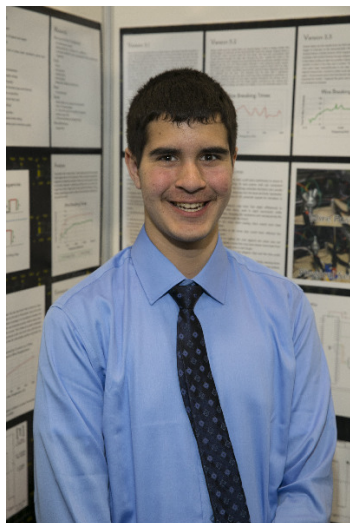


# CWSF 2017 - Regina, Saskatchewan



## Clark Bains

### The Breaking Point: Increasing Circuit Efficiency and Reducing Heat

**Challenge:** Energy

**Category:** Intermediate

**Region:** Rideau-St. Lawrence

**City:** Carleton Place, ON

**School:** Carleton Place H.S.

**Abstract:** As current flows through a wire, heat is generated. While this is intended in some situations, it is undesirable in others. Designed to attempt to mitigate the heat buildup where it isn't desired, the project was conceived. Using a square wave at a 50% duty cycle and a variable frequency, I discovered what can be done to avoid unwanted heat in wires.

#### Biography

Hi. I am Clark Bains. I live in a small town near Ottawa. This year will be my first CWSF, and it was my second year participating in the regional science fair. I am very passionate about electronics, computers and emerging technologies. I used to run a technology club at our school, where we built circuits, networked computers in strange ways or 3D printed some gizmo that we probably didn't need. My favourite subjects are math, science, and computer science (I have used and partially learned 5 different programming languages). I love learning new things, and sometimes I spend my nights reading encyclopedia articles about random topics. Inspiration for my project came from noticing the effect of resistive losses in various places around the house, and consequently me wondering if there was a way to eliminate, or reduce the effect. In the future, I aspire to enter the computer science stream to become a software developer.

#### 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