

AUTONOMOUS CAR:

The future of automobile technology.....

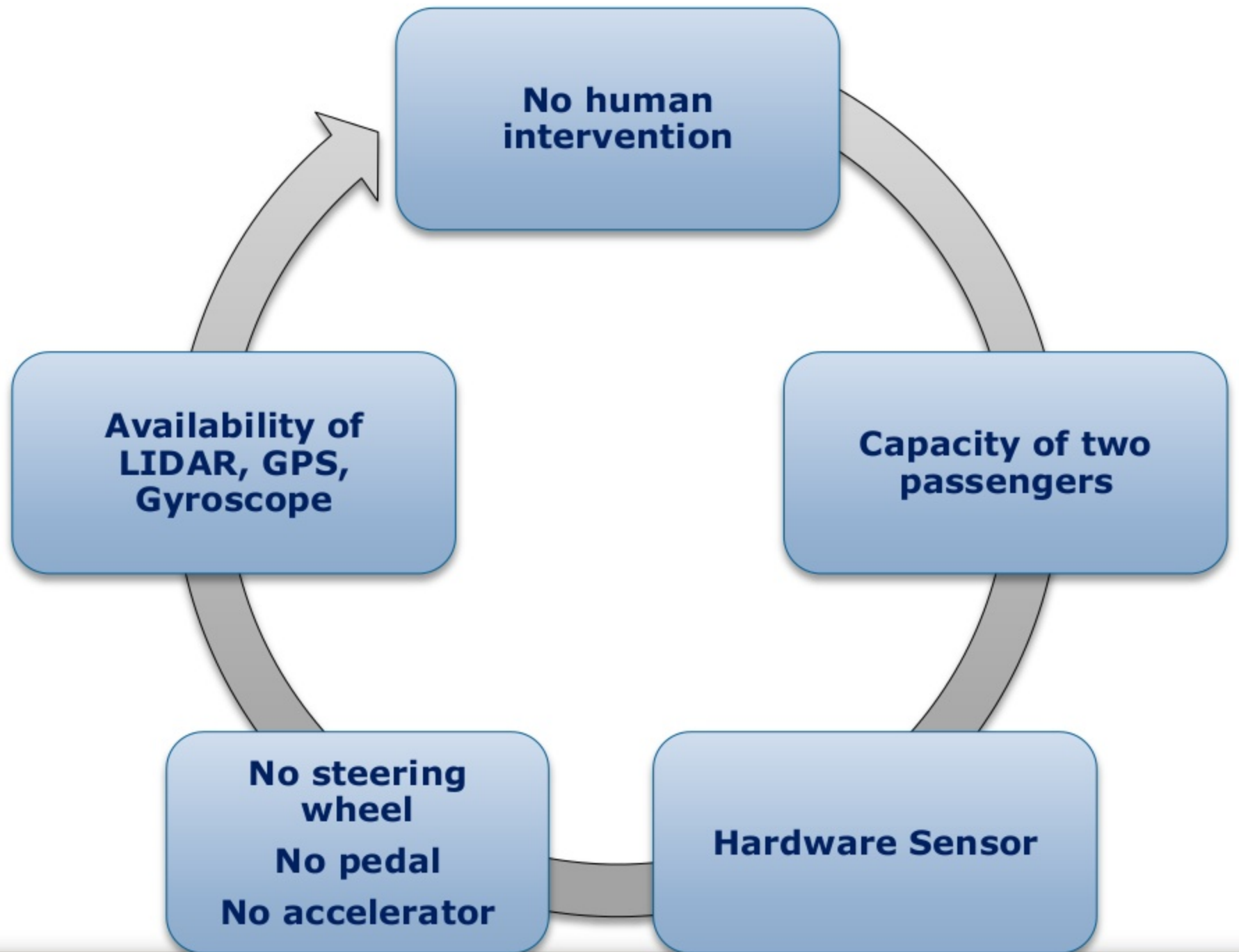


Why it is named as
autonomous car ?



