

# CWSF 2018 - Ottawa, Ontario



## Ray Hao

### Radon: Silent but Deadly

**Challenge:** Innovation

**Category:** Intermediate

**Region:** Ottawa

**City:** Ottawa, ON

**School:** Colonel By S.S.

**Abstract:** This project prospected the application of a low-cost voltage-controlled oscillator circuit used to detect radon concentrations in homes and a cheap self-made mitigation system as an alternative to overpriced radon detection/installation services. Upon controlled testing, it was determined that the circuit was effective with slight uncertainty, the mitigation system reduced radon concentrations by ~90%, and that a relay between the two could drastically optimize cost-efficiency.

### Biography

My name is Ray Hao and I am a grade 10 student currently attending Colonel By Secondary School in Ottawa. Apart from the heavy workload of high school, I enjoy participating in a variety of activities in everyday life in school and out. In school, I like playing on sports teams (i.e Basketball and Cross Country) and participating in clubs. In my own time, I find value in running and learning about whatever piques my interest. This year, my science fair project was inspired by a controversy in a local elementary school where radon concentrations were extremely high. I decided that rather than having services solve the issue for me, a much more intriguing and cost-efficient solution for my home was to build my own (VCO) circuit and mitigation system. My passion towards building circuits originates from a grade 6 project and the opportunity to use this interest for general societal benefit was irresistible. I hope to continue my work and optimize energy efficiency (i.e operating cost) sometime in the near future. For anyone looking to do their own project, my advice is to commit to a topic you're passionate about and persist through the process.

### Awards

### Value

Excellence Award - Intermediate - Bronze Medal Sponsor: Youth Science Canada	
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
Total	\$1 000