Design and Analysis of an Energy Management System for Hybrid Electric Vehicles

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Project Abstract

There is an increasing awareness about the dangers of polluting emissions and the depletion of energy resources. Since one of the main sectors contributing to the emissions of pollutants is the transportation sector, fuel cells and electric storage devices are engaged into hybrid electric vehicles (HEVs) to yield a zero emission system. Fuel cells (FCs) are used as a clean energy source to power vehicles, whereas battery (BT) systems and super capacitors (SCs) are used as auxiliary power units during peak power demand. This research proposal will develop an intelligent energy management system (EMS) for HEVs for the purpose of achieving an optimal coordination among power units, prolonged lifetime of the fuel cell and the battery, lower system life cycle cost and enhanced HEV performance. The developed EMS will be tested in a real time like environment using a dynamic model of the fuel cell hybrid electric car.