Technology Primer - Hybrid and Electric Auxiliaries System

Tech Primer

A hybrid electric vehicle (HEV) is one that combines a conventional internal combustion engine propulsion system with an electric propulsion system. The presence of the electric powertrain enables the vehicle to achieve better fuel economy than a conventional vehicle. A hybrid electric vehicle is also a form of electric vehicle; a variety of types of HEV exist, and the degree to which they function as EVs varies. The most common form of HEV is the hybrid electric car, an automobile driven by a gasoline internal combustion engine (ICE) and electric motors powered by batteries.

Modern HEVs make use of efficiency-improving technologies such as regenerative braking, which converts the vehicle's kinetic energy under braking to electricity to recharge the battery. Some varieties of HEVs use their internal combustion engine to generate electricity by spinning an electrical generator (this combination is known as a motor-generator), to either recharge their batteries or directly feed power to the electric motors that drive the vehicle. Many HEVs reduce idle emissions by shutting down the ICE at idle and restarting it when needed; this is known as a start-stop system. A hybrid-electric produces less emissions from its ICE than a comparably-sized gasoline car, as an HEV's gasoline engine is usually smaller than a pure fossil-fuel vehicle, and if not used to directly drive the car, can be geared to run at maximum efficiency, further improving fuel economy.

Other Resources

- Hybrid Electric Vehicle
- What is a hybrid electric vehicle?
- In-Situ Torque Measurements in Hybrid Electric Vehicle Powertrains
- Hybrid Electric Vehicle Applications
- Focus-On Microcontrollers
- Analog products target automotive engine control
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- Diesel Engine Knowledge - Inside Knowledge about Diesel Engine s
- Engine Control System
- Engine Control Unit
- Gas Engine Control Systems
- Theory of Operation Engine
- New Direct Fuel Injection Engine Control Systems for Meeting Future Fuel Economy Requirements and Emission Standards
- Engine control system and vehicle including the same
- Microprocessor-based engine control systems
- Engine Control Systems
- How Electric Motors Work?
- Brushless DC (BLDC) Motor Fundamentals
- Brushless DC motor
- DSCs boost automotive electric motor control
- IGBT tutorial: Part 1 – Selection
- Automotive Design and Optimization of Electrical Fuel Injection Systems
- FlexRay speeds automotive safety applications
- Evaluation kit can kick start FlexRay applications