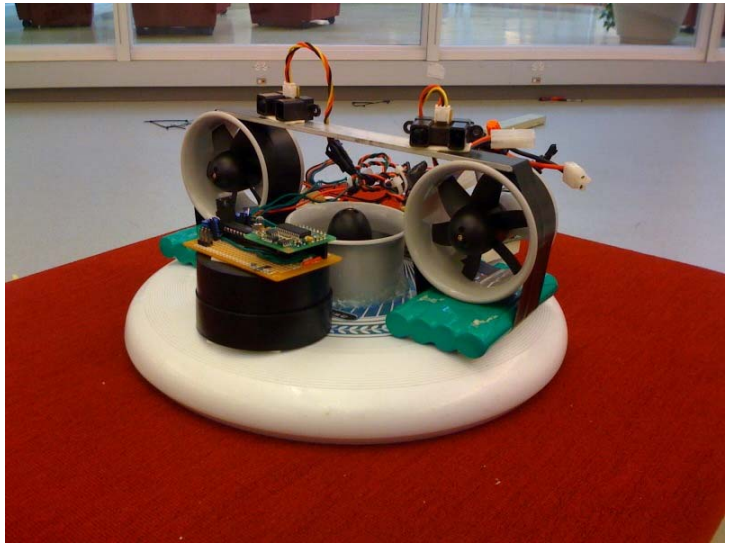
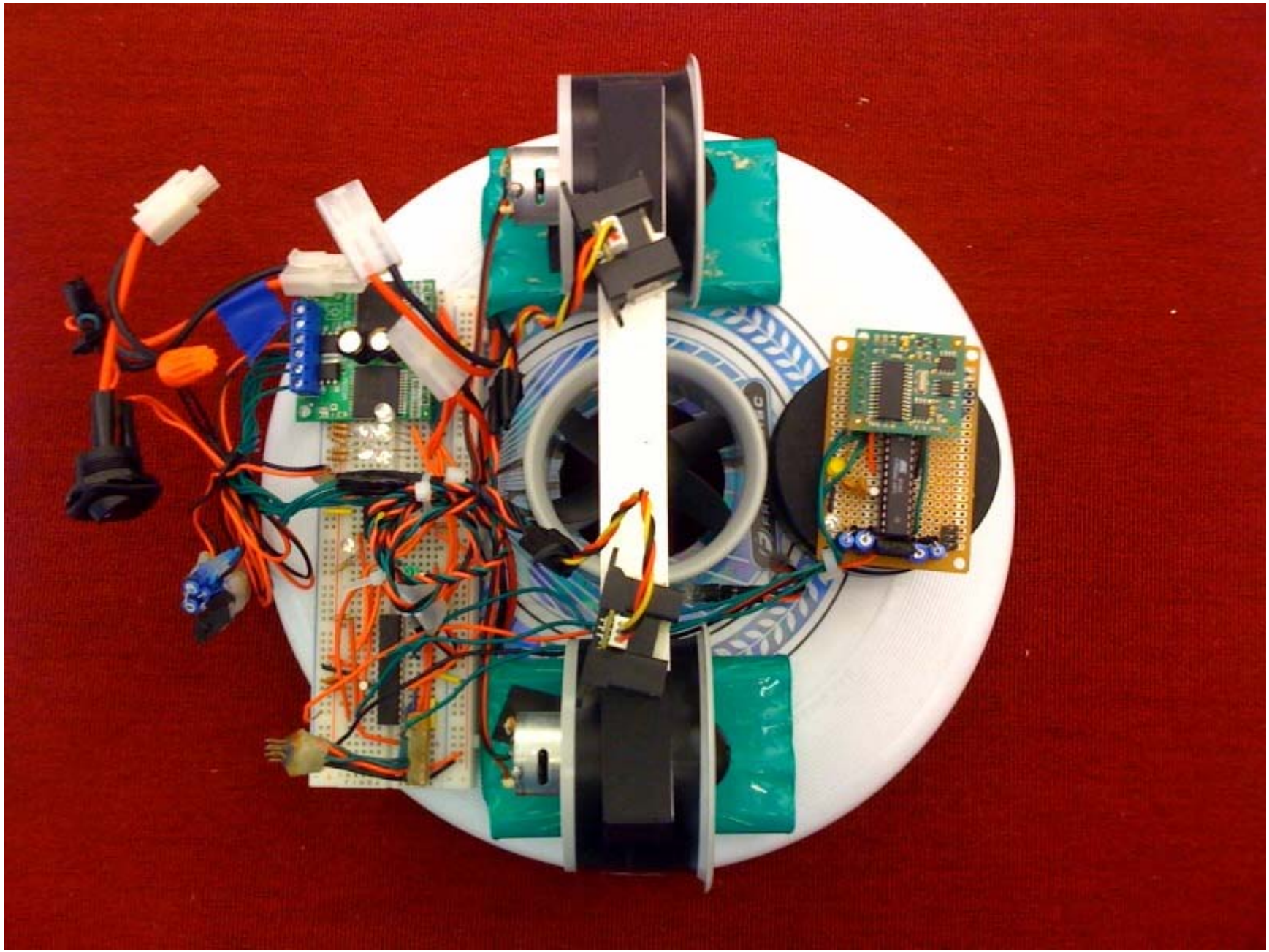
Hovercraft

- 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