CS/EE/ME 75(b)

Instructor: Joel W. Burdick
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Course Location/Time: 135 Gates-Thomas, TBD
  • 1.5 hour/week class time
  • 1 hour/week project meetings for each team

Course Web Site:
http://robotics.caltech.edu/wiki/index.php/CS_EE_ME_75_2019-20

Units: See course web site for details
  • 2nd quarter: 6, 9, or 12 units:
Winter Goals:

- Everybody must now be working on a system
- Better organize teams and their goals in order to prototype systems
  - Drive-o-copter team needs to be divided into smaller groups
    - Better track individual contributions
    - Better communication/organization
    - Better output/efficiency
- Focus on finishing electromechanical design innovations/modifications
- Start (and in some cases finish) integrating onboard autonomy.
Objectives: general

- Prepare for and complete Critical Design Review (CDR)
- Finish a full functioning prototype
  - Validate or critique the baseline design;
  - Check on specifications/choices
  - Does it meet original objectives?

Objectives: specific

- RC Car:
  - Prep Balto for Urban Circuit:
  - Togo:
    - Build New Superstructure
    - Wheel Odometry
    - Adapt autonomy system
Objectives: specific

- **UWB/Localization**
  - What can you do for Urban Circuit?
    - Additions to JPL baseline?
    - Stair configuration optimization
    - Integration with LAMP
  - Full Autonomy for Cave Circuit
    - Automated triangulation setup
    - Robust to marker movement

- **Drive-O-Copter**
  - *Finish* a mechanical prototype!
  - *Build* an avionics system. Benchtop is a good start
  - Tune the combined system to get stable flight
  - Automate:
    - Take-off
    - Landing

CS/EE/ME 75 Goals, Objectives, Schedule
Timeline

We are here

Cave Circuit (mid-Aug.)
CS/EE/ME 75(b)

Q1: Plan
Q2: Prototype/Test
Q3: Refine/Integrate
Q4: Mock Competition?

Internal Qualification
Internal Qualification

CS/EE/ME 75
Urban Circuit (Feb. 17)
SURFs?
Cave Circuit
CS/EE/ME 75(b): Format

• Next “Structured Artifact” Goal: Critical Design Review (3 weeks)
• Weekly Structure this quarter:
  • Weekly team presentations:
    • 10-15 minutes, 5-10 slides
    • Previous weeks accomplishments
    • Problems encountered
    • Next week’s goals (see your milestone charts)
• Assignment:
  • Review/Update your milestone charts
  • Choose one aspect of your design for development this week
    • Bring this aspect to a level of completion
    • Present it next week.
  • Decide on your team’s Present prototype in 2 weeks
  • Does your team need a new meeting time?