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This year we plan to expand beyond the traditional sponsors that have proudly sponsored us in the past and look into non-engineering entities.

There are many good reasons why you should sponsor us.

- The invaluable industry and community recognition
- Exposure of your company to an international audience
- Promotion of local engineering
- Assisting the engineers of tomorrow

If you would like to discuss further on this matter, please do not hesitate to contact us.

Thank you for your support!



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## FUTURE ENERGY CHALLENGE 2007

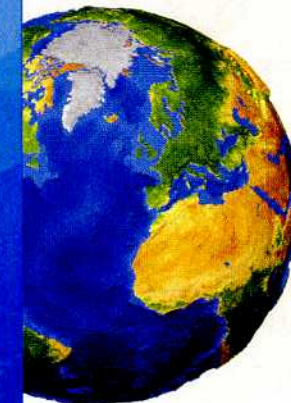
— INFORMATION AND SPONSORSHIP BROCHURE

*"We are back again representing Australia, ready to take on the world & defend our 2005 1st prize win."*

**Monash University**

<http://fec.eng.monash.edu.au>

The International  
**Future Energy Challenge 2007**  
Monash University Team





## INTRODUCTION

The Future Energy Challenge is an international competition conducted by the IEEE power electronics society.

Its aims is to promote innovation in the field of distributed electricity generation systems and better utilize renewable power sources.

The 2007 competition address two broad topic areas: (A) Universal Adapting Battery Charger and (B) Integrated Starter/Alternator—Motor Drive for Automotive Applications.

The Monash University Team has chosen to partake in topic A, described as follows.

### Universal Adapting Battery Charger:

The primary requirement of this project is to develop an efficient universal battery charger that will adapt to charge Lead-Acid, Nickel-Cadmium, Nickel-Metal-Hydrate, Lithium-Ion and possibly rechargeable alkaline batteries with a minimum need for user intervention. The charger is required to operate over an input voltage ranging from 95V to 270V and a frequency range of 48 to 440Hz. Its efficiency should be high (>50% under charging conditions), and it must have a minimum AC input power-factor of 0.7 (>0.8pf when charging above 0.5A). The maximum charging current at any voltage should be at least 1A, and the cost of the charger should not exceed US\$10 for large-scale manufacture.

## WHO WE ARE

The Monash University Future Energy Challenge Team is based in Clayton Campus, Melbourne Australia. Consisting of 12 undergraduate students and covering a range of disciplines including: electrical engineering combined with computer science, mathematics and law.

We are ready to defend the 2005 1st prize entry and take on the world again!



## OUR PROPOSAL

The Monash University Team are proposing a leading-edge solution that will significantly reduce the number of specialist chargers in a typical household. The students participating in this challenge welcome this opportunity to apply their developing knowledge of power electronics to a practical application, and are already enjoying the intellectual challenge and camaraderie that has been encountered so far.



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