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## Design and investigation of a fuel cell car prototype (Article)

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### Abstract

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A hydrogen vehicle is a vehicle that uses hydrogen as its on-board fuel for motive power. One of the ways to achieve it is by converting the chemical energy from the reaction between hydrogen and a fuel cell into electrical energy. The purpose of this work is to design and develop a fuel cell car model by implementing polymer electrolyte membrane (PEM) types of fuel cell as the source of power to propel the prototype car. This fuel cell has the capability to propel the electric motor by performing chemical reaction and converting chemical energy stored in hydrogen gas into useful electrical energy. In the developed fuel cell car prototype, the PEM fuel cell alone is used as the power source for the electric motor without the aid of any other power source such as a battery associated with it. Experimental investigations were carried out to investigate the characteristics of the fuel cell used and the performance of the fuel cell car prototype. The power it develops, voltage, current and speed it produces under different load conditions are among the parameters that were investigated. Copyright © 2014 Inderscience Enterprises Ltd.

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