



CONCEPTUAL DESIGN OF HYDROGEN PEM FUEL  
CELL POWERED VEHICLE: POWERTRAIN  
ANALYSIS

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## **ABSTRACT**

The main purpose of this project is to design and analyze the powertrain system for fuel cell powered vehicle (GO-Kart). The first stages in this project focused on the characteristic and behavior of power train system and its components (dc motors). All knowledge about this area had been looked into account in order to design the high performance power train system. The second stages in this project focused on the analysis process which determines the minimum force and torque needed to accelerate the go-kart from zero to 120 km/h in 5 seconds. This analysis used to select the most suitable motors. The third stages involve with the modeling process which illustrate the motors performance during cornering state to minimize the energy losses but at the same time maintain the performance of the motors. All the analysis and modeling process in this project uses Microsoft excel as tools. For the last stages, by refer to all the analysis before, the best layout for the power train system designed and draw with the CATIA V5R16 software. The layout which contains 2 dc motors that connect directly to the tire shaft or using gear ratio mechanism will be compare. Finally, this system will combine with the others system to form a complete go-kart design.

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