



**DESIGN AND FABRICATION PROCESS OF
THE FUEL CELL POWERED UAV**

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A thesis submitted in partial fulfillment of the requirements for the award
of Bachelor of Engineering (Hons.) Mechanical

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MAY 2009

"I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree."

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ACKNOWLEDGEMENT

Alhamdulillah, thanks to ALLAH, I am finally able to complete this project and thesis. First of all, I would like to give my greatest gratitude to my supervisor, Dr. Thomas Arthur Ward for his restless support and useful advices in completing this project. For that, I am very grateful for his help.

I also would like to express my gratitude to En. Mohd Ezzuan bin Salleh, technician from Propulsion Labrotary who is willing to give his time, being helpful all the time, in order for me to finish my project

My deep thanks also to all my friends, especially to all the group members of the fuel cell powered UAV team. And my special thanks to my beloved one, Nur Syuhadah binti Mohd Pauzi, who is always there for me, supporting me endless, and be with me in good and bad times.

And finally, I would like to give my special love and gratitude to my beloved family, for their understanding & endless love, through the duration of my studies in UiTM Shah Alam.

ABSTRACT

An unmanned aerial vehicle, or globally known as UAV, is an unpiloted aircraft, which can be remote controlled or fly autonomously based on pre-programmed flight plans or other dynamic automation system. In the conceptual design of the demonstration UAV aircraft, it will be using a fuel cell system as its source of energy. A fuel cell is actually an electrochemical conversion device. It can produce electricity from fuel (on the anode side) and an oxidant (on the cathode side), which react in the presence of an electrolyte. The reactants flow into the cell, and the reaction products flow out of it, while the electrolyte remains within it. Fuel cells can operate virtually continuously as long as the necessary flows are maintained. This is an advantage to the UAV, since it can move further than other type of fuels. The project is deliberately prepared to design and fabricate a lightweight fuel cell powered UAV but strong enough to handle atmospheric pressure, and various kind of forces that will act on the fuel cell powered UAV once it take off into the air. The new UAV will be design by using CATIA. CATIA or Computer Aided Three Dimensional Interactive Application is a multi-platform CAD/CAM/CAE commercial software suite.

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