RoboJackets

CAT®

THE ARTHUR M. BLANK FAMILY FOUNDATION

# 2007 TE Sessions – Intro

September 18, 2007

www.robojackets.org

# FIRST Announcements

# RoboJackets JumpStart

- What
  - $1500 Grants
  - Only covers build
  - Any team (not limited to rookies)
- Apply
  - 1 page on how your team would benefit
    - Roman (shtylman@gmail.com)
    - Brian (bguerriero@gmail.com)

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# RJJS General Requirements

- Participate in 2007  Technology Enrichment Sessions
- Participate in the 2007-2008 FIRST Robotics Competition (team must raise registration costs)
- List RoboJackets as a sponsor on promotional materials and robot
- Attendance to the remote FRC Kickoff in Atlanta
- Participate in the brainstorming session at the kickoff

# RJJS Technical Requirements

- Participation in weekly design collaborations during the build period
- Choose a drivetrain design by the end of the 1st FRC build week (custom/kitbot)
- Have a complete robot design reviewed at a design collaboration by the 3rd FRC Build week

# Info

- Sponsors
  - Caterpillar
  - Arthur Blank Foundation
- Key Contacts
  - Brian Guerriero – bguerriero@gmail.com
  - Stefan Posey – stefan.posey@gatech.edu
- Every Tuesday 5pm - 8pm

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# About This Year

- Basic
  - Ways to build,  how to build, and how to succeed.
- Advanced – Special Topics
  - Motor Control, Manipulation, Programming, etc.
- Lectures and notes (pdf)
  - http://www.robojackets.org (click on TE Sessions)

# TE Schedule

## Basic

| | |
|---|---|
| – Introduction to TE | 09/18 |
| – Intro to ME | 09/27 |
| – Mechanical Power Trans | 10/02 |
| – Drive Types | 10/09 |
| – Manipulation | 10/16 |
| – Manufacturing & Safety | 10/23 |
| – Fluid Power | 10/30 |
| – Electrical Power & Storage | 11/06 |
| – Programming | 11/13 |

## Advanced / Special

- Autonomous Control
- Technical Design
- Adv. Mech Power Trans
- Motor Control
- Manipulation I
- Manipulation II

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# What is a robot?

- Characteristics
  - Brain Power
  - Detects environment
- Basic Idea – A vehicle / platform that can compete tasks with out  human interaction.
  - Autonomous capabilities and Sensors

# Marks of a Good Design

- Red Scanners
  - Kitt, Cylons, Gundam, RoboCop
- Shiny
  - Transformers
- Self aware
  - T1000, Data

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# Applications

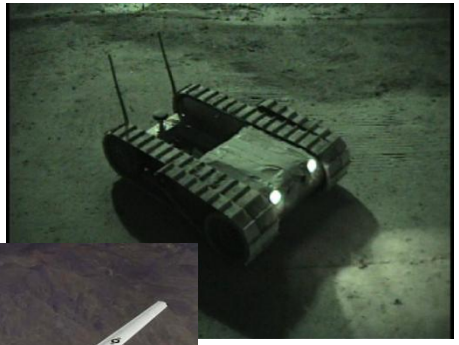
- Commercial / Industrial
- Government / Military
- Research
- Robotics & Georgia Tech
- College Competitions

# App: Commercial / Industrial

- iRobot
  - Roomba
- KUKA
- FANUC
- EPSON

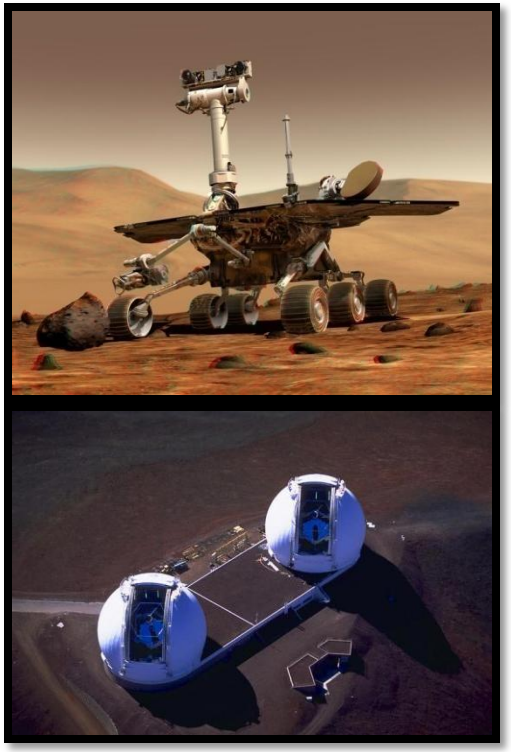
# App: Government / Military

- Samsungs Sentry in the DMZ
- UAV
  - Survalance
  - Communication
- Rescue
- Bomb Disposal



# App: Research

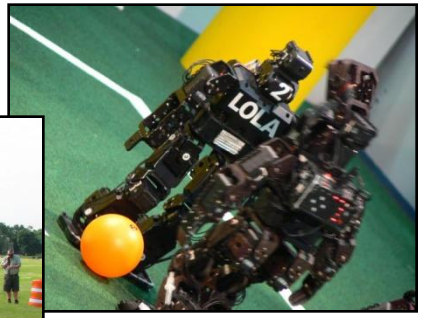
- DARPA
  - Grand Challenge
- NASA
  - Rovers, Landers, Satellites
- Telescopes

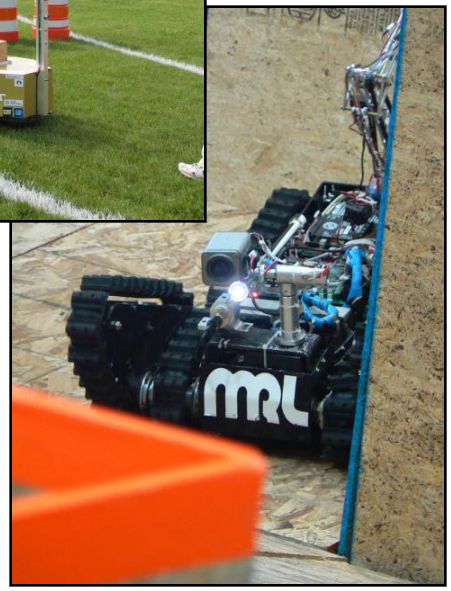


# App: Robotics & Georgia Tech

- Robotics and Intelligent Machines (RIM)
  - http://robotics.gatech.edu
- BORG Lab
- GTRI
- UAV Lab
  - IARC
- IMDL
  - Rescue Crawler, Haptic (force feedback)

# App: College Competitions


- FIRST*
- RoboCup
  - Small Size*
  - Medium
  - Humanoid
- BattleBots*
- AUVSI
  - IGVC* – Ground
  - AUVC – Underwater
  - IARC – Arial
- IEEE
- More


Note * = RoboJackets Team

# TE Session Final Competition

- When: November 17, 2007 @ 10 AM
- Where: MARC

- Food will be provided
  - Kosher and Vegetarian
- Official FTC Scrimmage

# Mini Competition

- Objective
  - Tower
    - Hold 1 bag of candy
- Supplies
  - 2 Boxes of straws
  - 1 Roll of tape

# Legal

These slides and more are available at http://www.robojackets.org.

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For more info contact the RoboJackets.

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