- ❑It can drive itself with out assistance from a driver**
- ❑It can steer itself while looking out for obstacles.**
- ❑It can accelerate itself to the correct speed limit.**
- ❑It can obey the traffic rules by itself**
- ❑It can take its passengers automatically wherever it wants.**





The HISTORY of autonomous vehicles

Self-propelled torpedo in the 1860s



Flying Carpet, by Viktor M. Vasnetsov, 1880. By 130 BC, a magic carpet supposedly flew King Phraates II of Parthia to battle. Flying carpets have graced folktales from Russia to Iraq. They combine two once-fantastic dreams: autonomous vehicles, and flight. Credit: Wikimedia Commons



ELECTRICITY MAY BE THE DRIVER. One day your car may speed along an electric super-highway. Its speed and steering automatically controlled by electronic devices embedded in the road. Travel will be more enjoyable. Highways will be made safe—by electricity! No traffic jams . . . no collisions . . . no driver fatigue.

Driverless Car of the Future, advertisement for "America's Electric Light and Power Companies," *Saturday Evening Post*, 1950s. Credit: The Everett Collection.

SELF-DRIVING CARS TODAY



The Navia may be the first commercially available self-driving car. Designed to shuttle passengers around a closed campus, its low 12mph top speed lets it make a full stop for unexpected obstacles. Credit: Induct Technology



