**Overall Software:**

The basic flow is as follows:

(In Python) calculate desired motor positions --> Send positions to Arduino --> Arduino writes PWM to motors --> Read encoders --> Wait until motor positions are correct --> loop again

PySerial/Bridge is set up, we can control pins on the Arduino via our Python code. This will require a bit of code on both the Python and the Arduino side. Basically, when the Python script is ready, we will send some message (ex: Pin10 and 50) and then the Arduino code will parse this and set it’s pins. Example:

PYTHON:

Import serial

Arduino\_address = '/dev/ttyUSB0'

Arduino = serial.Serial(Arduino\_address, 9600)

While controlling motors:

Arduino.write(10) # Send the pin we want to change

Arduino.write(50) # Send the PWM duty cycle

ARDUINO:

Void loop() {

If(Serial.available() > 1) {

Pin = Serial.read();

PWM\_DutyCycle = Serial.read();

}

AnalogWrite(Pin, PWM\_DutyCycle);

}

There is a great tutorial on all of this here: <http://www.stealthcopter.com/blog/2010/02/python-interfacing-with-an-arduino/>

I can come and write these bits of code next quarter even, it should take a few day, but I won’t have the time to set everything up.