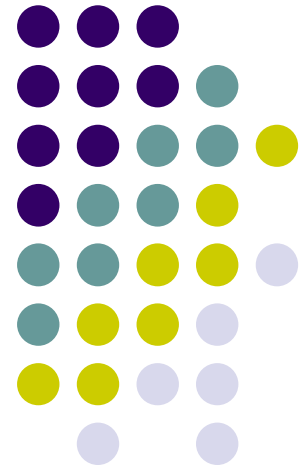


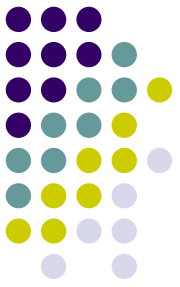
INTELLIGENT TRANSPORTATION SYSTEM

Joel Gallo

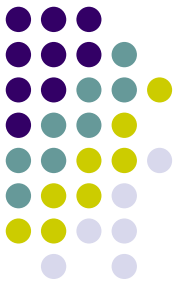


**MORE THAN 7,700 PEOPLE STILL
DIE EVERY YEAR IN CAR
ACCIDENTS IN GERMANY AND
520,000 PEOPLE RESULT INJURED.**

**STUDIES PROVE THAT MORE THAN
90% OF ALL CAR ACCIDENTS CAN
BE AVOID IF DRIVERS COULD BE
WARNED JUST FEW SECONDS
BEFORE THE TIME OF THE
IMPENDING DANGER.**



INTELLIGENT TRANSPORTATION SYSTEM



•SMARTER CARS

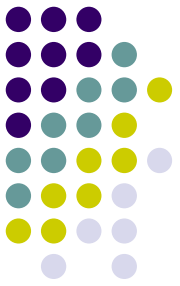
Future highways may incorporate automated vehicle lanes accessible from validation/transition lanes, which would check each vehicle's computerized driving system.



AUTOMATED HIGHWAYS

Both automated highway lanes and intelligent vehicles will require special sensors, controllers, and communications devices to coordinate traffic flow

Smarter Cars



- **Intelligent Cruise Control**

Pre-determines distance among other traffic, adds brake pressure if an impact is expected, can contact other car that has intelligent cruise control as well.

- **Pre- Safe**

Tightens the seatbelts, closes the sunroof, and automatically adjusts the seats to their optimum positions, closes all of the side windows and the seat cushions inflate to keep occupants tight in their seats.

- **Comand**

The audio, climate control and navigation systems is operated with voice commands, allowing drivers to use the system while still keeping the road in view.

- **Night Vision**

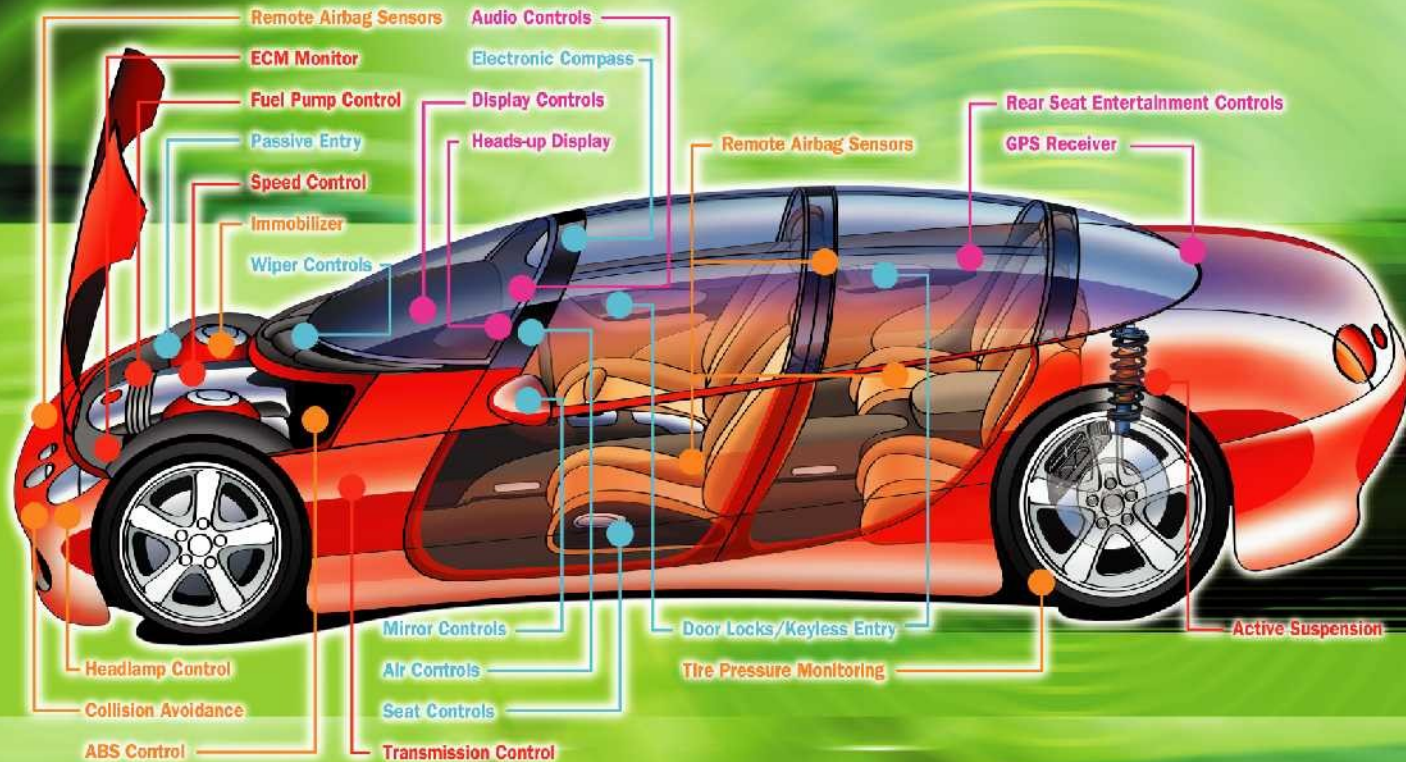
The system uses infra-red light to identify objects in the road, and an infra-red camera transmits black-and-white images to a screen.

