

Succeeding in the IEEE Future Energy Competition

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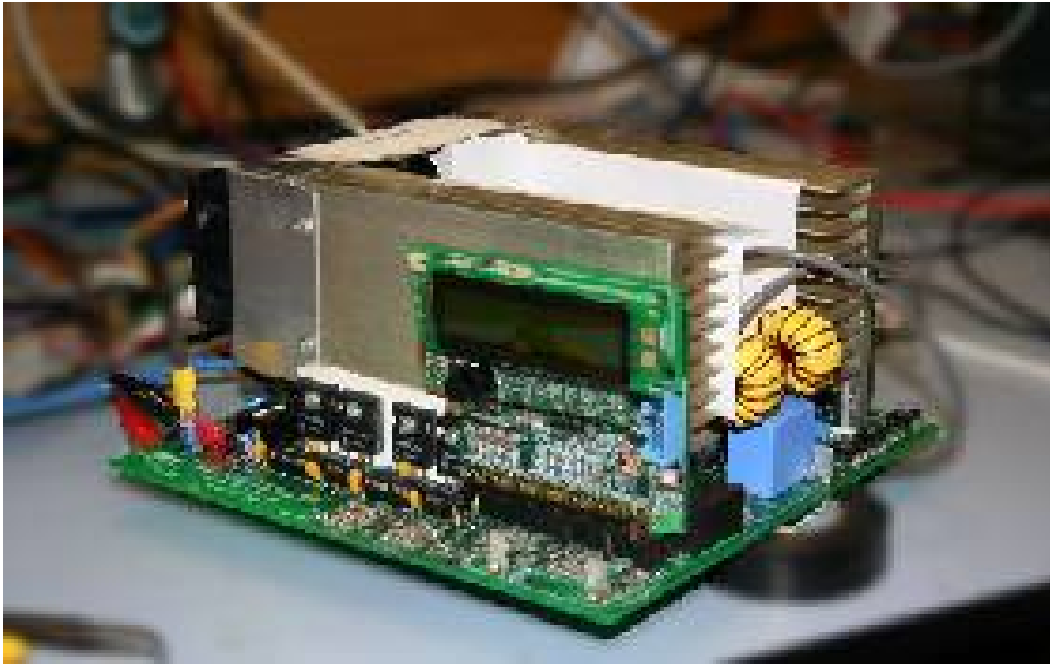


2005 – Grid Connected Inverter

1st Place - Monash University



2005 – Grid Connected Inverter

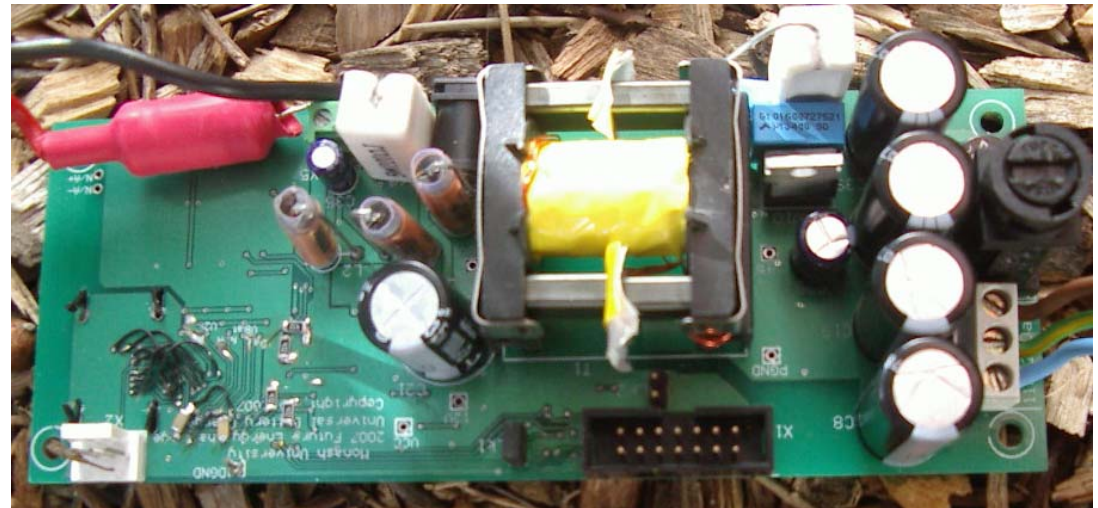


2007 – Universal Battery Charger

2nd Place - Monash University



2007 – Universal Battery Charger



KEY FACTORS

- Determine the Important Elements in the Specification
- Team Organisation and Management
- Development Sequence – Design, Prototype, Recycle, Final build.
- Leave enough time for things to go WRONG
- Keep it SIMPLE
- Polished and good looking product beats technical merit every time
- IF IT DOES NOT WORK, YOU WILL **NOT** WIN
- AND A LITTLE BIT OF LUCK !!!!!!!!!!!



