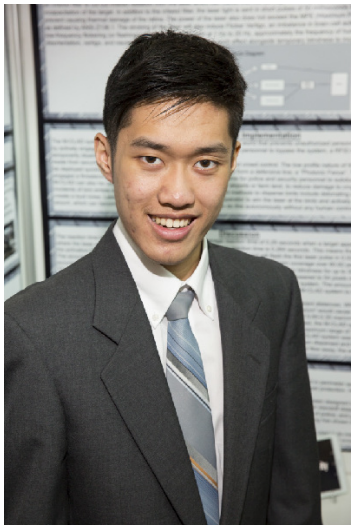
CWSF 2015 - Fredericton, New Brunswick



Ray Liu

Microcontroller Controlled Laser Area Denial (M-CLAD)

Challenge: Innovation
Category: Senior
Region: Greater Vancouver
City: Richmond, BC
School: R C Palmer Secondary

Abstract: In the M-CLAD project, a fully autonomous robot which uses a computer controlled laser to repel animals or incapacitate humans by causing temporary blindness and disorientation was developed. The device utilizes motion detection and tracking software to track a moving target. A laser is then aimed at the location of the target to repel and discourage the entity from advancing further into the restricted area.

Biography

Ray is a 16 year old, Grade 11 student from Richmond BC. Ray has always had a passion for Engineering and Science. Since the age of 6, he has built a wide collection of gadgets and contraptions of various functions ranging from solar powered robots to wrist mounted flamethrowers. At the age of 8, his parents got him his first soldering iron. It was a 60 watt soldering iron which started him off in his journey in the world of engineering, building different circuits, lasers, and coil guns. When he was nearly 10, he decided he needed a computer, so he built his own computer from two junked computers, swapping the motherboard and the PSU. Now, at the age of 16, he takes on much more advanced projects, such as a 2500 watt electric motorcycle, a fully liquid cooled computer, a personal DIY Laser Cutter, and a solid state musical Tesla Coil. Ray intends to study mechatronics engineering in the future and turn his interests into a career. Ray hopes that his passion for designing, building, and inventing will one day contribute to the betterment of humankind and becoming a step closer to the technological singularity.

Awards	Value
Excellence Award - Senior - Gold Medal Sponsor: Youth Science Canada	$250
Dalhousie University Faculty of Science Entrance Scholarship Senior Gold Medallist - $5000 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	$5 000
UBC Science (Vancouver) Entrance Award Senior Gold Medallist - $4000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver)	$4 000
University of Manitoba Entrance Scholarship Senior Gold Medallist - $5000 Entrance Scholarship Sponsor: University of Manitoba	$5 000
University of New Brunswick Canada-Wide Science Fair Scholarship Gold Medallist - $5000 Entrance Scholarship Sponsor: University of New Brunswick	$5 000
University of Ottawa Entrance Scholarship Senior Gold Medallist - $4,000 Entrance Scholarship Sponsor: University of Ottawa	$4 000
Western University Scholarship Gold Medallist - $4000 Entrance Scholarship Sponsor: Western University	$4 000
Total	$27 250