- **Park Assist**

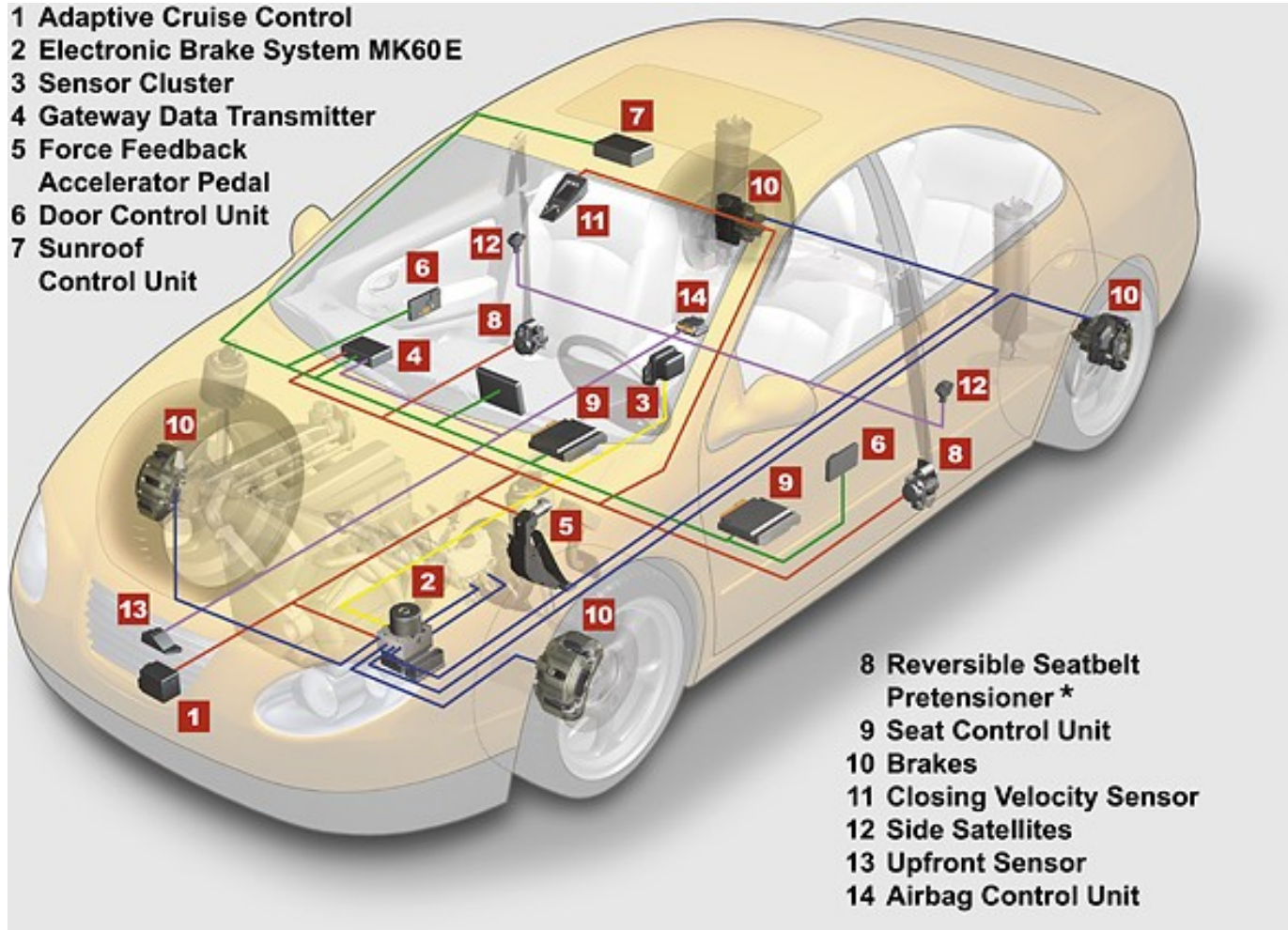
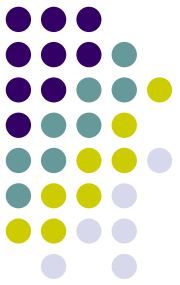
Relies on radar in the front and rear bumpers to determine the proximity to nearby objects.

