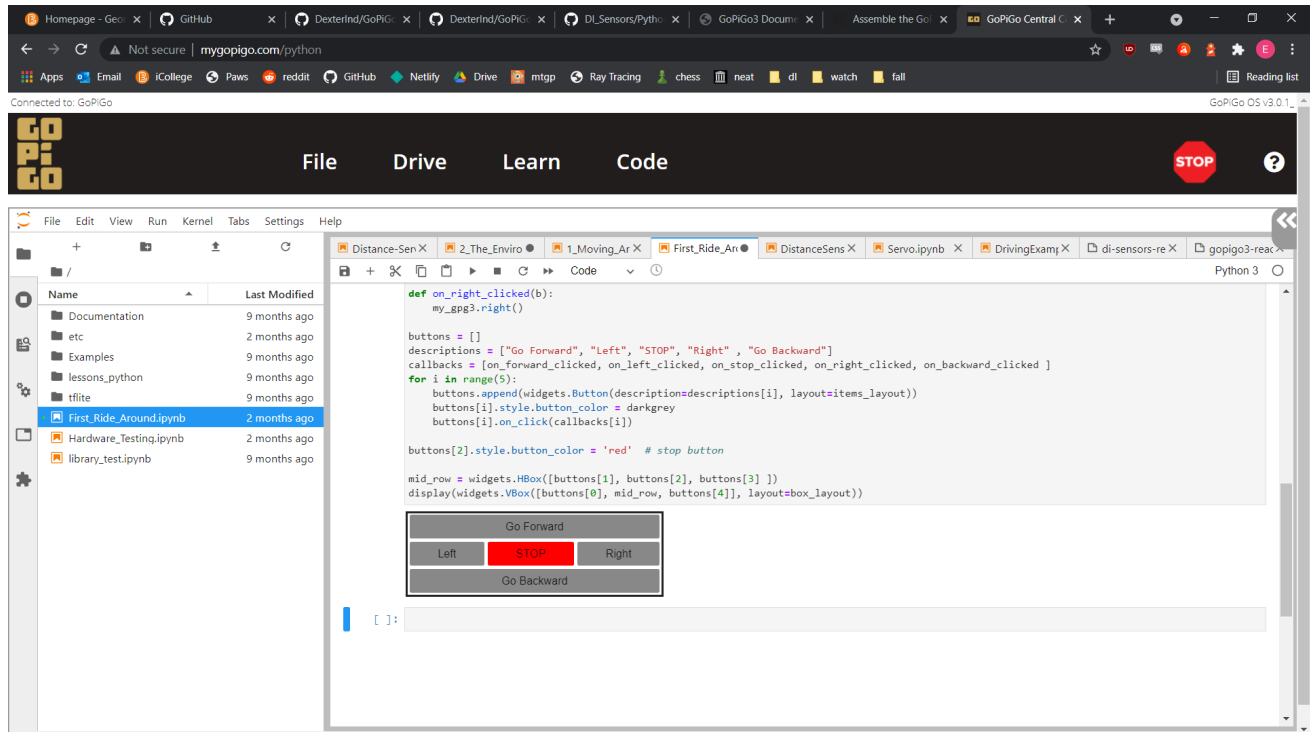


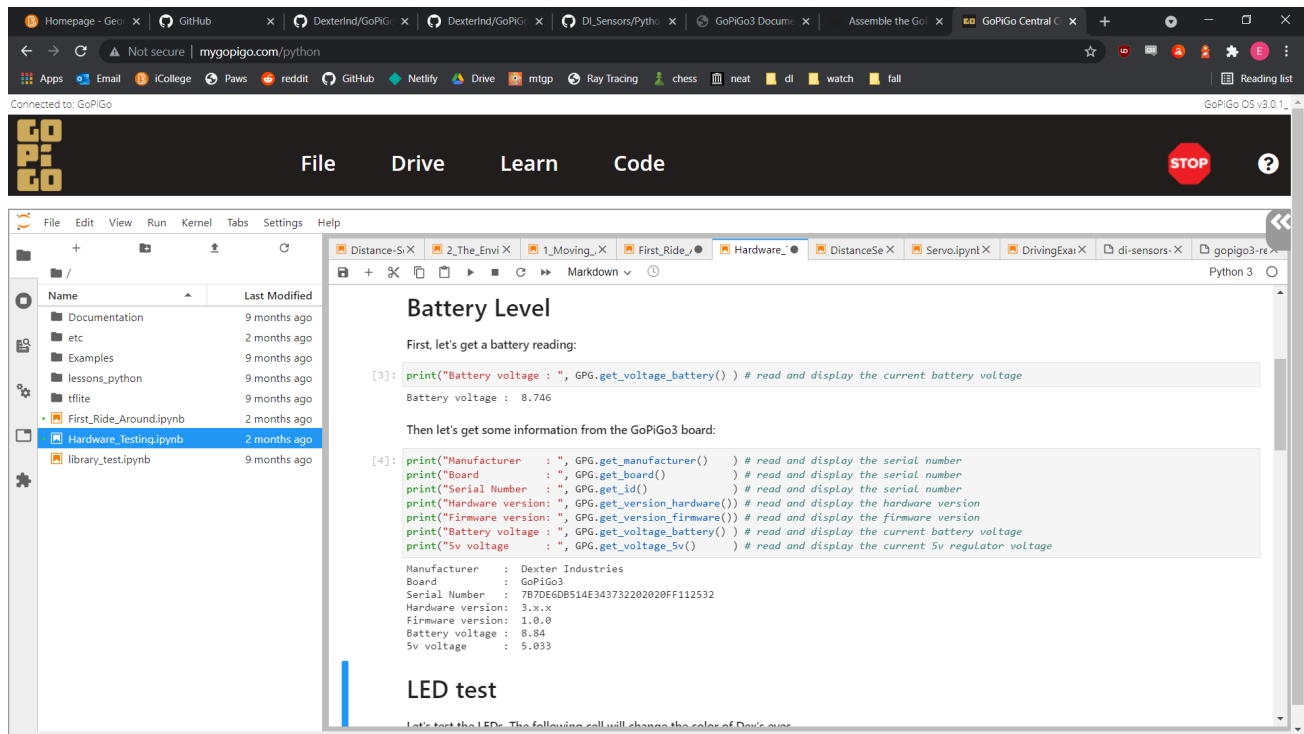
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Intro to Robotics

