India is home to just 1% of the global vehicle population, the country accounts for 10% of road accidents worldwide. Major portion of these vehicular accidents, especially the fatal ones, occur at night.

3. Major factors that affect vehicle safety

During nights, the visibility of vehicular body is poor and hence information/cues available for the human eye are minimal. Poor visibility of vehicles during night is one of the major causes for vehicular collisions/accidents during nights. As such, good night time visibility is critical to ensuring vehicle safety.

4. Importance and Advancement of Vehicle Safety

Vehicle safety has a great importance in today's world. With a number of changes in this mode of transport, the safety of the people and the vehicle is the primary objective. The seat belts are the most common safety equipment provided in the cars. Also, it is the most ignored product in a car and is least used by the drivers. So, with this dilemma, the seat belts that can automatically secure the drivers after ignition are introduced. This invention made the usage of the product mandatory very easily

without any interference of the law. The source of contact between a car and the surface of the road is the wheels of the car. The safety of the car can be ensured by looking at its tyres. So, the car safety information suggests the proper maintenance of air pressure in the tires for smooth running of the vehicle. The proper balance between the wheels should also be checked regularly that is related to the steering and brake control.

For the safety of the infants inside the car, there are different kinds of seats available such as booster seat, rear-facing seats, infant only seats and convertible seats. The seats need to be placed at the proper angle in order to provide comfort to the infants. The best alternative is to have a certified child passenger safety (CPS) technician who can do the job with finesse. Today, the cars available in the market greatly encourage the car safety information. They introduce the latest technology and aim at the safety of the passengers. The manufacturers understand the causes of road accidents well and design the product according to the needs and demand. The central lock, power window, front and side air bags, high power engine and car safety harness are some of the facilities available in the cars that make them safer and more secure.

The strong and robust material used in the construction of this vehicle enables the car to sustain big accidents and save the driver and passengers. Also, there are special facilities available for pets and children that provide them comfort in case of a long journey. The car safety information recommends the buyer and owners to know all the safety features of their cars. Various verifications such as crash test and rollover rating tests are also available for many vehicles. This helps the people in making a comparison of the cars with many other cars available and enables them to select the best.

The all-wheel drive (AWD) cars and four wheel drive (4WD) cars are also available in the market. This technology helps in moving the car in slippery and uneven surfaces by increasing the friction. It makes the car stick to the ground even on the snow covered roads and guarantees safety while cornering. The car safety is indeed an important factor that helps in making a journey safer and happier.

Some of the common vehicle safety features are as follows:

4.1 Head Injury Protection

Head injury protection consists of foam or other energy absorbing material under the trim of the vehicle interior and is likely to be invisible to vehicle occupants. Some vehicles have head air bags. While all head air bags are designed to deploy in side impacts, some are also designed to deploy during rollovers. Both types of air bags are designed to help protect occupants from injuries caused when their head strikes the upper interior of a vehicle.

4.2 Head Restraints

Head restraints are extensions of the vehicle's seats that limit head movement during a rear-impact crash, thus, reducing the probability of neck injury. Head restraints meeting specific size and strength requirements are required in front seats, but not in

rear seats. While you must adjust most head restraints manually, some adjust automatically with changes in seat position or dynamically in a crash. In general, dynamic head restraints provide the best protection.

4.3 Traction Control

Traction control systems improve vehicle stability by controlling the amount the drive wheels can slip when you apply excess power. The system automatically adjusts the engine power output and, in some systems, applies braking force to selected wheels during acceleration. Traction control is mainly found in vehicles with four-wheel antilock brake systems.

4.4 All-Wheel Drive

All-wheel drive distributes power to both front and rear wheels to maximize traction. Unless combined with traction control, all-wheel drive systems do not prevent the drive wheels from slipping when you apply excess power during acceleration.

