

# November - Week 3



Sphero RVR - Color sensor (JSON intro)

# Color Detection

Open file manager and navigate to:

```
/home/pi/sphero/getting_started/observer/color_sensor
```

Open file:

```
color_detection.py
```

Open terminal and type:

```
cd sphero
```

```
pipenv shell
```

```
cd getting_started/observer/color_sensor
```

# Color Detection - JSON output

Find one of the color cards that came with the Sphero and put the Sphero on top of it.

Type the following into the terminal:

```
python color_detection.py
```

You will get an output that looks like this (but with different numbers)

```
Color detection data response: {'ColorDetection': {'is_valid': True, 'R': 42, 'G': 47, 'B': 40, 'Index': 10, 'Confidence': 0.9333333333333333}}
```

# Color Detection - Decoding JSON

To a programmer, this can look like a mess if you don't know how to use JSON, but hang tight, it's not that bad!

Within the code in the *try* function, if we type:

```
print(color_detected_data['ColorDetection']['R'])
```

`color_detected_data`

This is the value being passed in (We see at line 13)

`['ColorDetection']`

This is the first array layer as seen in the terminal response 'ColorDetection'

`['R']`

This is the second array layer as seen in the same terminal response

```
print(color_detected_data['ColorDetection']['R'])
```

This will return the value of *R* from *ColorDetection* from *color\_detected\_data*

# Color Detection - Decoding JSON

Before starting the challenge:

Make a copy of *color\_detection.py* and rename it *Mission4.py*

We will be modifying the code within *Mission4.py*

This way if something goes wrong, we can refer back to the original code!

# Color Detection - Challenge

Challenge:

Take the code from the previous slides

1. print out the value for `is_valid` on its own line
2. print out the value for `Index` and `Confidence` on their own line
3. print out the value for `R`, `G`, and `B` all on separate lines

Step-by-step solution: <https://youtu.be/njOj1VQnGWs>