EECS192 Mechatronic Design Laboratory
Project Progress Report

Due: Fri. Mar. 23, 2012

The purpose of the progress report is to give you a chance to evaluate your interim progress, and to set (perhaps more realistic) final goals for the project. Also, it is a good time to document what you have built so far. The progress report is a non-trivial amount of work; we would like to see 5 hours of effort per team member. Here is an outline for you to follow (yes, we want you to address all of these points).

1. Current State of Project (1 page) (15%)

What is your current hardware configuration? What types of sensors have you used? How far has your software been developed? Which software modules are currently working? Which still need further debugging?

2. Hardware Documentation (n pages) (40%)

This is the most important part of the progress report. Without documentation, power MOSFETS, DC-DC converters, and CPU boards will be fried as connections get inadvertently reversed late at night. Provide complete parts layouts and schematics, (schematics should include pin numbers for op amps and gates), of the following hardware modules:

1)   motor drive circuitry

2)   sensor electronics

3)   power supplies (how are things actually connected)

(The minikitSch.pdf schematics (p. 1) and layout (p. 2) have the appropriate level of detail). You are welcome to use a schematic entry tool if desired.

3. Proposed Control Methods (15%)

Describe in detail your working or planned control systems for:

1)   velocity control

2)   steering control

How do you propose to stabilize your control system?

4. Interim Budget (1 page) (10%)

Give a detailed breakdown of the time (in person-hours) which has been invested in the various subsystems such as motor drive, DC-DC converter, CPU board understanding, magnetic field sensors, optical sensors, software, construction, etc. Which types of problems have taken unexpectedly large amounts of time? Summarize monetary costs so far.

5. Refined Proposal for Software Architecture (2 pages) (15%)

What do you plan to have implemented and debugged for the preliminary and final contest rounds? Please describe your proposed software system, including block diagrams. What is your time estimate for development and debugging of the blocks you have not yet implemented?

6. Additional resources required (0.5 page) (5%)

What additional resources will you need to complete your vehicle? Are there additional resources the lab still needs?