

98-012 Fun With Robots

Introduction

Welcome to Carnegie Mellon University's Student College class, Fun with Robots! In this course, you will learn to build and program a multi-functional robot. This course is funded in part this semester by the National Robotics Engineering Consortium and the Robotics Club, which is in turn funded in part by your Student Activities Fee.

Instructors

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Course Web Page

We will be using Blackboard (<http://www.cmu.edu/blackboard>) for its discussion boards, polls, quizzes, and other automated communications. Some course documents will be kept at a partner website, at <http://www.roboticsclub.org/fwr/>. Students are responsible for all information on the course web sites.

Prerequisites

None.

Textbook

There is no official textbook for this course, though instructors may make use of datasheets for different chips, official specifications for certain protocols, and other documents. These will be linked to on the course websites. We will also be posting notes and PowerPoint slides as they are used in the context of the course.

Lab Fee

The lab fee for this course is \$60. The fee includes the cost of the robot and the supplied sensors, both which you get to keep. Fifty percent of the cost of your robot has been subsidized by the The Robotics Institute and the Robotics Club (the actual cost of your sensors and hardware is \$120). The Robotics Club is partially funded by the Student Activities fee.



98-012 Fun With Robots cont.

Course Description

This takes a project based approach to understanding robotics. Each student will assemble and program a robot to accomplish various tasks. The students will be able to keep all of their work at the end of the semester, provided they have paid the lab fee. Students are encouraged to customize their robots as they see fit. The base robot kits used are microBots by Botrics, LLC, controlled by ATMEGA168-based Firefly controllers. Students will be responsible for understanding the important components of a robot, the assembly of their kits, and programming the routines responsible for controlling the electronics.

Course Meeting Information

The course will meet for lecture/lab every Monday at 6:30 in various rooms as indicated on the syllabus. It is important that you do not miss any classes, since we have so few. If you must miss a week, you should get in touch with one of the instructors to find out what you missed.

Grading

This is a StuCo course and therefore is Pass/Fail. Much like *Whose Line Is It Anyway?*, the points don't matter. However, to pass, you must complete two "midterms" and a final project. To pass the first "midterm" project requirements, you must build and demonstrate a photovore. The second "midterm" is a maze-solving competition. The final project specifications will be discussed in class.



FWR Schedule

Week	Date	Topic	Room	Notes
1	January 16	Martin Luther King Day - No Class		No Class
2	January 23	Jumping Right In - Build a Robot! (bring your lab fee please)	Baker 237B	Lab Fee
3	January 30	Microcontroller Programming in C. Lights, buzzers and pots, oh my!	Baker 140F	
4	February 6	Driving Around and Other Motion	Baker 140F	
5	February 13	Sensors and Sensing Minichallenges	Baker 140F	
6	February 20	Photovore Demo	Baker 140F	Demo
7	February 27	Other sensors (using IR to range)	Baker 140F	
8	March 6	Following a wall	Baker 140F	
	March 13	Spring Break!		Go Play
9	March 20	Navigating a maze	Baker 140F	
10	March 27	Maze Competition	Baker 140F	Demo
11	April 2	Servo Minichallenges	Baker 140F	
12	April 9	Robot Autographs	Baker 140F	Demo
13	April 16	Catch-up Week (subject to change)	Baker 140F	
14	April 23	Final Project Discussion	Baker 140F	
15	May 1	Final Project Presentation	Baker 140F	Demo
16	May 8	First Day of Finals		Go Study