Module 1

1. <https://github.com/elijahbocz/intro-to-robotics>
2. Robot is constructed
3. Screenshot output:



4. Battery level and Board Information:



The screenshot shows the GoPiGo3 IDE interface. The left sidebar displays a file explorer with a tree view containing folders like 'Documentation', 'etc', 'Examples', 'lessons_python', 'tflite', and files like 'First_Ride_Around.ipynb', 'Hardware_Testing.ipynb', and 'library_test.ipynb'. The main editor window is titled 'Battery Level' and contains the following text and code:

First, let's get a battery reading:

```
[3]: print("Battery voltage : ", GPG.get_voltage_battery()) # read and display the current battery voltage
```

Battery voltage : 8.746

Then let's get some information from the GoPiGo3 board:

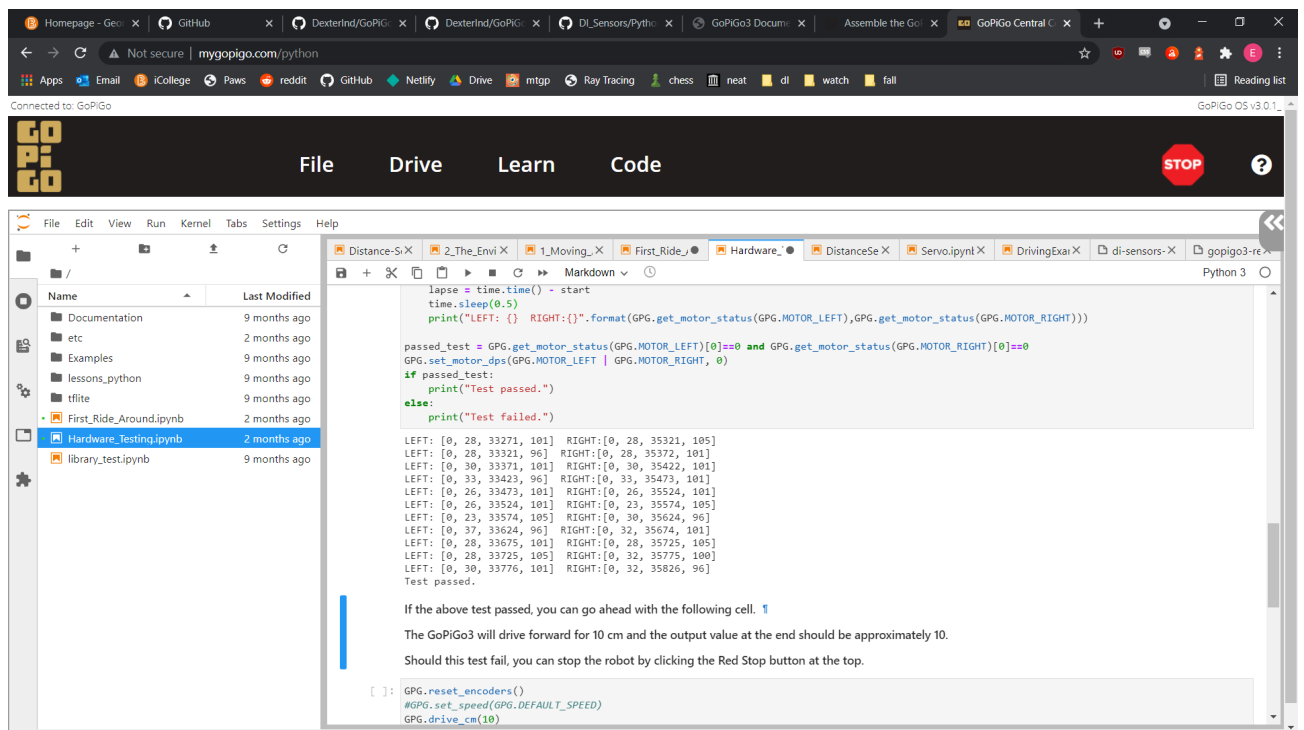
```
[4]: print("Manufacturer : ", GPG.get_manufacturer()) # read and display the serial number
print("Board : ", GPG.get_board()) # read and display the serial number
print("Serial Number : ", GPG.get_id()) # read and display the serial number
print("Hardware version: ", GPG.get_version_hardware()) # read and display the hardware version
print("Firmware version: ", GPG.get_version_firmware()) # read and display the firmware version
print("Battery voltage : ", GPG.get_voltage_battery()) # read and display the current battery voltage
print("5v voltage : ", GPG.get_voltage_5v()) # read and display the current 5v regulator voltage
```

