RoboJackets

BattleBots - Outreach - IGVC - RoboCup - IARRC

www.robojackets.org

IARRC Intro Meeting

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Agenda

- Where IARRC Fits In
- Competition/Goals
- Team Structure
- General Timeline
- Team Logistics
- Open Discussion

WHERE IARRC FITS IN

Mission Statement

- *Promotion:*
  Through presentation of the existing uses of robotics in both industry and the home, the areas of current research and the possibilities for further application we hope to show the practicality and versatility of the robotics applications as well as the viability of the pursuit of education and careers in its development.
- *Education:*
  Through training workshops, competitive robotics, and student designed experimentation, the RoboJackets encourage the application and integration of concepts learned in their regular coursework as well as the understanding of how other disciplines contribute to the success of a project.
- *Advancement:*
  Through development projects and student experimentation, the RoboJackets hope to expand both our organizational knowledge base, as well as that of the students involved and the robotics community.

New Members

- Lower learning curve
- Hands on experience
- Make things!

- Because race car

Desired Outcomes

- Have more experienced members
- Return to IARRC in the future
- Grounded in fundamentals

COMPETITION/GOALS

Competition Overview

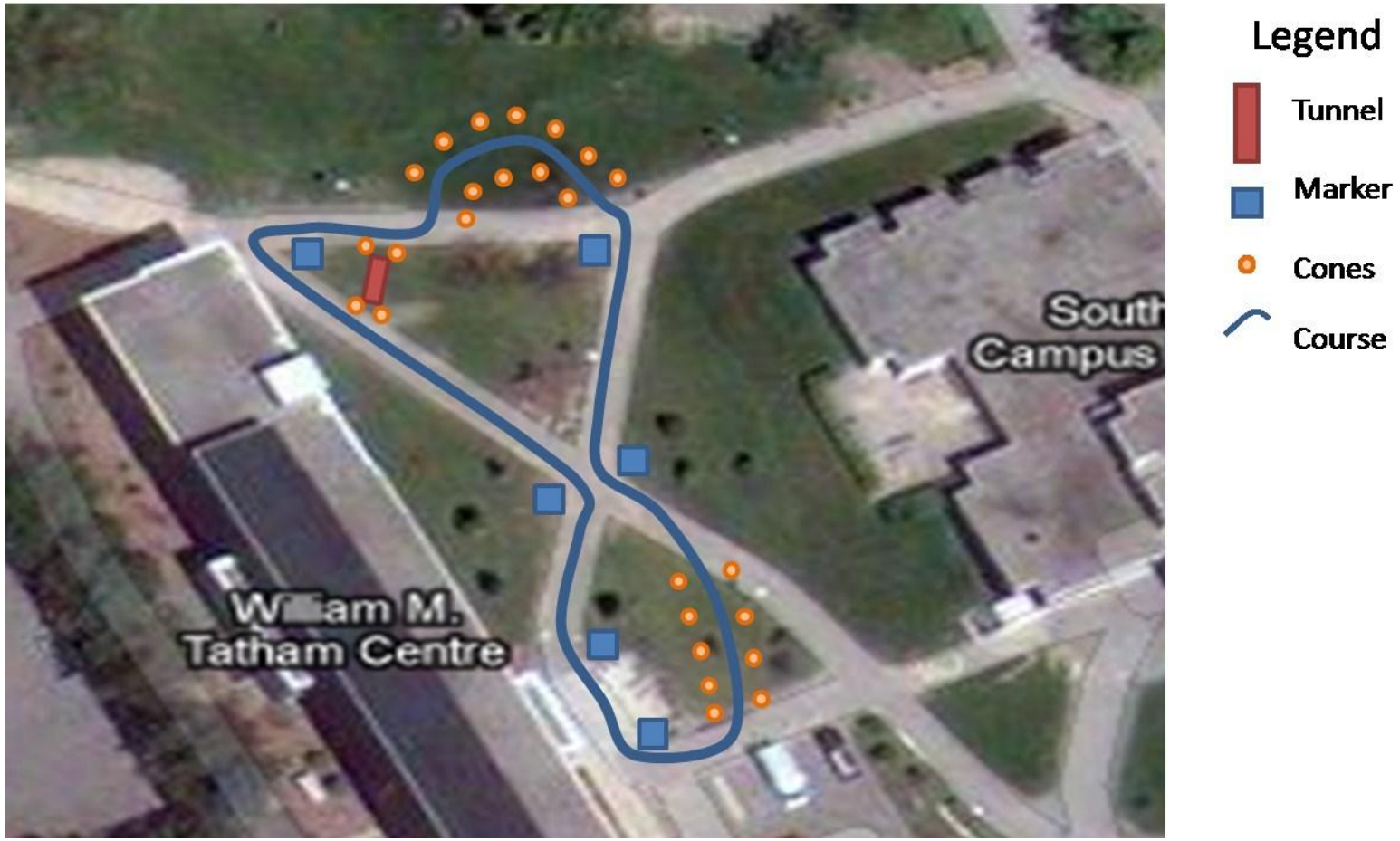
- Autonomous racecar
  - All sensory inputs and processing onboard
  - All power onboard
- 2 races
  - Circuit course
  - Drag race
- Hosted by University of Waterloo
  - More information at http://iarrc.ca

Main Objectives

- High-speed vehicle localization
- High-speed vehicle control (acceleration and braking) on different surfaces
- Stop light and roadway detection
- Collision avoidance with static objects along boundaries of course
- Collision avoidance with other competing robots

Circuit Race

- Drive on a variety of surfaces
  - Pavement, grass, etc
- Course bounded by
  - Cones
  - Lines
  - Edges
- Started by traffic light


Legend
Tunnel
Marker
Cones
Course
South Campus
William M. Tatham Centre

Drag Race

- Straight line drag strip
- 30 meters
- Bounded by cones
- Started by traffic light
- One other robot racing at same time

TEAM STRUCTURE

Mechanical

- Design chassis to support:
  - Sensory equipment
  - Electrical systems
  - Laptop
- Design equipment mounts
- Optimize vehicle stability/ride dynamics

Software

- Control vehicle
  - Process sensory information
  - Path planning
  - Motor control

Electrical

- Power mechanical and software systems
- Interface between mechanical and software systems
  - Design PCB to interface microcontroller with ESC
  - Wire car

GENERAL TIMELINE

Timeline

- Next week: Design process
- Week of 23rd meet in subteams
- Teaching modules through October
- November: start car work
- April: complete work
- July: go to Canada

TEAM LOGISTICS

RoboJackets Meeting Times

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6:30PM	IARRC	RoboCup	IGVC	BattleBots	BattleBots		
11:30AM							RoboCup
3:30PM							IGVC

Meetings

- Meet every Monday
- Schedule?
  - Test periods?
  - Other things going on?
- Alternate subteam and full team meetings

Dues

- $55/Semester

OR

- $100/Year

- Pay for shirts and travel
- RoboJackets funds entire project

OPEN DISCUSSION