2013 Team Canada Mobile Robotics

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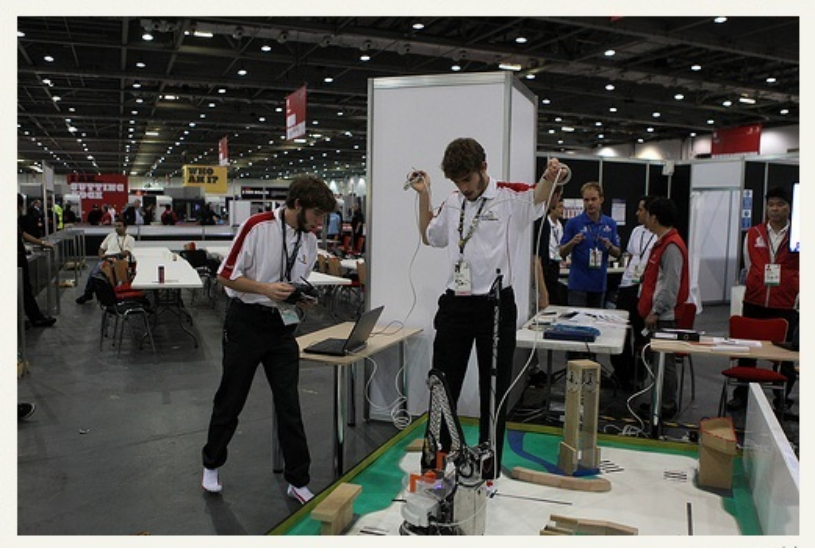
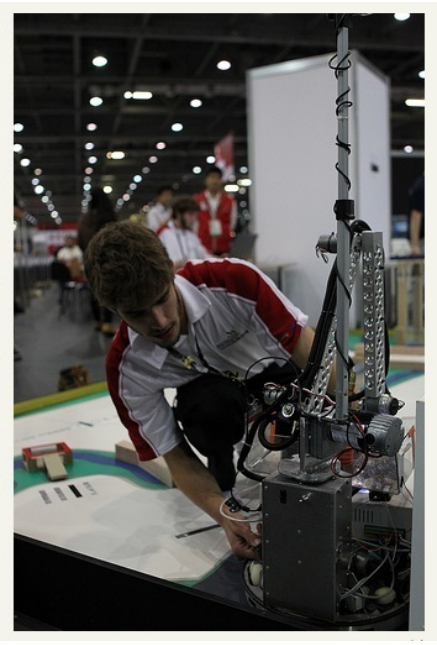


2011 Team Canada Mobile Robotics Team in London

Placed 7th in a field of 15 Countries

Awarded a Worldskills Medallion of Excellence



Ben Church

Adrian Schut

2012 is a 'Team Canada Selection Year'. It is important that competitors and teachers have a clear understanding regarding what being a WSI Mobile Robotics Competitor / Team Trainer involves.

Skills Canada's 2012 National Gold Medal Team will have up to four members. However, **the WSI Mobile Robotics Competition is set for Teams of TWO Competitors**.

The Teachers of ALL Teams advancing to the 2012 National Competition in Edmonton will **need to identify, before they come to Edmonton, the two members of their team that will be candidates for membership in Team Canada 2013** in the event their Team wins the 2012 Skills Canada National Robotics Gold Medal.

I acknowledge this requires making a difficult decision.

However, this process of selecting 2 out of 4 provides valuable and essential flexibility when bridging between the differences in the Skills Canada Robotics and Worldskills Mobile Robotics competition formats.

The four Skills Canada Robotics Team Members bring a diverse array of skills to their participation in the Skills Canada Robotics Competition. Competitors often fill specialized roles within the team Design / Fabrication / Radio Control System Management.

The WSI Mobile Robotics Team requires Competitors with:

- The Design / Fabrication / Hardware and Radio Control Management Skills displayed during their Skills Canada Experience.
- In addition, it is essential the 2013 Skills Canada WSI Mobile Robotics Team also have or be willing to develop substantial Computer Programming Skills.

  Note: While it may be that one competitor is the Primary Programmer it is important that BOTH competitors develop programming skills to enable the team to respond to unexpected situations such as illness to one competitor during the competition period.

<u>Participation as part of Team Canada 2013 will take a serious and sustained commitment of time, energy and effort from June 2012 to July 2013 on the part of the Competitors and their Teacher / Trainer.</u>

The 2011 Skills Canada WSI Mobile Robotics Team attended the school where their Teacher / Trainer was present throughout their entire WSI Preparation Experience. This was an exceptionally valuable component in managing their Training Experience.

Worldskills International Mobile Robotics has two distinct components:

- Task One: Competitors develop a completely autonomous solution, using FESTO's Robotino Robot and FESTO provided Object management Hardware, in response to the work situation described in the WSI Project Description document published at the start of January 2013.

  Example: The 2011 Autonomous Task was based on managing a warehouse, collecting designated pallets, placing the pallets on a trailer and moving the trailer to a designated location. The equipment involved was a Robotino for mobility and a Forklift for pallet and trailer management.

- Task Two: Competitors develop a solution in response to the work situation described in the January 2013 WSI Project Description document that involves:
  - Use of a FESTO Robotino in autonomous mode for all mobility requirements of the task
  - Use of a Competitor Designed / Built / Radio Controlled Object Management System for object handling requirements of the task

  Example: The 2011 CBRCOMS Task was based on managing a London Postal Service Robot, moving through a London Map while collecting 7 different shaped objects and delivering these objects to 7 designated locations. The Radio Control Operator was positioned behind a screen where they could

not see the court and managed their CBRCOMS based on information provided through their lap top screen.

The Skill Set required by the Skills Canada Mobile Robotics Team includes both the same skill set required in the Skills Canada National Competition and some new skills:

- Ability to design / fabricate / maintain / operate a Radio Controlled system
- Ability to maintain / assemble a commercially built robot
- Ability to manage / program a commercially built autonomous robot

2013 Skills Canada Mobile Robotics Team Preparation Schedule

Stage One June to December 2012: Focus is on the Autonomous WSI Competition FESTO Robotino Robot

- Learning to program the Robotino using FESTO's Robotinoview software
- Developing a thorough familiarization with the Robotino hardware

Stage Two January to End of May 2013: Focus is on the Design / Fabrication / Control Skill development of the Competitor Built Radio Controlled Object Management System (CBRCOMS):

- At the start of January 2013 the Task Descriptions will be published
- Competitors need to analyze the CBRCOMS Task and create a suitable CBRCOMS unit
- Competitors need to integrate their CBRCOMS into their Robotino
- Develop and implement autonomous mobility management strategies for both the Robotino plus FESTO Object Management Task and the Robotino plus CBRCOMS Task.