GOOGLE HITS THE ROAD



Technologies USED IN Autonomous CAR

**Electronic
stability
control**

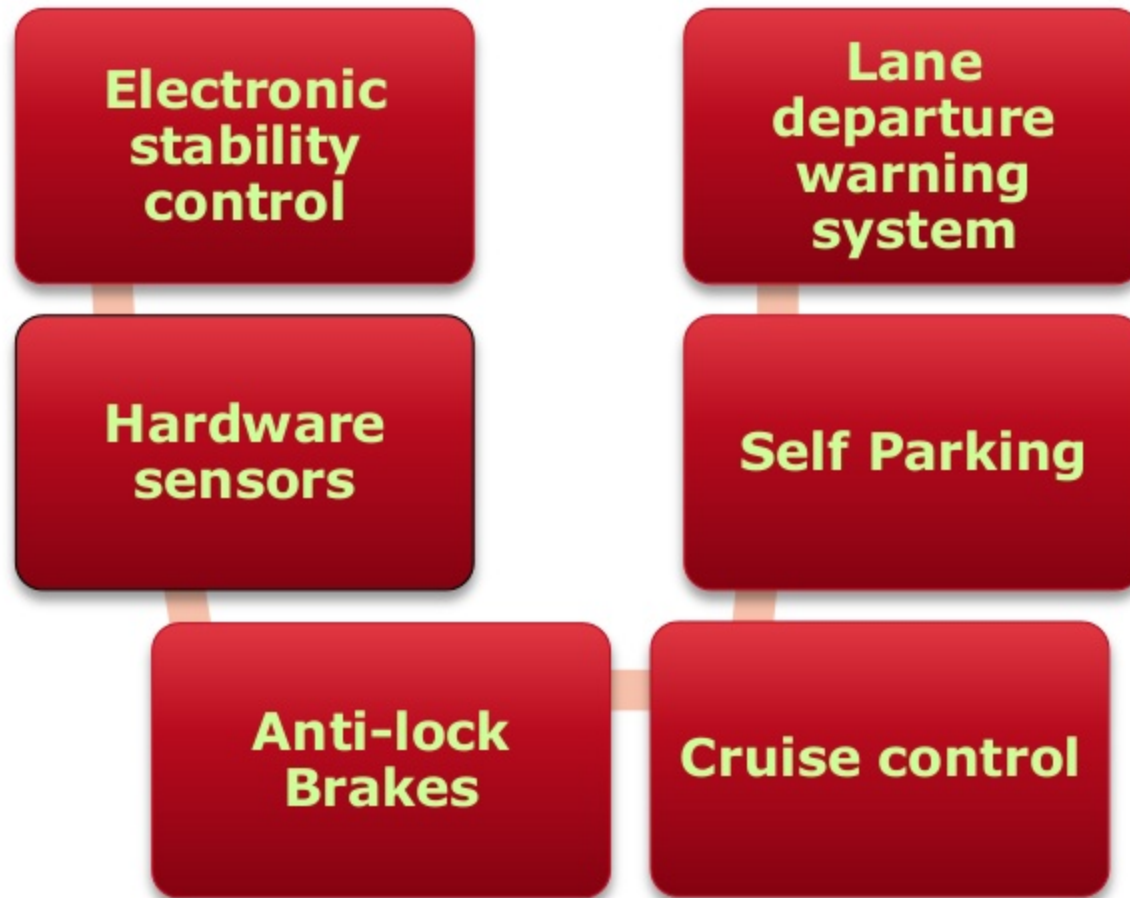
**Lane
departure
warning
system**

**Hardware
sensors**

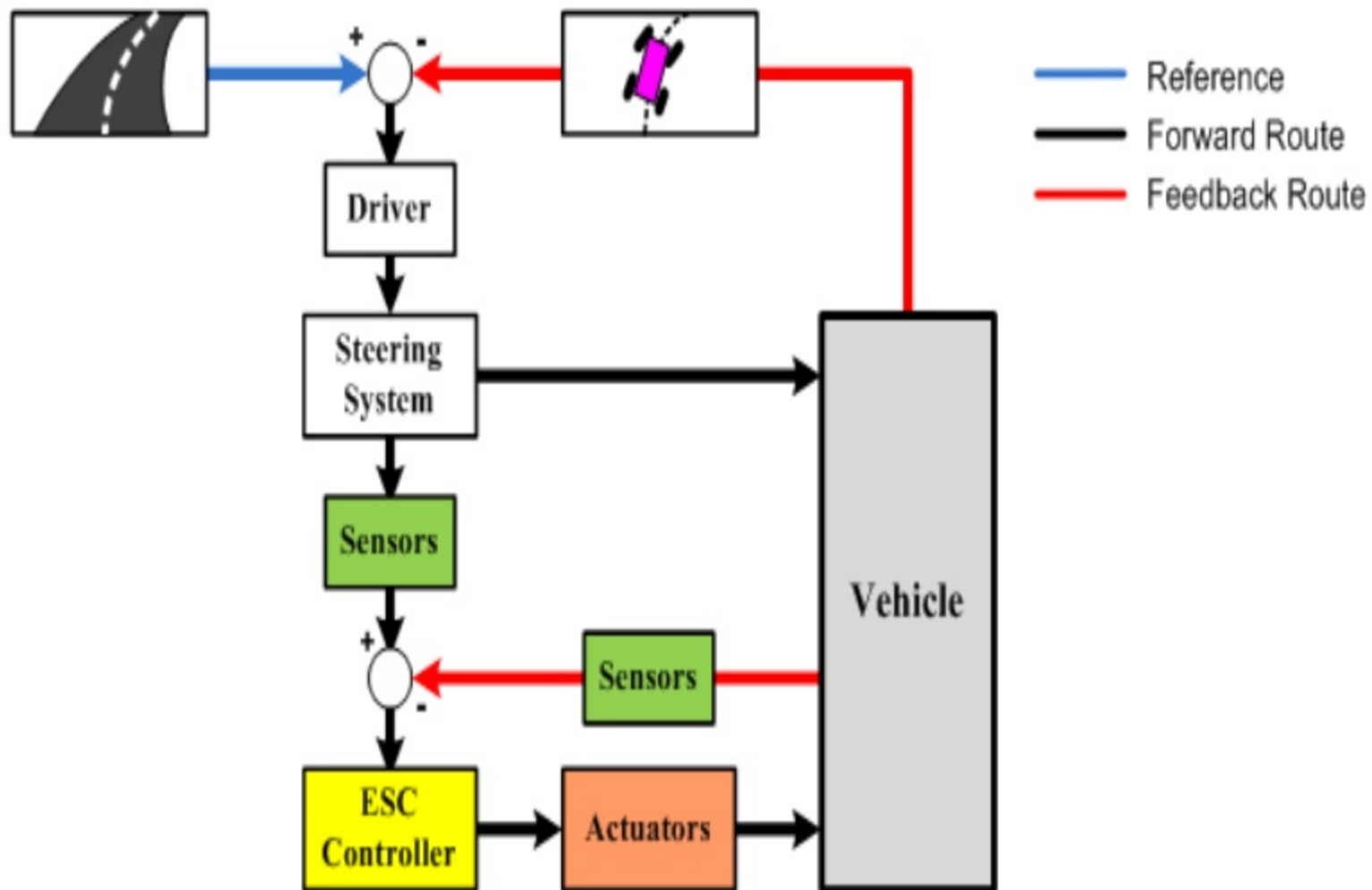
Self Parking

**Anti-lock
Brakes**

Cruise control



ELECTRONIC STABILITY CONTROL
(ESC)

