



The Technical Challenges of an Automated Telescope Observatory

Monday, 11th September, 2006
Refreshments at 5.30pm Talk at 6.15pm
Engineering House, 447 Upper Edward St, Brisbane

Presented by: Associate Professor Duncan Campbell Queensland University of Technology

The Telescopes In Education program is one response to regenerating excitement in science, engineering and technology for school children. The program is designed to facilitate authentic science engagement through astronomical experimentation using a number of internet controlled telescopes around the world. These telescope observatories are often in remote locations (the closest is at Nanango in Queensland) with very limited (if any) human supervision. Completely autonomous telescope observatories pose a number of challenges in consideration of reliability, robustness and protection of investment from weather related damage (sun, wind and rain). Associate Professor Duncan Campbell, Andrew Keir (Project Coordinator) and some of the award winning students will present the technical challenges, and solutions to these challenges, in automating a remotely controlled telescope observatory which accommodates up to five telescopes. Such challenges include robust supervisory control of the observatory services and that of the telescopes themselves. Use is made of supervisory embedded controllers, proprietary network protocols and sustainable operations through power outages. Further information regarding the Australian arm of the Telescopes In Education program can be found at <http://www.bee.qut.edu.au/research/projects/ntqo/>

Biography

Dr Duncan Campbell is an Associate Professor with the newly formed School of Engineering Systems at the Queensland University of Technology (QUT). Dr Campbell spent the first 13 years of his academic career at La Trobe University in Melbourne. In 1999, he was briefly with the School of Microelectronic Engineering at Griffith University and in the year 2000, joined QUT with the former School of Electrical and Electronic Systems Engineering. Dr Campbell enjoys many linkages with industry and is contributing to the vision and direction of the new School. He is particularly driven by the challenges that we currently face as a profession, including, the waning interest of our children in science, engineering and technology; the professional engineering skill shortage; and the shifting skill demands being placed on our new graduates and as they progress through increasingly dynamic career paths. Dr Campbell's other interests lie in the areas of real-time computation intelligence, automation and airborne robotics. He has also been a past Secretary for the IEEE-Queensland Division.

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