CMSC 119: (De-)Coding the Drone

Assignment 6: Mobile Robots

Due November 7, 2013

This assignment introduces you to the scribbler mobile robot[1]. It asks you to consider the difference between direct control and programmed operation. The following program connects to the robot, snaps a picture, drives forward for one second, stops, and then starts gamepad control. You can either connect to a real robot or to a simulated robot[2] using the `init()` function.

```
from Myro import *
init ("/dev/tty.scribbler")  #  or init("sim")
p = takePicture()
show(p)
motors(1, 1)
wait(1)
motors(0, 0)
wait(2)
gamepad()
```

Driving Your Robot

You can control your robot by controlling each motor independently using the `motors(l, r)` function. `motors(l, r)` takes two power values in the range $[-1, 1]$ for both the left and right wheels. Experiment with the `motors(l, r)` function. What values are needed to make the robot drive forward, backward, left and right? How can you use motors to make the robot follow an arc?

Scribbling

Use your robot to draw a square, a 5-point star, or another shape using (a) the gamepad and (b) a function you write. Along with including your program, write a paragraph reflecting on the differences between these two approaches.

Self Portrait

Use the robot's camera to take your picture and save it to a file using the following code snippet:

```
p = takePicture()
show(p)
savePicture(p, "me.jpg")
```

Deliverable

Submit an electronic copy (PDF) on moodle of your report named `robots_LASTNAME.pdf`

[1] http://wiki.roboteducation.org
[2] http://wiki.roboteducation.org/Calico_Simulator