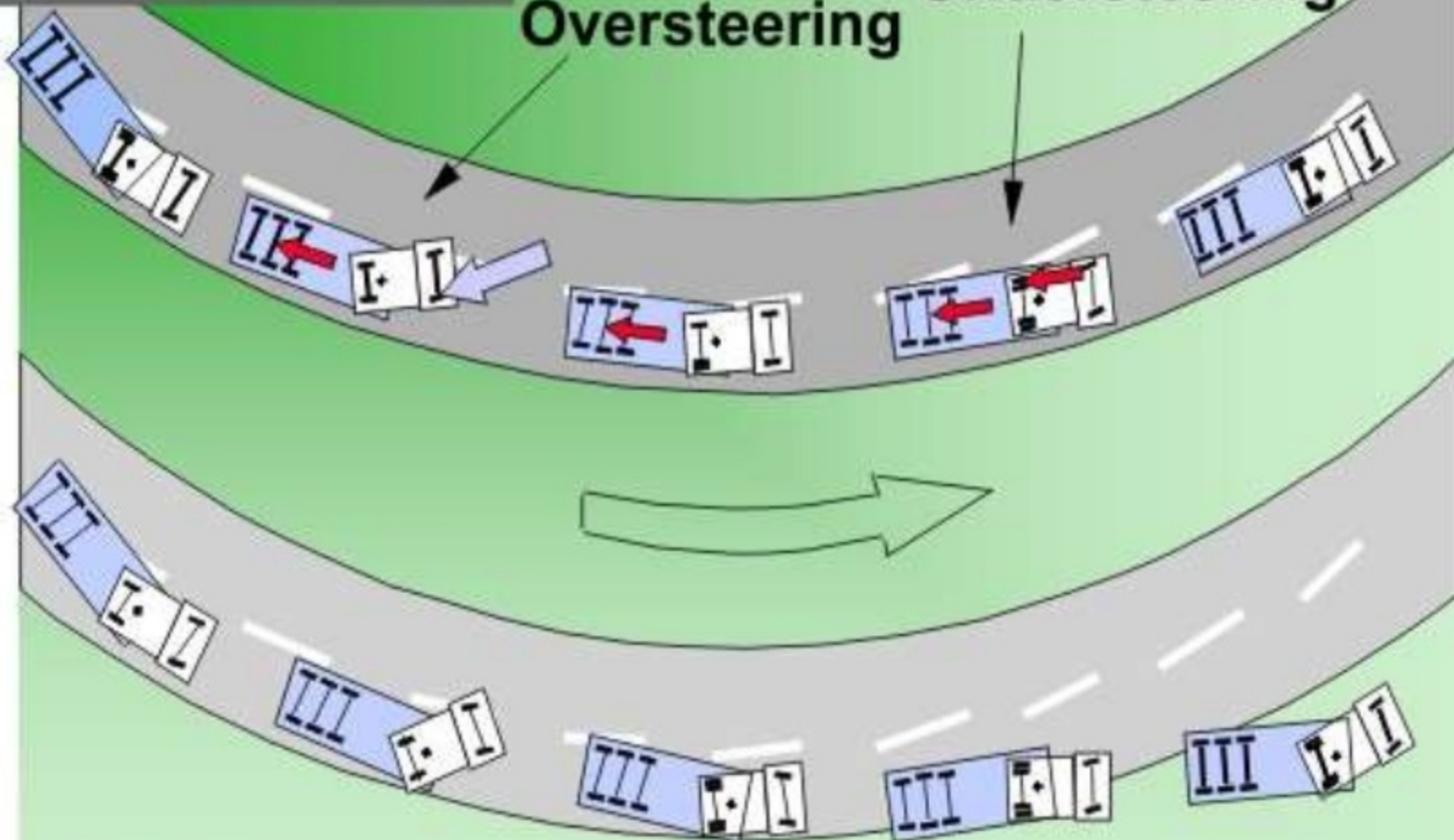


- It is a computerized technology that improves the safety of a vehicle's stability by detecting and reducing loss of traction.
- During normal driving ,ESC works in the background and continuously monitors steering and vehicle direction.
- It compares the driver's intended direction to the vehicle's actual direction .
- ESC can work on any surface, from dry pavement to frozen lakes.

