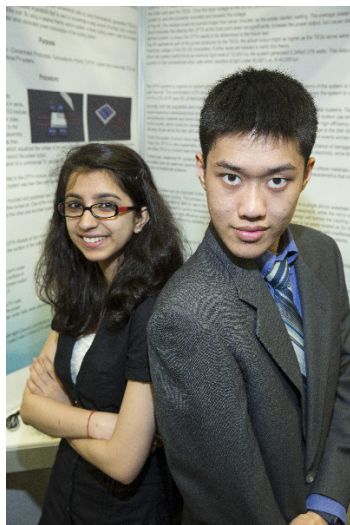


CWSF 2014 - Windsor, Ontario



Ray Liu, Pearl Ayem

Concentrated Photovoltaic Thermoelectric Hybrid Systems (C.P.T.H.)

Challenge: Innovation

Category: Intermediate

Region: Greater Vancouver

City: Richmond, BC

School: R C Palmer Secondary

Abstract: In this project, a photovoltaic and thermoelectric hybrid module is developed, which produces electricity and delivers a higher efficiency than conventional solar cells by using thermoelectric generators to capture the waste heat. A parabolic dish is used to concentrate sunlight onto a PV cell and a passive thermo siphon cooling system is used to cool down thermoelectric generators.

Biographies

Ray - Ever since I was 6, I've always wanted to work in the science field. I started off with taking apart different electronics such as cameras and radio controlled cars. As I got older, I began to disassemble more significant electronics. At the age of 8, I took apart a computer and a tube monitor. Inside the tube monitor, there was a high voltage transformer which I enjoyed playing for quite a while. At the age of 9, my parents got me my first soldering iron. It was a 100 watt soldering iron and that was what started me off in my journey in the electronic world, building different circuits, lasers, and coilguns. When I was nearly 10, I decided I...

Pearl - Bookworm, techie, a to be engineer, passionate awarded speaker and an international science award winner- I am Pearl and I'm a dreamer. What's my story? At seven, I made a toy car that worked on water. Ever since, my dream was to design an actual car like that. I researched and thought of designs for days, only to one day read in a magazine of car that worked on water. Being extremely put down and frustrated about not being the first mind to this idea, I learnt, that growing up in a highly competitive metropolis needed me to be unique- to set goals and strive for them. Coming from a past city where pollution is a major concern, doing some...

Awards

Value

| | |
|---|----------------|
| Excellence Award - Intermediate - Bronze Medal Sponsor: Nuclear Waste Management Organization | \$100 |
| Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University | \$1 000 |
| Total | \$1 100 |