Robots I - Week 5

Keyboard Control / Fine Grain Control

Killing Code

It's always good to make sure you don't have any programs running before you run new code. To see anything python programs try running this command:

```
pi@robot2 ~ $ ps aux | grep python
root       516  2.4  0.7  37528  6804 ?        Sl   14:48   0:21
/usr/bin/python /home/pi/pbrcl.py
```

And to kill any python process, run the following:

```
pi@robot2 ~ $ sudo killall python
```

Keyboard Events

We are now going to add the ability to control our robot on demand via keyboard input. The first iteration of the code will introduce basic key capture. Then we will convert each key symbol to a numeric value and use those values to control our robot.

```
import os
import sys
from time import *

os.system("stty raw -echo")

while True:
   r = sys.stdin.read(1)
   print r
```

Save this file as "key_capture.py" in your code directory. Run this code from the terminal:

```
python key_capture.py
```

There is no easy way to stop this program. Open a new terminal window and type:

```
sudo killall python
```

Now to make use of our keyboard as an input device, we will want to extract the numeric value from each key, to do this, modify key_capture.py and change the line:

```
r = sys.stdin.read(1)
```
to:
```
r = ord(sys.stdin.read(1))
```

Putting it Together

We are going to use our keyboard to integrate some simple robot actions: move forward, turn left, turn right, move backward. To make things a little easier, each action will run indefinitely. We will introduce another action, stop, to halt any movement.

```
import os
import sys
from time import *
from rrb3 import *

FORWARD = 56
LEFT = 54
RIGHT = 52
REVERSE = 50
STOP = 53

os.system("stty raw -echo")

robot = RRB3(6,6)

while True:
   r = ord(sys.stdin.read(1))
   print r
   if r == FORWARD:
      robot.forward()
   elif r == LEFT:
      robot.left()
   elif r == RIGHT:
      robot.right()
   elif r == REVERSE:
      robot.reverse()
   else:
      robot.stop()
```