with Stability Control

Oversteering

Understeering



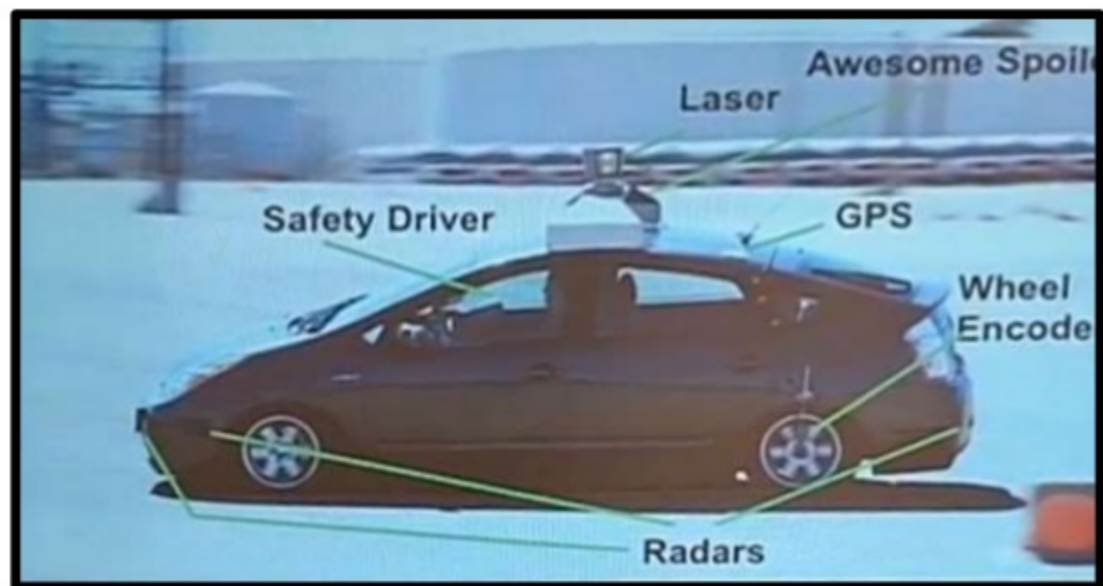
$v = 60 \text{ km/h}$

$\mu = 0.35$

without Stability Control

Hardware sensors

- ❖ LIDAR
- ❖ GPS
- ❖ GYROSCOPE
- ❖ VIDEO CAMERA
- ❖ POSITION ESTIMATOR
- ❖ DISTANCE SENSOR



ECONOMIST VIEW

commerce planning economics energy trade policy business
global cooperation economics corporations import export
first global business economics internet world outwards jobs strategy
development global policy issues social political technology business
world banking regional population trends world business policy
trade worldwide international finance trade markets economic
import export opportunities supply chain issues international
and management world cultural issues economics logistics global
international banking worldwide trade communication economics of
import export energy trade policy business growth social global economic
ing the innovation experiences hemispheres global business to
at world change rates strategies markets development culture
issues social political technology business trade technology in
regional business trends world trade
economic data international global trade and
innovation international world culture
world economic data finance trade culture the
international trade economic data international communication
import export world economic data international communication
management world economic data international communication
banking worldwide innovation communication energy to
nes global cooperation economics import export hemispheres
economics international world exchange rates strategies market
policy issues world global technology business trade
banking regional population trends world business trade
export trade worldwide international finance trade
outsourcing import export opportunities supply chain
commerce management world cultural issues economic
tariffs international banking worldwide transportation
economic data import export energy trade policy business
cooperation planning economics hemispheres global
world strategies markets development cultural