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 (10/19)
    - 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

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Info

- Sponsors
  - Caterpillar
  - Arthur Blank Foundation

- Key Contacts
  - Brian Guerriero – bguerriero@gmail.com
  - Stefan Posey – stefan.posey@gatech.edu

- Every Tuesday 5pm - 8pm

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)

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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

- Topics in Computer Vision
- Autonomous Control
- Technical Design
- Adv. Mech Power Trans
- Motor Control
- Manipulation I
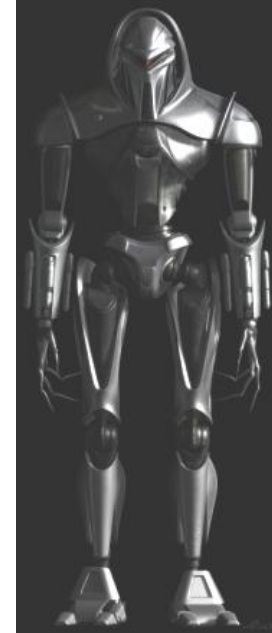- Manipulation II

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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

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Marks of a Good Design

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

Applications

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

App: Commercial / Industrial

- iRobot
  - Roomba
- KUKA
- FANUC
- EPSON

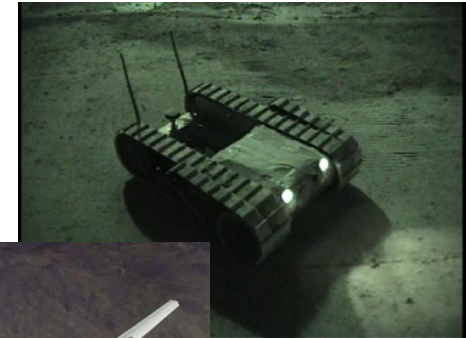# App: Government / Military

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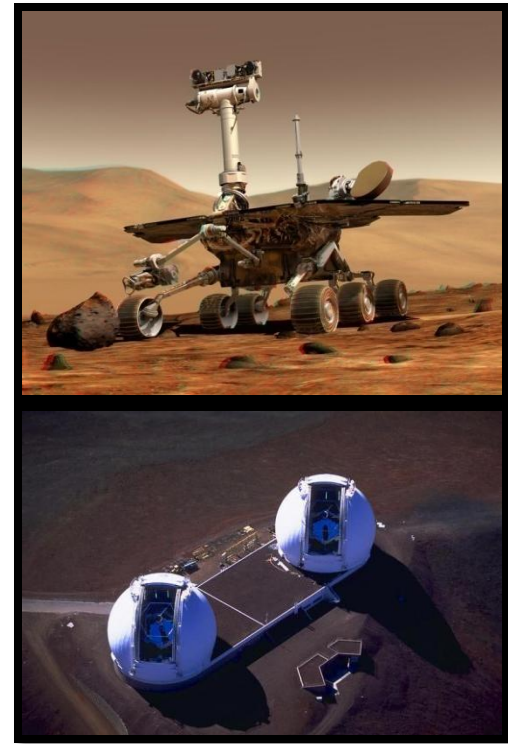 - Communication
- Rescue
- Bomb Disposal

App: Research

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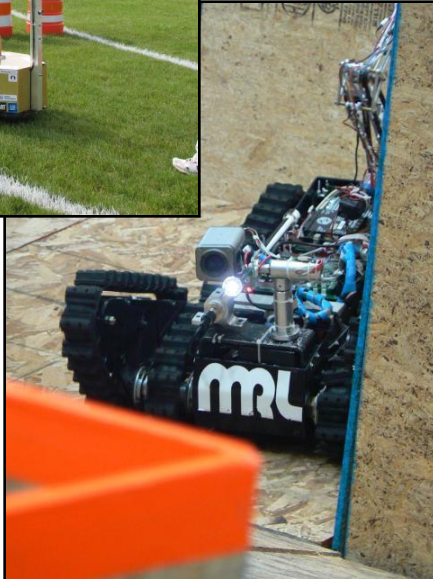- NASA
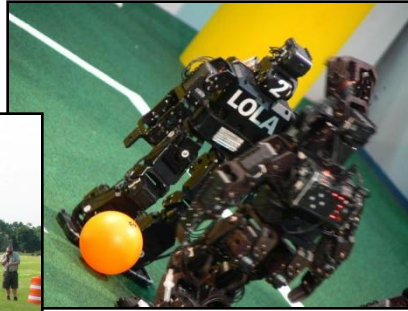 - Rovers, Landers, Satellites
- Telescopes

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.