4.5 Electronic Stability Control

Electronic stability control (which is offered under various trade names) is designed to assist drivers in maintaining control of their vehicles during extreme steering maneuvers. Electronic stability control senses when a vehicle is starting to spin out (oversteer) or plow out (understeer), and it automatically applies the brake to a single wheel. It is intended to reduce the occurrence of crashes in which vehicles veer off the road and strike curbs, soft shoulders, guard rails and other objects that initiate rollovers. However, it can't keep a vehicle on the road if its speed is simply too great for the curve and the available traction.

4.6 Weight

Crash data show that heavy vehicles offer more protection than light vehicles with the same safety equipment, particularly in two-vehicle crashes.

4.7 Today's "cutting edge" is tomorrow's "commonplace."

The technology is advancing with each rotation of earth and the safety measures are increasing as well. There are a number of facilities provided in the cars today that reflects the advancement in technology and ensures a safe drive to the driver and passengers. So some of the cutting edge features of today's cars are:

4.8 Blind Spot Detection Systems

Blind Spot Detection Systems are usually markers on side and rear-view mirrors to help drivers keep track of nearby motorists in blind spots. For example, when a driver turns on their turn signal light, a sound and/or light will be activated if there is another car in the driver's blind spot. This feature aims to reduce the 450,000 relevant crash cases per year.

4.9 Back-Up Warning Systems

Back-up warning systems are typically cameras/sensors on the back of vehicles that will allow for easier parking and maneuvering to avoid tight space accidents. Because approximately 100 children, aged 1-4, are killed every year in reversal accidents, back-up warning systems attempt to prevent reversing accidents by reducing the effect of a vehicle's rear blind spot for the driver. Usually, failure by the driver to see a vehicle, object or person is the number one cause of reversal accidents.

4.10 Forward Collision Warning with Automatic Braking

There are more occupant deaths that occur in frontal collisions than any other kind, with more than 2 million frontal crashes causing 7000 fatalities per year. Forward Collision Warning systems work by using a radar to detect when a driver is about to collide with another vehicle in front of them. The system will then respond by sounding alarms and/or flashing lights to warn drivers of impending hazards. When a crash is imminent, brakes are automatically applied with progressively more pressure to prevent collision. This system is used along with Emergency Braking Assistance, which ensures that maximum braking power is used in an emergency stop to reduce braking time and distance.

4.11 Lane Departure Warning

When a driver drifts out of a travel lane, either into another lane or off the road, the result can be deadly. Lane changing accidents numbered almost 500,000 per year with more than 10,000 involving deaths. Lane Departure Warning is targeted to keep drivers from drifting out of their lanes. A lane departure warning system is usually mounted on or near the rearview mirror and detects when a driver begins to depart from a travel lane without apparent intent (e.g. when a signal isn't on). The system will then alert the driver by vibrating the steering wheel, emitting an audible and/or visual warning or other means. Some systems are even capable of nudging a vehicle back into the lane.

4.12 Lane centering

Lane centering uses technology already used for Lane Departure Correction systems offered today on several luxury brands. Those systems automatically steer a car back into its lane if it drifts over a lane divider. The lane-centering function operates the steering continuously, rather than intermittently, to center the car between the two lane markers. It can also include algorithms to offset the car slightly if, for example, there's a high concrete wall on one side--a situation in which a human driver would stay further away from that side.

4.13 Adaptive headlights

Headlights don't have to be round any more to accommodate bulbs, so designers have more flexibility on where to put lights. And LEDs, or light-emitting diodes, are letting automakers cram more brightness into smaller spaces. Audi, Mercedes, Acura, Mazda

and others have so called adaptive headlights that swivel in the direction the car is going to help drivers see around corners as they turn.

4.14 Stop-start

One feature will almost be a must-have: A “stop-start” device that shuts off the engine at a stop light and automatically turns it on when the driver releases the brake.

5. Conclusion

There have been many recent advances in vehicle technologies. Some can help you avoid or reduce the severity of a crash. Others provide better protection for occupants in the event of a crash. Remember, even though vehicles may have many new advanced driver assistance systems, you still have to drive safely, pay attention and follow the rules of the road.

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