

# Car technology/safety



## TOP 10 GREEN CAR TECHNOLOGIES



A- Read the text and discuss the importance of these devices with your partner. Write your conclusions.

This year, *Green Car Journal* and the Washington Auto Show are changing that dynamic with the inaugural Green Car Technology Award™. *Green Car Journal* editors have identified 10 enabling technologies worthy of consideration for this recognition. These 10 finalists – *Green Car Journal*'s 'Top 10 Green Car Technologies for 2013' – represent diverse automotive technologies ranging from efficient powerplants and components to systems engineered to promote driving efficiency. Qualifying technologies must be in use by vehicle models today.

### The 2013 Green Car Technology Award™ nominees include:

**Fiat MultiAir:** This simple, low power requirement, and low-cost technology takes a unique approach to lowering engine emissions and fuel use while increasing horsepower.

**Fisker Automotive Ever:** A powerful extended range electric powertrain, Ever is well-suited to the needs of high-end sport sedan buyers who wish lower environmental impact.

**Ford Auto Stop-Start:** Hybrids shut off when stopped and automatically restart to save fuel and emissions. Ford's low-cost technology brings this function to average vehicles.

**Ford EcoBoost:** Direct injection and turbocharging enable EcoBoost technology to bring up to 20 percent better fuel economy to conventional gasoline engines.

**Ford Energi:** This technology evolves a conventional Ford hybrid into a plug-in hybrid, enabling electric and gas engines to work together or separately for maximum efficiency.

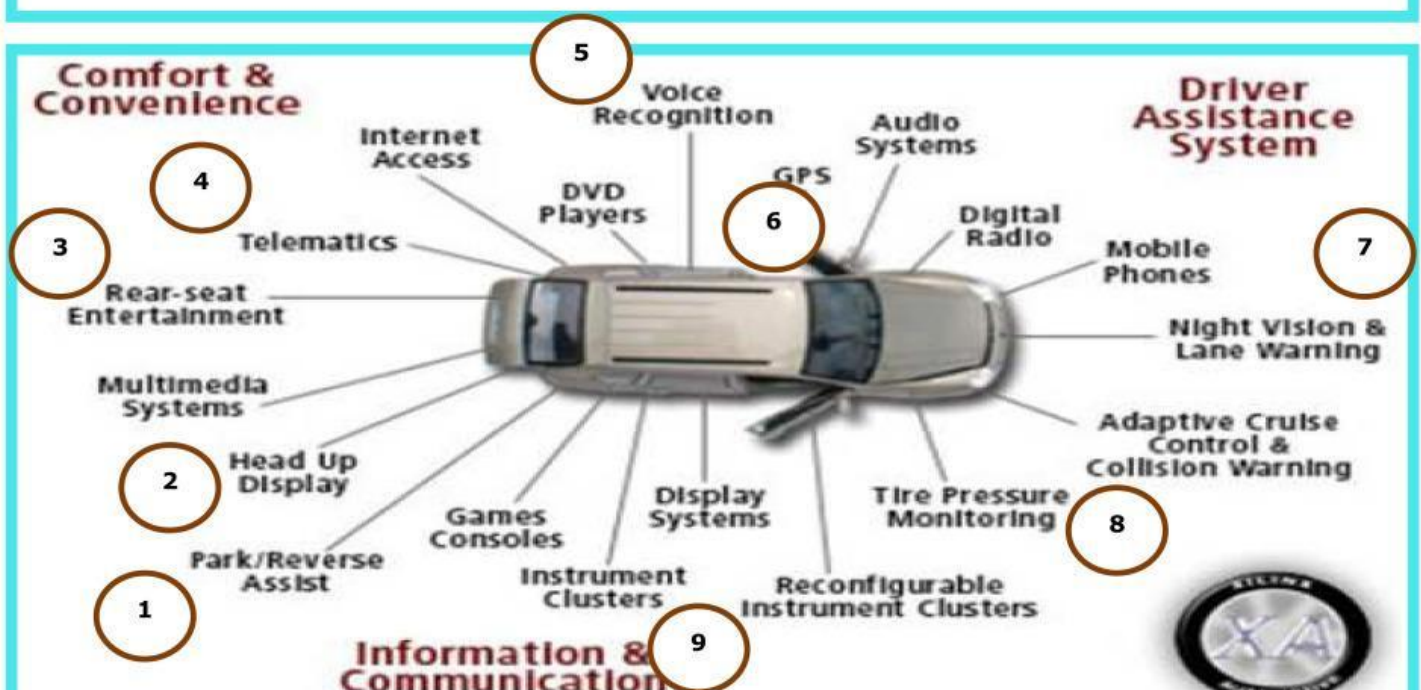
**Honda Eco Assist:** This system includes a driver-activated ECON feature that configures the engine and other energy-consuming systems to operate more efficiently to save fuel.

