

**ANALYSIS OF BRUSH DC MOTOR IN PROTOTYPE  
HYDROGEN FUEL CELL ELECTRIC VEHICLE (FCEV) TO  
DETERMINE THE EFFICIENCY PERFORMANCE AT  
DIFFERENT DRIVING TECHNIQUES**

This thesis is presented in partial fulfillment of the requirement for the award of the  
Bachelor of Engineering (Hons) Electrical



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## **ABSTRACT**

In electric vehicle industry, motor has been determined as the most important parts that consumed large of energy when operating at low efficiency. In addition, the electric vehicle required to operate at high efficiency to minimize the cost of fuel used. In this project, an analysis has been done on brush direct current (BDC) motor used in prototype fuel cell electric vehicle (FCEV) to determine the efficiency performance at different driving techniques. This study used RE50-24V BDC motor which is developed by Maxon Motor. The prototype FCEV has participated in the Shell-Eco Marathon Asia Competition 2015 in which the challenge is to travel furthest using least amount of energy. The speed of the motor is determined by dynamometer and the electrical parameters are obtained by using Eagle Tree Micropower eLogger software. Two driving techniques are proposed to obtain the best performance of the motor. The results obtained indicate that different driving technique gives different efficiency performance of the motor.

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