Robots I - Week 3

PBRCL Challenge Problems

Code Injection

Robots run code with our being hooked up to a monitor. How would our code run? More often than not, this happens at system boot time. Let's say you have a file "pbrcl.py" in your home directory (/home/pi), this is how you would launch this code when your Pi boots up:

```
pi@robot2 ~ $ sudo crontab -e
```

If prompted, select the option to (1) or (2) to edit the file in nano.

Then add this line:

```
@reboot sudo /usr/bin/python /home/pi/pbrcl.py &
```

To save your changes, type CTRL+O, enter, then CTRL+X

At Your Command

Your robot is at your command. Using the Push Button Robot Control Language (PBRCL) we are going to think through and code a few challenges.

Distance Measurement

Measure how far your robot moves when you activate code for the following operations:

- Forward
- Reverse
- Left
- Right

See if these measurements are consistent for complex operations, such as:

- Forward, Forward
- Forward, Right

We will use these measurements to help design programs for our robot. Keep in mind that every robot will be a little different, so your measurements may not be exactly the same as someone else in class.

Challenge 1: Out and Back

Send your robot on a basic “out and back” mission. Have the robot travel up to 6 feet, turn around and come back. If you are able to complete this challenge, repeat with the robot spinning a left circle followed by a right circle and come back.

Challenge 2: Chair Navigation

Send your robot around the chair. Can you do this more than one time?

Challenge 3: The Figure 8

Our most complex challenge in PBRCL is to see if we can make the robot follow a figure 8 pattern around the chairs and return to the starting point. Is this even possible?