**Mazda SkyACTIV:** Focusing on more than just powerplants, Mazda's SkyACTIV suite of technologies improves every part of a car to improve mpg while ensuring driving fun.

**Nissan Easy-Fill Tire Alert:** Low tire pressure robs mpg. This technology alerts a driver which tire is low and by how much. While a driver fills the tire, the horn chirps at proper inflation.

**Tesla Powertrain:** Fast and powerful, the all-electric propulsion system in Tesla's Model S is a milestone for electric vehicles offering up to 265 miles of driving range.

**Toyota RAV4 EV Powertrain:** Developed with Tesla, the electric powerplant in Toyota's new RAV4 EV provides this SUV a seamless and satisfying driving experience.







## 2013 Ford Fusion: Driver-Assist Technologies

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Rear Camera

Lane-Keeping System

Driver Alert System

12

10

Blind Spot Indicator System with Cross-Traffic Alert

13

Adaptive Cruise Control

Pull-Drift Compensation

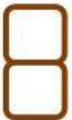
Active Park Assist

14



### B- Identify the definitions/functions with the different devices in the cars.

- 1- It alerts the driver when there is a problem with the tires.
- 2- It warns the driver when there is danger ahead.
- 3- Also known as a **HUD** — presents data without requiring users to look away from their usual viewpoints.
- 4- help increase driver awareness when it's dark out, as they extend the perception of the driver beyond the limited reach of the headlights through the use of thermographic cameras, infrared lights, heads up displays, and other technologies. They can alert drivers to the presence of potential hazards before they become visible. They help prevent accidents.
- 5- It helps the driver to see what is behind the car.
- 6- When you are driving in a highway, it allows you to set the speed.
- 7- This device helps the driver to change direction or park the car.
- 8- It entertains the passengers that sit back.
- 9- It helps the driver to find the right address, gas station, monument, etc.
- 10-It opens the door when you say so.
- 11-Set of instrumentation, including the speedometer, that is displayed with a digital readout rather than with the traditional analog gauges. Also known as digital instrument panel.
- 12-The integrated use of telecommunications and informatics, for application in vehicles and with control of vehicles on the move.
- 13-This device uses 2 multiple-beam radar modules, which identify when a vehicle enters the defined blind spot zone and illuminates an indicator light on the corresponding sideview mirror, providing a warning that a vehicle is approaching.
- 14-It is a sophisticated sensor system that constantly measures the driver's steering torque, adapts to changing road conditions and helps compensate for slight steering changes caused by different factors



Read the text A once again. Answer the questions. Choose the correct variant.

1. Which technology among the finalists uses a simple, low-cost mechanism to lower engine emissions while increasing horsepower?

- A) Fiat MultiAir
- B) Ford EcoBoost
- C) Honda Eco Assist
- D) Mazda SkyACTIV

2. Which type of powertrain the Fisker Automotive EVer is best described as?

- A) Turbocharged diesel powertrain
- B) Mild hybrid powertrain
- C) Direct injection gasoline powertrain
- D) Extended range electric powertrain

3. Which nominated technology automatically shuts off the engine when stopped and restarts it to save fuel and emissions?

- A) Nissan Easy-Fill Tire Alert
- B) Toyota RAV4 EV Powertrain
- C) Tesla Powertrain
- D) Ford Auto Stop-Start

4. Which two engineering features does EcoBoost technology from Ford combine to improve fuel economy by up to 20%?

- A) Electric supercharging and regenerative braking
- B) Direct injection and turbocharging
- C) Variable valve timing and cylinder deactivation
- D) Variable compression ratio and direct injection

5. Which technology converts a conventional Ford hybrid into a plug-in hybrid?

- A) Ford Energi
- B) Honda Eco Assist
- C) Fiat MultiAir
- D) Ford EcoBoost

6. Which system the driver-activated ECON feature that optimizes engine and accessory performance is part of?

- A) Nissan Easy-Fill Tire Alert
- B) Ford Auto Stop-Start
- C) Honda Eco Assist
- D) Fiat MultiAir

7. Improving what aspect of vehicles does Mazda's SkyACTIV suite focus on?

- A) Aerodynamics and body panels
- B) Hybrid battery efficiency
- C) Only the engine for higher power output
- D) Every part of a car for better mpg and driving fun

8. What does the Nissan Easy-Fill Tire Alert technology do?

- A) Balances tires in real time
- B) Monitors tread depth and warns of wear
- C) Automatically inflates low tires while driving
- D) Alerts the driver which tire is low and signals when proper inflation is reached

9. Which finalist's all-electric propulsion system offers up to 265 miles of driving range?

- A) Fisker Automotive EVer
- B) Toyota RAV4 EV Powertrain
- C) Tesla Powertrain
- D) Ford Energi

10. Which company the electric powerplant in Toyota's new RAV4 EV was developed in collaboration with?

- A) Nissan
- B) Honda
- C) Tesla
- D) Ford