

## CWSF 2015 - Fredericton, New Brunswick



### Katie Brent

#### EMMA: ElectroMyographically Manipulated Arm - The Future of Prosthetics

**Challenge:** Innovation

**Category:** Senior

**Region:** Bay Area

**City:** Oakville, ON

**School:** Notre Dame S.S.

**Abstract:** The prostheses prevalent in today's society are often bulky and expensive with limited control and ability to move naturally. To solve this problem, I used recent advancements in consumer technology including a Myo myoelectric armband and Arduino Uno to develop a novel prosthesis that overcomes the aforementioned issues. Furthermore, my prosthesis allows for a more natural, tactile experience for the user with enhanced safety measures.

#### Biography

I'm a sixteen year old grade eleven that is absolutely thrilled to be participating in the Canada Wide Science Fair for the third time! I really love science, math, the arts and athletics. Travelling is another hobby I have, and I've been incredibly lucky to see so many parts of our country including Alberta, Québec, New Brunswick and Prince Edward Island. My greatest travel and education opportunity, however, was afforded to me at CWSF 2014, where I was chosen as one of three Canadians to participate in the National Youth Science Forum in Australia. In the future, I hope to be a scientist, engineer, or doctor. The inspiration for my project came when I was investigating advancements in wearable consumer technology, which I have had a keen interest in for some time. In the future, I'd love to expand my knowledge of computer hardware and software technologies that can have a positive impact in our society. For anybody considering pursuing a science fair project, I would encourage them to find a topic that interests them and dedicate themselves to it- it's easy to get discouraged, but sticking to it betters you as both a scientist, and a person in general!

#### Awards

#### Value

Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	
Dalhousie University Faculty of Science Entrance Scholarship Senior Silver Medallist - \$2500 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	\$2 500
UBC Science (Vancouver) Entrance Award Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver)	\$2 000
University of New Brunswick Canada-Wide Science Fair Scholarship Silver Medallist - \$2500 Entrance Scholarship Sponsor: University of New Brunswick	\$2 500
University of Ottawa Entrance Scholarship Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: University of Ottawa	\$2 000
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
<b>Total</b>	<b>\$11 000</b>