



# CS/EE/ME 75a

## Week 5: Specifications and Field Test



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<http://team.caltech.edu>

# Meeting Goals and Agenda

## Goals

- Review status charts from each team and look for gaps
- Review plans for end of term test and specifications

## Agenda

- 7:30 Goals, Agenda, Notetaker
- 7:35 Team status charts
- 8:15 Discussion: Dec field tests
- 8:30 Adjourn

**Notetaker:** \_\_\_\_\_

- Record notes and action items from meeting; post on wiki

# Project GOTChA Chart (Fall 2004)

## Goals

- Establish teams and skills required for multi-disciplinary, large-scale project
- Develop capability in key technical areas, aligned with DGC needs
- Finalize and test new system architecture, starting with summer results + review team feedback

## Objectives

- All students using GOTChA charts, bugzilla, wiki, svn as common tools
- Field tests of spiral 1 technologies on preliminary system architecture
  - 5 m/sec autonomous ops w/ Bob on calibrated course w/ new modules
  - Remote control of Alice
- System design review by team of outside experts

## Technical Challenges

- Systems integration, especially SW
- Perception: high speed, unstructured
- Decision-making: robust planning
- Technical driving: accurate path following
- New teams, with mixed set of skills

## Approach

- CS/EE/ME 75: team-based design
- CS 11: structure real-time programming
- ME 72: gimbaled sensor platform (GSP)
- CDS 110: tight waypoint following + GSP analysis
- CS/EE 148: imaging architecture and algorithms
- Partnerships/vendors: contract out vehicle components (& integration?)
- Exploit volunteer collaborations

# Field Test #2 GOTChA Chart

## Goals

- Collect data for use in fall classes
- Test deliberative planner using new planning architecture
- Demonstrate operational capability for Homer using common architecture

## Objectives

- Human driving of Bob with full data capture: calibrated lakebed + trail routes
  - Terrain: LADAR, stereo, color
  - State: IMU, GPS, magnetometer
  - Vehicle: throttle, brake, steering
- Test deliberative planner on Bob or Homer: calibrated lakebed RDDF
- Waypoint following on Homer with common vstate, vdrive; executive prototype
- Improved operations: checklists, meals, network/computing, go/no-go tests

## Technical Challenges (TBDs)

- Manual/automated steering for Bob
- Deliberative planner modules
- Homer GPS/IMU integration (Dima?)
- Common race/field computer config

## Approach

- Identify small teams to take responsibility for major objectives
- Bob (steering): \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- Planning: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- Homer: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- Sysadmin: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- Operations: Elliott, Richard, \_\_\_\_\_