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INVESTIGATION OF PEM FUEL CELL FOR AUTOMOTIVE USE

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Abstract

This paper provides a brief investigation on suitability of Proton-exchange membrane fuel cells (PEMFCs) as the source of power for transportation purposes. Hydrogen is an attractive alternative transportation fuel. It is the least polluting fuel that can be used in an internal combustion engine (ICE) and it is widely available. If hydrogen is used in a fuel cell which converts the chemical energy of hydrogen into electricity, (NOx) emissions are eliminated. The investigation was carried out on 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 PEMFC has capability to propel the electric motor by converting chemical energy stored in hydrogen gas into useful electrical energy. PEM fuel cell alone is used as the power source for the electric motor without the aid of any other power source such as battery associated with it. Experimental investigations were carried out to investigate the characteristics of fuel cell used and the performance of the fuel cell car. Investigated parameters are the power it develops, voltage, current and speed it produces under different load conditions.

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