

```
1 from machine import Pin, I2C, Timer
2 from board import *
3 from bno055 import BNO055 # IMU
4
5 from drv8833 import DRV8833 # your implementation
6 from motor import PIDMotor # your implementation, make sure this is named right!
7 from encoder import Encoder # your implementation, don't forget clear_count
8 from balance import Balance
9
10 import gc # for garbage collection methods
11
12 # Setup motors
13 ##### Check Pin Numbers! #####
14 # Change pin numbers here to match yours or rewire your robot
15 leftEnc = Encoder(34, 39, 2)
16 leftM = DRV8833(19, 16)
17
18 rightEnc = Encoder(36, 4, 1)
19 rightM = DRV8833(17, 21)
20 ##### Check Pin Numbers! #####
21
22 ##### If these don't work, choose your best PI values from the previous lab #####
23 # Feel free to experiment
24 mp = 0.045
25 mi = 0.5
26 ##### If these don't work, choose your best PI values from the previous lab #####
27
28 # Balancing PI constants
29 bp = 219
30 bi = 45
31
32 # setup closed loop motor controllers
33 pidL = PIDMotor(leftM, leftEnc)
34 pidR = PIDMotor(rightM, rightEnc)
35
36 # setup IMU
37 i2c = I2C(0, sda=23, scl=22, freq=12500)
38 imu = BNO055(i2c)
39
40 # status LED
41 led = Pin(LED, mode=Pin.OUT)
42
43 dt = 0.02
44 ticks = 0
45 sec = 0
46 old_sec = 0
47 loopReady = False
48
```