

91.451, Robotics II
Prof. Yanco
Spring 2004

Lab 2

Out: Thursday, 12 February 2004

Due: Tuesday, 24 February 2004 (Thursday 2/19 is a Monday schedule)

Reading: Pyro Module: Direct Control

Overview: In this lab, you'll be writing your first brains for the robot. You'll test your code first in the simulator (either Stage or Aria), then you'll run your code on the actual robot.

For this lab, we'll be using the PyroDirectControl module, which is linked from the course web page. Do all of the exercises in this module.

To run a program on the Pioneer, follow the steps in the Using the Pioneer section of the Intro module. (Also linked from the course web page.)

In addition to the exercises in the module, write a direct control brain that will follow a person (or other object – the trash can outside the lab door works particularly well) at a hard coded distance. You do not need to have obstacle avoidance behavior in this brain. The robot should drive forward until it has an object that is the specified distance away from its front sonars (make this distance between 1 and 2 robots). It should then continue to move forward or backward to keep the object the required distance away from its sensors. While you don't need to implement obstacle avoidance, do check when backing up to make sure that you will not hit a wall in the back. If there is something too close in the back while you're trying to get away from something in the front, stop.

What to turn in: Commented code for all exercises that you wrote code and your answers to questions in the exercises. You also need to demonstrate your wall following and person following code to me on the robot by the end of office hours on Tuesday, 24 February (office hours from 2:30 – 3:30).