

## ...IN THE SPIRIT OF FRIENDLY COMPETITION...

During the summer of 2007, Dave Franks, a DESG graduate, was given the opportunity to participate in the Panasonic World Solar Challenge – a solar car race across the Australian outback from Darwin in the north to Adelaide in the south.



*“The Challenge: To Design and build a car capable of crossing the vast and imposing continent of Australia using only sunlight as fuel and to prove it, in the spirit of friendly competition, against others with the same goal”<sup>1</sup>*



Dave joined the MoD as a technician before transferring onto the DESG Bursary Engineer scheme in 2002. He studied MEng ‘Engineering with Management’ at the University of Liverpool. Dave subsequently joined the graduate training scheme and studied Marine Engineering at University College London (UCL).

The DESG graduate programme offers comprehensive training and experience via work and study placements. These

are structured so as to provide graduates with a wide range of competence. Whilst at UCL, Dave was introduced to the work being carried out by students and staff to design and build the ‘Solarfox’ – seen here being track-tested in Australia.



Dave explains:

*“During my project studies at UCL, I asked for the chance to help design and build their solar car and was subsequently invited to join the race team for the event in Australia. The invitation was supported by the DESG on the basis that it offered not only technical competence, but also personal development, team working and leadership”.*

The team was responsible for every aspect of design, manufacture and assembly. The chassis and body-work were designed in-house using CAD software. Many of the components for the car suspension and the wheel assemblies were machined within the UCL workshop. Others were purchased from cycle, cart and race car manufacturers as ‘off the shelf’ items.

The more technically innovative components were procured as bespoke items and involved negotiation with specialist manufactures at the leading edge of their technologies. These included the composite bodywork, the lightweight motor, the solar cells and the high power-density batteries.

A primary goal of this event is to encourage technology development in

the field of renewable energy. To this end the race attracts world-wide competition from universities, research organisations and manufacturers – all promoting a global technology push to help provide the solution to a global energy issue.

Of course the event is not just about technology. As with any project, there are issues related to finance, timescales and logistics. The diversity of tasks included arranging sponsorship, obtaining medical advice, preparing travel arrangements – and upon arrival in Australia – obtaining the expedition transport and making the arrangements for catering.

Dave describes his role:

*“During the design and build phases, my job involved the testing and installation of the motor and its associated electrical components. The use of high voltages meant that the design was safety critical. Also, the need to comply with event regulations called for interpretation and engineering judgment. Once the race was underway, my task was to offer logistic support to the team – driving the support vehicle and helping to arrange food, fuel and camping facilities. In all, my job has ranged from identifying the right kind of nuts and bolts, to being in the right part of Australia at the right time!”*



Running throughout the entire project was the need for talented and committed individuals to combine their

efforts as a cohesive group. The need for group effort is much discussed within the workplace but was experienced at first hand by the solarfox team. The admirable team spirit was at times hard-won against technical and physical challenges, long working hours, high temperatures and close living conditions. Such difficulties along the way eventually added to the scale of the achievement when the car crossed the finishing line after months of development and over 3000km of racing.

The full story can be found at the solarfox team website.<sup>2</sup>

And what of other graduates seeking the same kind of experience? Dave offers his opinions...

*“The DESG has a well-deserved reputation for offering rewarding professional and personal development. Placements and opportunities of all kinds are available to those individuals motivated to seek out experience. I have always found the DESG supportive and flexible to a genuine request and a sound business case. As for the solar car event...my personal view is that the DESG should design and build a car of its own. From my experience I can see that within our organisation we have – or we can find – all of the elements needed. We have creative people, partnerships with industry, access to workshops and transportation. It could be run along the lines of the graduate discussion groups. And the budget does not have to be huge. I can certainly see the benefits and if the DESG decide to take up the suggestion then they can count me in! My thanks to both UCL and DESG”.*

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Related Websites:

<sup>1</sup> <http://www.wsc.org.au/>

<sup>2</sup> <http://www.teamsolarfox.com/>