Hovercraft

- One vertical thrust fan
- Two rear thrust fans
- Compass
- Rate gyro
- Distance sensors
- Power amplifier (for fans)

Semester task: navigate through a sequence of corridors while avoiding obstacles
Components On Breadboard (planning for the semester)

- Motor driver board
- Gyro
- Atmel mega 8
- Programming interface
- 4 LEDs in circle (for orientation display)
- 5 LEDs in line (for distance and rate display)
- 2 Switches
Project 1

Components:

• Read rate gyro and distance information from the corresponding sensors
• Read the state of a connected switch
• Display the sensor states depending on the state of the switch
  – Logic 0: rate gyro state
  – Logic 1: distance sensor state
Project 1

- Part 1: design and construct the circuit
- Part 2: read and display gyro
- Part 3: read and display sensor values
- Part 4: mount vertical fan on Frisbee
Grading

• Personal programming component: everyone must complete two over the course of the semester

• Group grade:
  – Project implementation: 40%
  – Demonstration/presentation: 30%
  – Code documentation: 30%

• Individual grades will be based on group grades
Project Completion

Due: February 25th @5:00 pm

• Demonstration/presentation
  – Appointment with me or Di
  – All members must be present (exceptions allowed in extenuating circumstances)
  – The demo may drift by a day or two if schedules do not match & everything else is handed in

• Project report:
  – Slides and code on D2L (one copy per group)
Project Completion

Personal report:
• D2L personal report drop box
• Personal programming components:
  – Who did the work? Did they really do it? Ideal: they did 80% or more
• Remaining components:
  – Percentage of work by group members. Ideal: everyone contributed equally
• Individual grades will be weighted by assessment of contribution by you and your team members