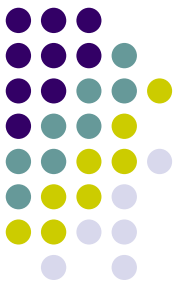


An Example of a Smarter Car



Sensor Distribution





Electronic Stability Control- ESC



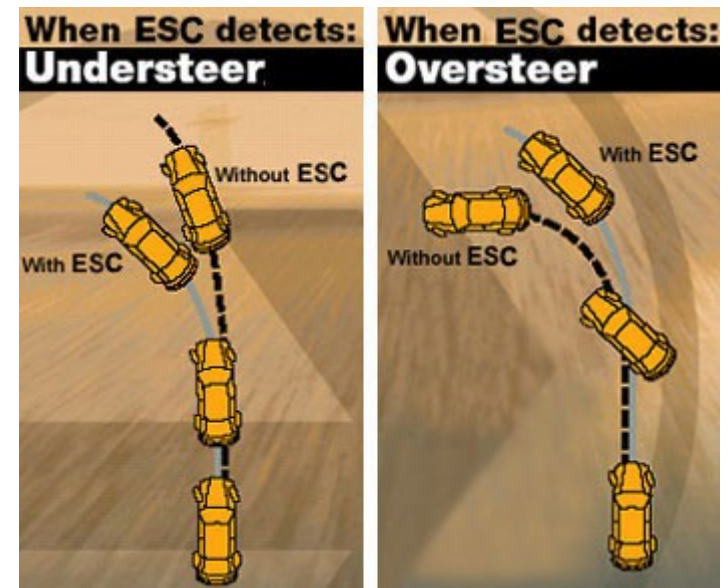
Electronic Stability Control (ESC) is a stability enhancement system designed to electronically detect and assist drivers in critical driving situations and under adverse conditions...automatically.

During Understeer:

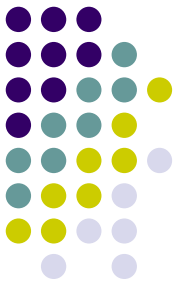
In an understeer situation, the front end of the car tends to slide out. ESC automatically applies the inside, rear brake to help you achieve your desired turn. It may also reduce the engine's power.

During Oversteer:

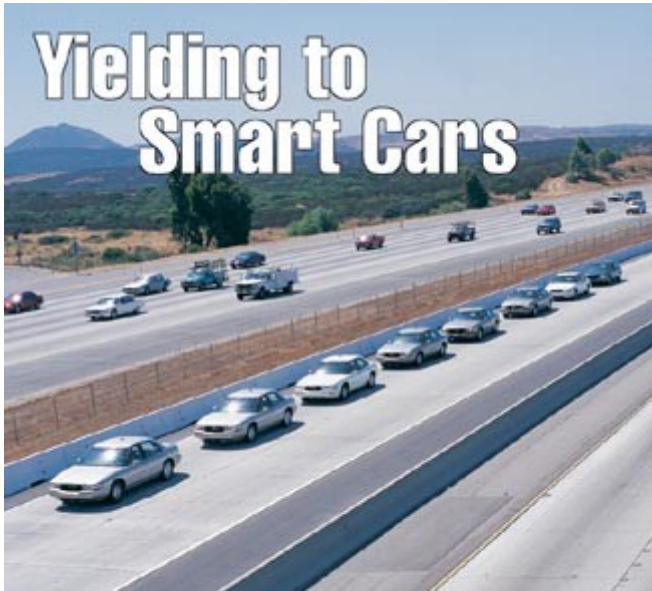
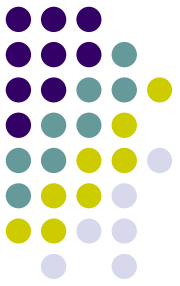
In an oversteer situation, the rear end of the car tends to slide out or "fishtail". ESC automatically applies the outside, front brake to help you correct "fishtailing".



