

# CWSF 2018 - Ottawa, Ontario



## Maisie Cottrill

### Using Pi to Grow Your Greens: An Experiment in Greenhouse Automation

**Challenge:** Innovation

**Category:** Junior

**Region:** Bluewater

**City:** Tara, ON

**School:** Sullivan Community E.S.

**Abstract:** A simple greenhouse was automated using a Raspberry Pi that was programmed to regulate the temperature, humidity, and soil moisture. The effectiveness of the automated greenhouse was tested against a manual greenhouse and an open air tray to determine which environment produced superior bean plants. The automated greenhouse produced approximately the same amount and rate of growth as the manual greenhouse with greater efficiency.

#### Biography

My name is Maisie Cottrill. I live in Grey County, Ontario and I am in Grade 7 at the rural school of Sullivan. At school, I love to study mathematics. I enjoy playing soccer, playing piano, and computer programming. This year has been my fourth year participating in Science Fair, and this is my first trip to Canada Wide. For my project this year, I built and programmed an automated greenhouse using a Raspberry Pi and an Arduino Uno. I also tested the automated greenhouse against a manual greenhouse and an open air tray to see which setting would produce the most bean plants, while keeping conditions such as temperature and moisture as steady as possible. For future investigation, I would use the essential information gained from this project to find ways to make greenhouse automation more efficient, as well as more environmentally friendly. My advice for other students is to never give up in something they believe in. Someday I hope to work in engineering, specifically as an environmental engineer.

#### Awards

#### Value

Excellence Award - Junior - Silver Medal Sponsor: Youth Science Canada	
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
Total	\$2 000