

Hybrid Electric Vehicle (NAYAA II) Batteries – Fuel Cell

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ABSTRACT

Worldwide, the trucking sector emits about 25% of all CO₂ emissions and is projected to increase to 50% by 2030 and more than 80% by 2050, according to the International Energy Agency (IEA, info. 2009).

The use of hybrid vehicles can significantly reduce the amount of emission of polluting gases into the atmosphere. A hybrid electric vehicle (HEV) can have two or more power sources on board and depending on system configuration; two or more sources of energy are used to drive the vehicle. The interest in reducing the emission of pollutants in automobiles has created the need to develop and build a wide variety of systems and devices for this purpose.

This experimental work presents the design, construction and performance evaluation of a hybrid electric vehicle (Nayaa), powered by a generator with PEM fuel cell and / or rechargeable batteries. The generator design was done using AutoCAD software, construction of fuel cells using a CNC router and CNC laser cutter.

The characterization of the cell was performed by potentiostatic polarization tests.

The operation conditions of generator with fuel cell was: feeding the fuel (H₂) and oxidant (air) at room temperature and a pressure of 0.1 atm (1.5psi), operating temperature of 20 °C at 70 °C.

Keywords: Design; Stack Fuel Cell; Electric Vehicle.