KEY FACTORS

- Determine the Important Elements in the Specification

2005 Competition Goals

- Lightweight
- Small in size
- Highly efficient
- Low cost
- Simple to manufacture

2009 Competition Goals

- ??????????????????

2007 Competition Goals

- Charge: Lead-Acid, Nickel Cadmium, Nickel-Metal-Hydride, Lithium Ion & Alkaline batteries
- Input range: 95V – 270V at 48 – 440 Hz
- Efficiency > 50%
- Max 2A charging current
- Cost < US\$10

KEY FACTORS

- Team Organisation and Management

Decide WHO does WHAT, and make sure they do it

TEAM LEADER is critical

Make TIMELINES and STICK to them

Meet regularly, no matter what other pressures exist

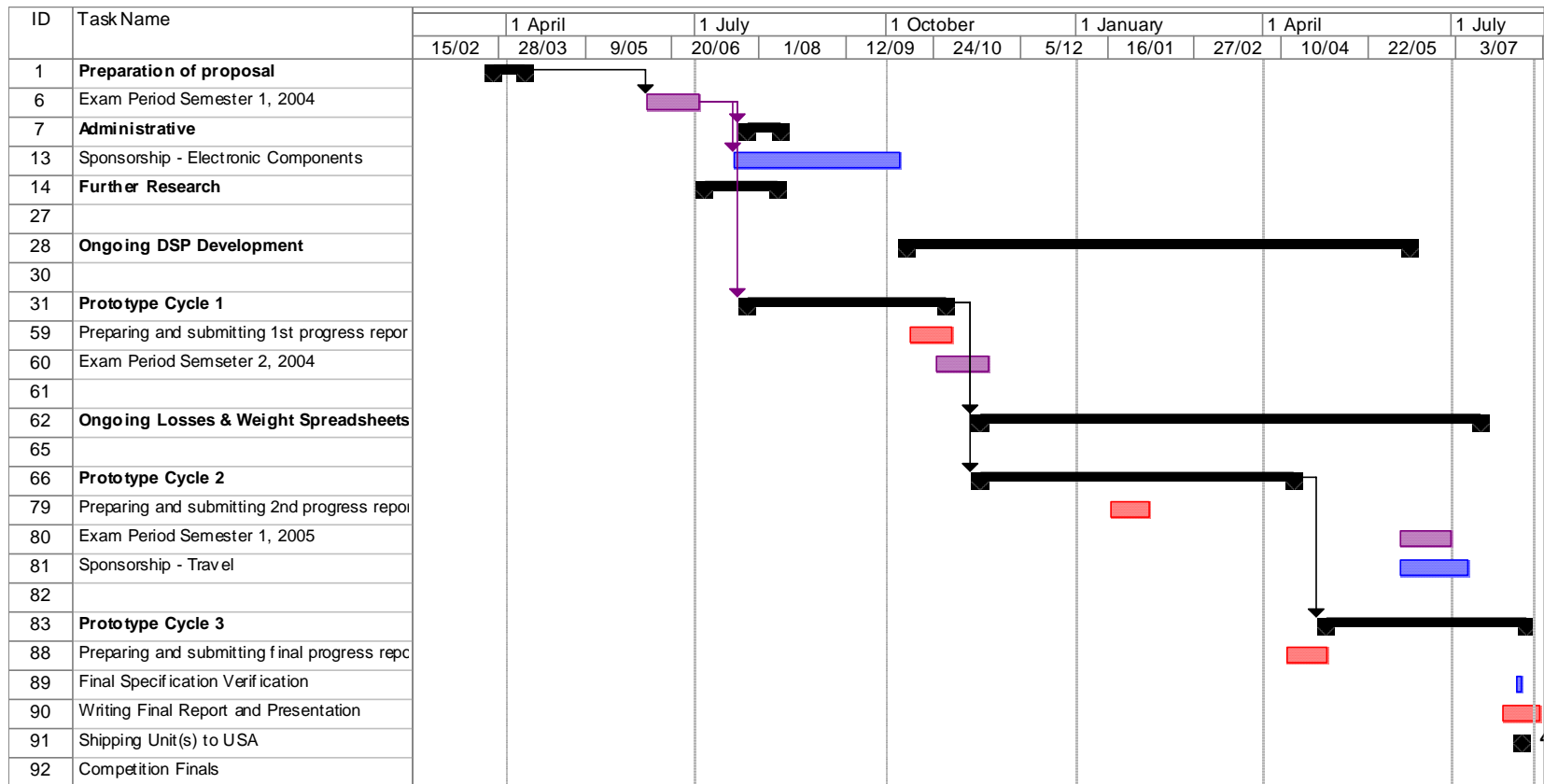
Non technical work is as important as technical







