**RobotRacing 2009**

**Submitted By**

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**Description of Proposal**

RobotRacing is a competition between teams from Canadian Universities involving the construction of the fastest automated vehicle that drives around a small scale racetrack containing obstacles and other constraits. The robot vehicles must operate as efficiently as possible while conforming to the constraints using no user intervention during the race. The cars employ complete Mechatronic systems that include sensors, input, signal processing, decision making, output signal processing, and actuation. This is the quintessential product of a Mechatronics design.

**Proposal Benefits**

This competition promotes innovation in automation and robotics, with a focus on automated vehicles and the enabling the vehicle "brain" to learn to drive itself. While all teams employ Mechatronics systems, there is a wide variability in the design and the actual components used. This competition will exude the benefits associated with each combination and implementation of Mechatronics components and reveal the best overall design for this race.

**Cost Breakdown**

**Option 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Unit $** | **Quantity** | **Subtotal $** |
| [Futaba 6EX 6-hannel 2.4GHz Radio Sys](http://www.robotshop.ca/futaba-6ex-6-channel-radio-system.html) | $ 244.43 | 1 | $ 244.43 |
| [Firgelli Automations 2 - 4 chnl Remote Control Sys](http://www.robotshop.ca/firgelli-automation-4-channel-remote-1.html) | $ 75.83 | 1 | $ 75.83 |
| [Draganfly 2.4GHz Wireless Colour Cam](http://www.robotshop.ca/draganfly-eyecam-video-system-1.html) | $ 277.77 | 2 | $ 555.54 |
| [Mindsensors NXTcam V2 Vision Sensor](http://www.robotshop.ca/mindsensors-nxtcam-v2-vision-sensor-1.html) | $ 176.38 | 2 | $ 352.76 |
| [Hagisonic StarGazer Robot Localization Sys](http://www.robotshop.ca/hagisonic-stargazer-localization-system-1.html) | $ 1,088.89 | 1 | $ 1,088.89 |
| Hokuyo URG-04LX Scanning Laser Rangefinder | $ 2,632.22 | 1 | $ 2,632.22 |
| Hokuyo PBS-03JN Infrared Obstacle Detection Sys | $ 1,527.10 | 1 | $ 1,527.10 |
| [Wowwee Rovio Mobile Robotic Webcam](http://www.robotshop.ca/wow-wee-rovio-spy-robot.html) | $ 333.32 | 1 | $ 333.32 |
| ADC-212/50 & ADC-212/100 PC Oscilloscopes | $ 394.11 | 1 | $ 394.11 |
| [Remote Controlled Vertical-Translation System](http://www.robotshop.ca/add-a-motor-drapery-controller-800rc-1.html) | $ 143.16 | 2 | $ 286.32 |
|  | TOTAL: |  | $ 7,490.52 |

**Option 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Unit $** | **Quantity** | **Subtotal $** |
| [Futaba 6EX 6-hannel 2.4GHz Radio Sys](http://www.robotshop.ca/futaba-6ex-6-channel-radio-system.html) | $ 244.43 | 1 | $ 244.43 |
| [Firgelli Automations 2 - 4 chnl Remote Control Sys](http://www.robotshop.ca/firgelli-automation-4-channel-remote-1.html) | $ 75.83 | 1 | $ 75.83 |
| [Draganfly 2.4GHz Wireless Colour Cam](http://www.robotshop.ca/draganfly-eyecam-video-system-1.html) | $ 277.77 | 2 | $ 555.54 |
| [Mindsensors NXTcam V2 Vision Sensor](http://www.robotshop.ca/mindsensors-nxtcam-v2-vision-sensor-1.html) | $ 176.38 | 2 | $ 352.76 |
| Hokuyo URG-04LX Scanning Laser Rangefinder | $ 2,632.22 | 1 | $ 2,632.22 |
| Hokuyo PBS-03JN Infrared Obstacle Detection Sys | $ 1,527.10 | 1 | $ 1,527.10 |
| [Wowwee Rovio Mobile Robotic Webcam](http://www.robotshop.ca/wow-wee-rovio-spy-robot.html) | $ 333.32 | 1 | $ 333.32 |
| ADC-212/50 & ADC-212/100 PC Oscilloscopes | $ 394.11 | 1 | $ 394.11 |
| [Remote Controlled Vertical-Translation System](http://www.robotshop.ca/add-a-motor-drapery-controller-800rc-1.html) | $ 143.16 | 2 | $ 286.32 |
|  | **TOTAL:** |  | **$ 6,401.63** |

**Option 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Unit $** | **Quantity** | **Subtotal $** |
| [Futaba 6EX 6-hannel 2.4GHz Radio Sys](http://www.robotshop.ca/futaba-6ex-6-channel-radio-system.html) | $ 244.43 | 1 | $ 244.43 |
| [Firgelli Automations 2 - 4 chnl Remote Control Sys](http://www.robotshop.ca/firgelli-automation-4-channel-remote-1.html) | $ 75.83 | 1 | $ 75.83 |
| [Draganfly 2.4GHz Wireless Colour Cam](http://www.robotshop.ca/draganfly-eyecam-video-system-1.html) | $ 277.77 | 2 | $ 555.54 |
| [Mindsensors NXTcam V2 Vision Sensor](http://www.robotshop.ca/mindsensors-nxtcam-v2-vision-sensor-1.html) | $ 176.38 | 2 | $ 352.76 |
| Hokuyo PBS-03JN Infrared Obstacle Detection Sys | $ 1,527.10 | 1 | $ 1,527.10 |
| [Wowwee Rovio Mobile Robotic Webcam](http://www.robotshop.ca/wow-wee-rovio-spy-robot.html) | $ 333.32 | 1 | $ 333.32 |
| ADC-212/50 & ADC-212/100 PC Oscilloscopes | $ 394.11 | 1 | $ 394.11 |
| [Remote Controlled Vertical-Translation System](http://www.robotshop.ca/add-a-motor-drapery-controller-800rc-1.html) | $ 143.16 | 2 | $ 286.32 |
|  | TOTAL: |  | $ 3,769.41 |

**Implementation Schedule**

By August 2009, we endeavour to finish the initial complete framework/prototype from which future projects will be able to grow.