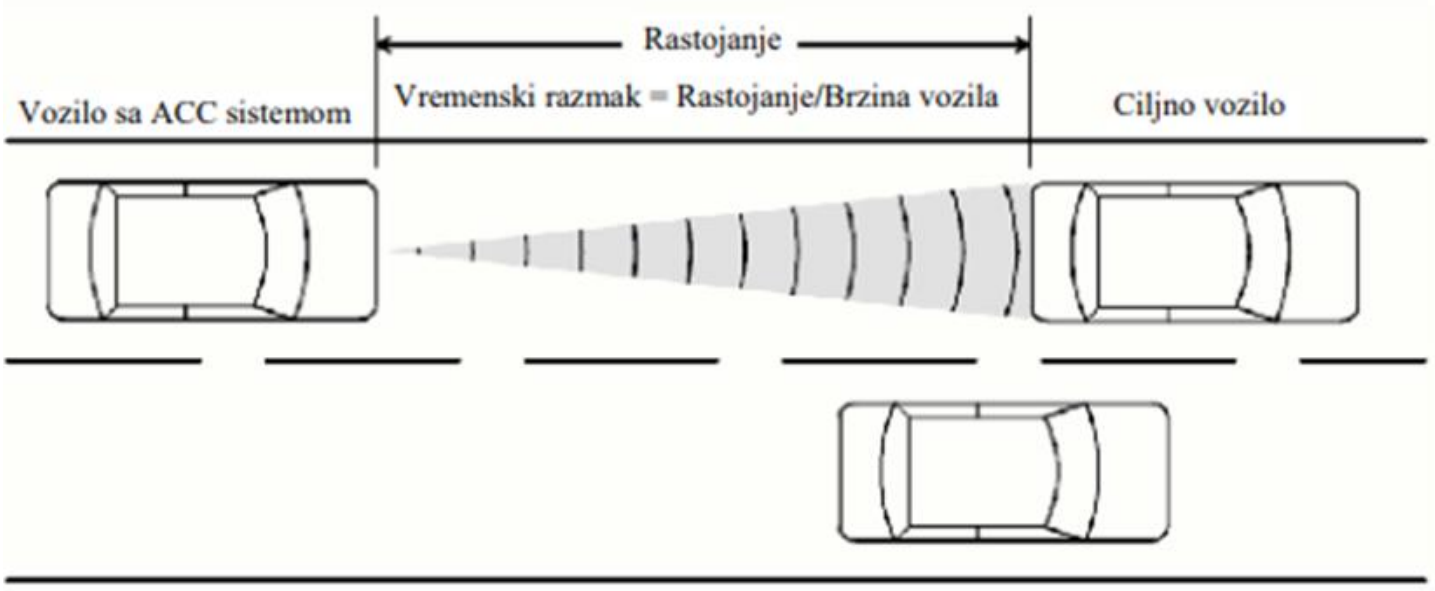
Active safety systems on the vehicle

2.6. ACC – Active Cruise Control

- This system tries to drive "itself". When the driver reaches the desired speed, he activates ACC and the vehicle takes further care of its own speed.
- When a vehicle with ACC encounters an obstacle, i.e. a vehicle in front of it that is traveling at a slower speed, ACC slows the vehicle down to the speed of the vehicle in front and holds it until the driver in front changes lanes, after which ACC accelerates to the speed previously assigned to it.

2.6. ACC – Active Cruise Control

- Regardless of the support of the ACC system, the driver must remain fully alert, regardless of the driving situation. The driver is still fully responsible for the vehicles and must adjust his driving style according to the weather conditions.



2.7. A system for increasing visibility when driving at night

- It works on the principle of distinguishing the ambient temperature from the temperature of people or warm-blooded animals or unlit vehicles on the road. The signals from the camera are processed by computer and transmitted as an image to the display.

2.8. PCW – Predictive Collision Warning

- PCW warns the driver of critical situations in advance, so that he/she can react earlier and thus in many cases avoid a collision altogether.
- The PCW can alert the driver with visible or acoustic signals or by briefly tightening the seat belt.
- In other words, PCW not only contributes in many cases of accident prevention, it also significantly reduces the severity of an accident that should be unavoidable.

2.9. PBA – Predictive Brake Assist

- PBA detects a situation that could be dangerous enough to develop into an accident, in which it is more than likely that there will be a need for sudden braking. If such a dangerous situation occurs, the PBA prepares the braking system in advance for braking.
- As soon as the driver reacts and applies the brakes, the full braking effect becomes available a millisecond earlier thanks to the measures already triggered in advance.

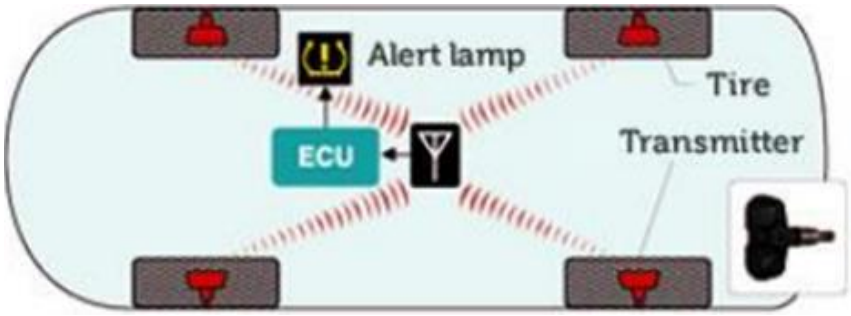
2. Active safety systems on the vehicle

PCW sistem

PBA sistem

2.10. TMP – Tyre Pressure Monitoring System

- The system consists of air pressure transmitters in the tires and depending on the construction of the system, these transmitters can be an integral part of the rim or tire. An integral part of the system is the compressor unit and the compressed air distribution system through which, depending on the need, the pressure in the tires is increased or decrease.



2.10. TMP – Tire Pressure Monitoring System

- This system can be separate, so the operator-driver can monitor the tire pressure himself and, depending on the need, correct it. With a centralized system, the operator sets initial parameters (e.g. the type of surface on which the vehicle moves), and the system then automatically regulates the tire pressure and activates some other vehicle systems to improve passability and stability.

2.11. LDW - Lane Departure Warning System

- A lane departure warning system is a system designed to warn the driver when the vehicle begins to move out of its lane. This system recognizes horizontal road markings by recording with a camera and follows the shapes of the horizontal markings. The system estimates the width of the traffic lane, and therefore the middle of the traffic lane, which the vehicle should move through.

2.12. LCA – Line Changing Assistants

- They work by activating the direction indicator and giving a clear intention to move to another traffic lane (by turning the steering wheel), the system detects the vehicle in the blind spot (if present), and warns the driver visually with a red light on the outside mirror or by vibration of the steering wheel if it is not currently safe to change the traffic lane.

2.13. Pedestrian detection system

- At speeds above 4km/h, the collision avoidance technology can warn the driver of the vehicle audibly and visually if he is a short distance behind another vehicle, or if there are pedestrians or cyclists on the road nearby. If the driver does not react and a traffic accident is unavoidable, a fully automatic braking subsystem is activated to help avoid or mitigate a collision. With a range of 150 meters, the radar sensor constantly monitors the distance to the vehicle in front, and the digital camera behind the windshield detects objects behind the vehicle.

Conclusion

- All active safety systems complement and complement each other. Each of them is made with the aim of saving as many human lives as possible and even if they have a flaw, it is just one drop that cannot be compared to the sea of saved lives.
- Looking at it from various aspects, the only thing that can be said for sure is that without modern technology and new systems, our traffic safety level would be equal to zero.

THANK YOU.