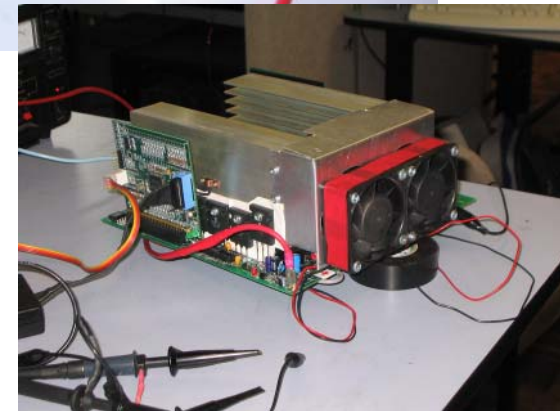
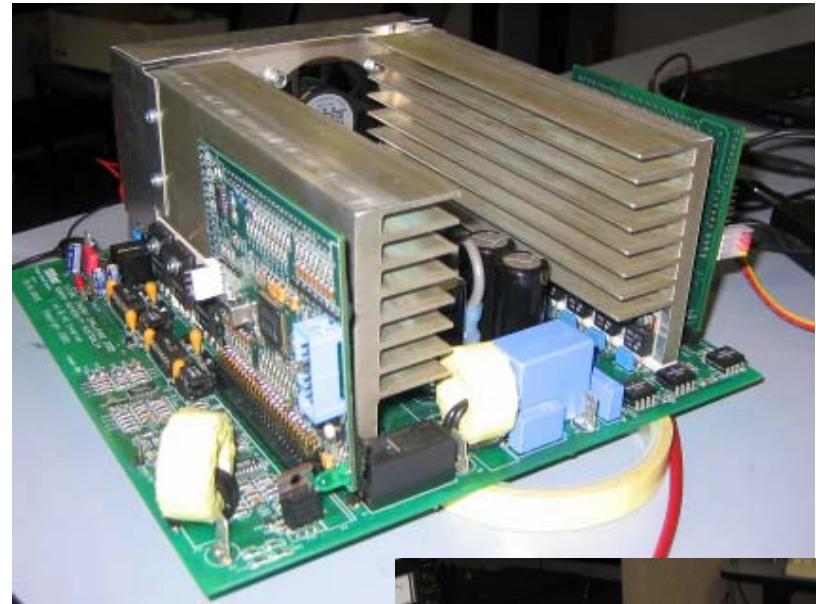
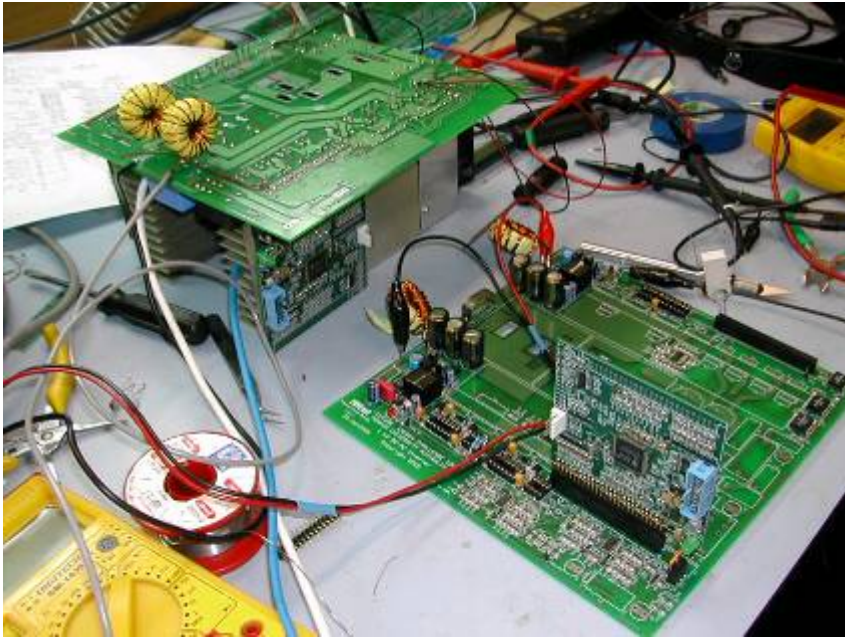
• **Prototype development (3 prototype cycles)**