Manufacturer : Dexter Industries
Board : GoPiGo3
Serial Number : 787DE60B514E343732202020FF112532
Hardware version: 3.x.x
Firmware version: 1.0.0
Battery voltage : 8.84
5v voltage : 5.033

LED test

Let's test the LEDs. The following cell will change the color of Dev's eyes

Encoder test:



The screenshot shows the GoPiGo3 IDE interface. The left sidebar displays a file explorer with a tree view containing folders like 'Documentation', 'etc', 'Examples', 'lessons_python', 'tflite', and files like 'First_Ride_Around.ipynb', 'Hardware_Testing.ipynb', and 'library_test.ipynb'. The main editor window is titled 'Encoder test' and contains the following text and code:

```
lapse = time.time() - start
time.sleep(0.5)
print("LEFT: {} RIGHT: {}".format(GPG.get_motor_status(GPG.MOTOR_LEFT), GPG.get_motor_status(GPG.MOTOR_RIGHT)))

passed_test = GPG.get_motor_status(GPG.MOTOR_LEFT)[0]==0 and GPG.get_motor_status(GPG.MOTOR_RIGHT)[0]==0
GPG.set_motor_dps(GPG.MOTOR_LEFT | GPG.MOTOR_RIGHT, 0)
if passed_test:
    print("Test passed.")
else:
    print("Test failed.")
```

LEFT: [0, 28, 33271, 101] RIGHT: [0, 28, 35321, 105]
LEFT: [0, 28, 33321, 96] RIGHT: [0, 28, 35372, 101]
LEFT: [0, 30, 33371, 101] RIGHT: [0, 30, 35422, 101]
LEFT: [0, 33, 33423, 96] RIGHT: [0, 33, 35473, 101]
LEFT: [0, 26, 33473, 101] RIGHT: [0, 26, 35524, 101]
LEFT: [0, 26, 33524, 101] RIGHT: [0, 23, 35574, 105]
LEFT: [0, 23, 33574, 105] RIGHT: [0, 30, 35624, 96]
LEFT: [0, 37, 33624, 96] RIGHT: [0, 32, 35674, 101]
LEFT: [0, 28, 33675, 101] RIGHT: [0, 28, 35725, 105]
LEFT: [0, 28, 33725, 105] RIGHT: [0, 32, 35775, 100]
LEFT: [0, 30, 33776, 101] RIGHT: [0, 32, 35826, 96]
Test passed.

If the above test passed, you can go ahead with the following cell. 1

The GoPiGo3 will drive forward for 10 cm and the output value at the end should be approximately 10.

Should this test fail, you can stop the robot by clicking the Red Stop button at the top.

```
[ ]: GPG.reset_encoders()
#GPG.set_speed(GPG.DEFAULT_SPEED)
GPG.drive_cm(10)
```

Drive 10cm test:

The screenshot shows a web browser window with the GoPiGo3 interface. The browser's address bar shows `mygopigo.com/python`. The interface has a top navigation bar with 'File', 'Drive', 'Learn', and 'Code' tabs, and a 'STOP' button. Below this is a file explorer on the left showing a directory structure with files like `Documentation`, `etc`, `Examples`, `lessons_python`, `tfllite`, `First_Ride_Around.ipynb`, `Hardware_Testing.ipynb` (selected), and `library_test.ipynb`. The main area displays a Python script for a 10cm drive test. The script includes comments and code to reset encoders, set speed, drive 10cm, and print the average encoder reading. It also includes a conditional check to print 'Test passed.' or 'Test failed.'

```
LEFT: [0, 28, 33725, 105] RIGHT:[0, 32, 35775, 100]
LEFT: [0, 30, 33776, 101] RIGHT:[0, 32, 35826, 96]
Test passed.

If the above test passed, you can go ahead with the following cell.

The GoPiGo3 will drive forward for 10 cm and the output value at the end should be approximately 10.

Should this test fail, you can stop the robot by clicking the Red Stop button at the top.

[0]: GPG.reset_encoders()
      #GPG.set_speed(GPG.DEFAULT_SPEED)
      GPG.drive_cm(10)
      encoders_read = round(GPG.read_encoders_average())
      print("Drove {:.2f} cm".format(encoders_read))
      if encoders_read == 10:
          print("Test passed.")
      else:
          print("Test failed.")

Drove 10.00 cm
Test passed.
```