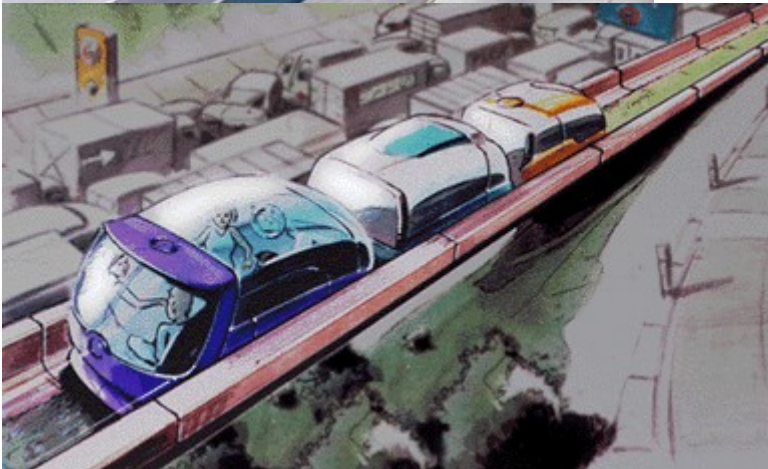
Intelligent Transportation Systems at Highway-Rail Intersections



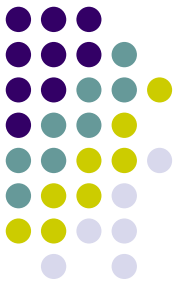
Automated Highway System



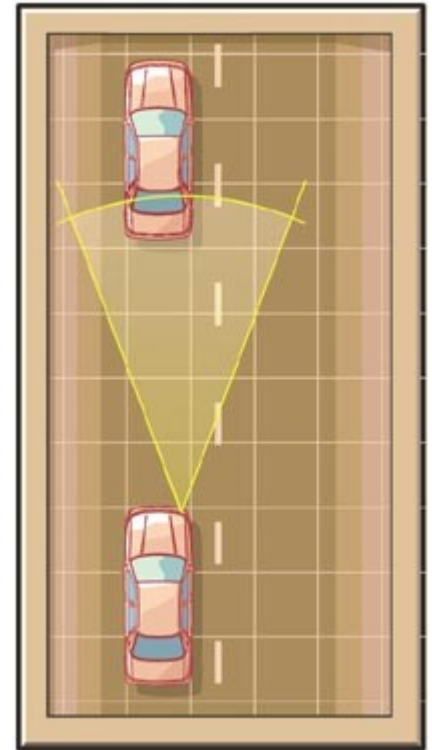
Now it is conceivable that new road infrastructures will permit a doubling of the speed and a tripling of the throughput with automated vehicles. However, it may not be wise to implement such technologies because they may bring new problems such as increases in travel distances and further spread-out of cities. In the actual context, it may be wiser to use the technology to increase the drivers comfort and safety, to protect the environment and to improve the quality of life in the cities.

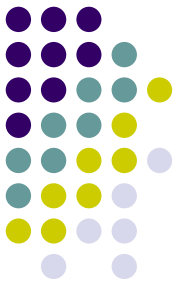


High-Tech Solutions



In the nonpeak traffic hours, the typical freeway lane accommodates 2,000 to 2,400 vehicles per hour. An automated freeway lane moving at the speed limit could safely carry more than twice that volume. "That's because on the present freeways, only 5 percent of the road surface is occupied when the freeway is operating at maximum capacity, the rest is open space that drivers maintain for safety. Using radar-sensor technology and radio communications, an automated highway can close most of that space. One automated lane can provide the equivalent capacity of three regular lanes."





Information Sources

- www.aaa-calif.com/westways
San Diego automated highway project
- www.ctr.vt.edu/index.cfm
Virginia smart road
- <http://www.daimlerchrysler.com/dccom/0-5-7154-1-10267>
Safety driver
- www.conti-online.com
Technology and Devices