KEY FACTORS

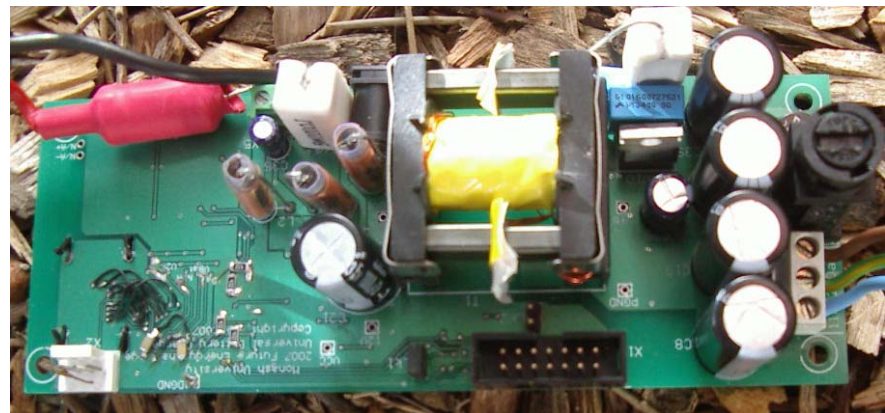
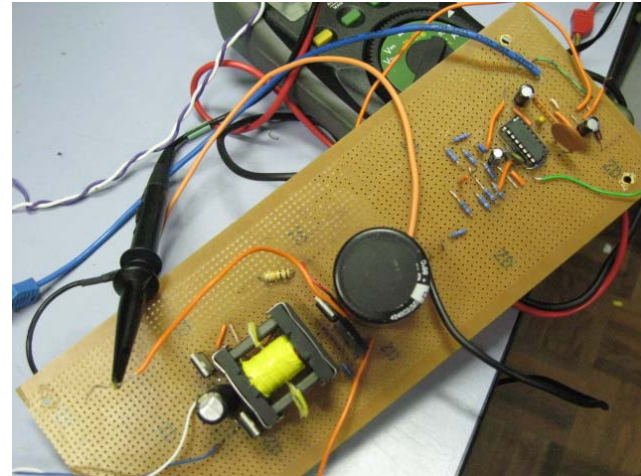
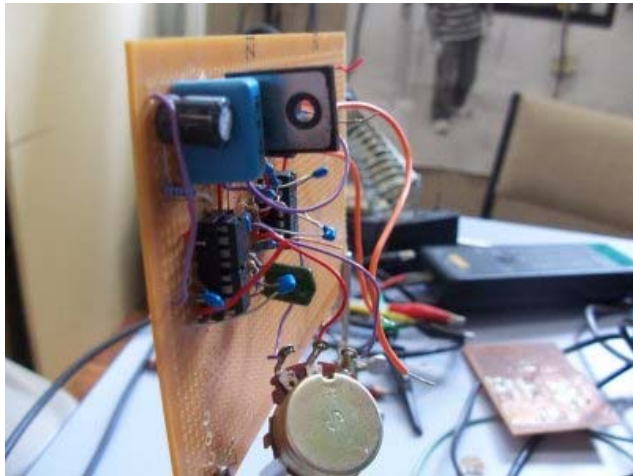
- Development Sequence – Design, Prototype, Recycle, Final build



Do not UNDERESTIMATE how long things take to build !

KEY FACTORS

- Development Sequence – Design, Prototype, Recycle, Final build



KEY FACTORS

- Leave enough time for things to go WRONG

Developing hardware is often a process of lurching from one disaster to the next



KEY FACTORS

- Keep it SIMPLE

It is hard enough to get a simple design concept built and tested

Aiming for more sophisticated solutions just adds to the pressure!



KEY FACTORS

- Polished and good looking product beats technical merit every time



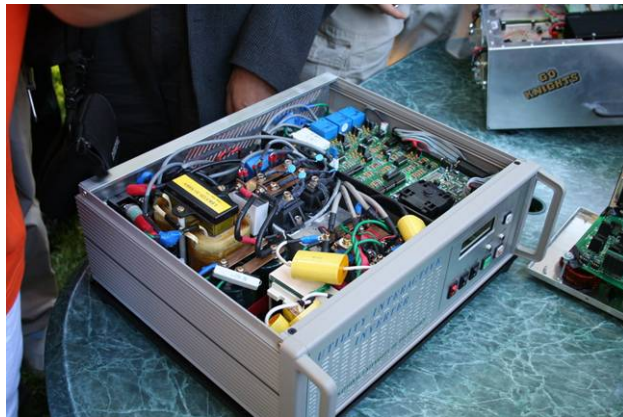
2005 – Grid Connected Inverter

Winning Inverters

Monash
University



South Korea University of
Technology



University of Illinois



KEY FACTORS

- IF IT DOES NOT WORK, YOU WILL **NOT** WIN

Be ready to DEFEND your design in the finals
(assuming it works of course!!)



KEY FACTORS

- AND A LITTLE BIT OF LUCK !!!!!

**GOOD LUCK WITH YOUR
EFFORTS FOR THE
NEXT 6 MONTHS**

