

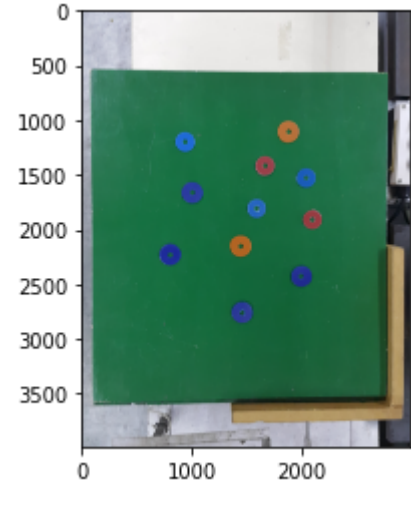
```
In [1]: %matplotlib
%matplotlib inline

import numpy as np
import cv2 as cv
import matplotlib.pyplot as plt
```

Using matplotlib backend: agg

```
In [2]: img_color = cv.imread('arandelas.jpg')
imgRGB = cv.cvtColor(img_color, cv.COLOR_BGR2RGB)

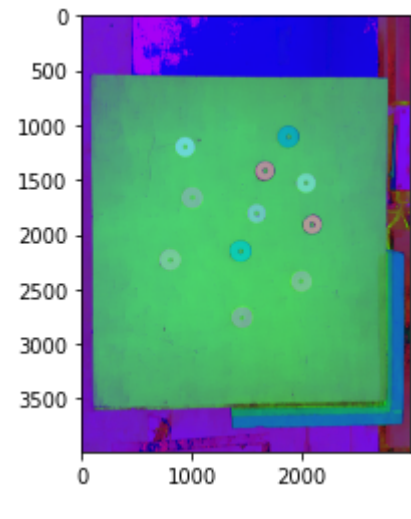
plt.figure(1)
plt.imshow(imgRGB)
plt.show()
```



```
In [15]: img_HSV = cv.cvtColor(img_color, cv.COLOR_BGR2HSV)
plt.figure(5)
plt.imshow(img_HSV)

img_muestra_hsv = img_HSV[230:280,230:280,:]

color_mean = cv.mean(img_muestra_hsv)
```



Amarillo

```
In [10]: img_muestra = imgRGB[1060:1100,1800:1850,:]
plt.figure(2)
plt.imshow(img_muestra)
plt.show()

color_mean, color_std = cv.meanStdDev(img_muestra)

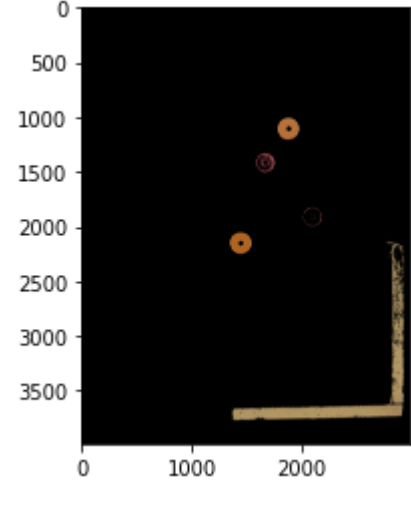
print(color_mean.flatten().tolist())
print(color_std.flatten().tolist())
```



```
[184.6955, 114.0415, 60.702]
[5.6417000762182985, 5.827673442292291, 6.1143434643467796]
```

```
In [14]: mask = cv.inRange(imgRGB, color_mean-color_std*8, color_mean+color_std*8)
img_segmentada = cv.bitwise_and(imgRGB, imgRGB, mask=mask)
```

```
plt.figure(3)
plt.imshow(img_segmentada)
plt.show()
```



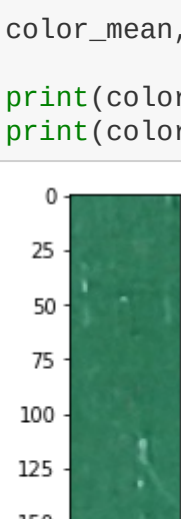
Verde

```
In [3]: # Tomamos una muestra del morron amarillo

#img_muestra = imgRGB[100:150,325:375,:]
img_muestra = imgRGB[1000:1200,150:200,:]
plt.figure(2)
plt.imshow(img_muestra)
plt.show()

color_mean, color_std = cv.meanStdDev(img_muestra)

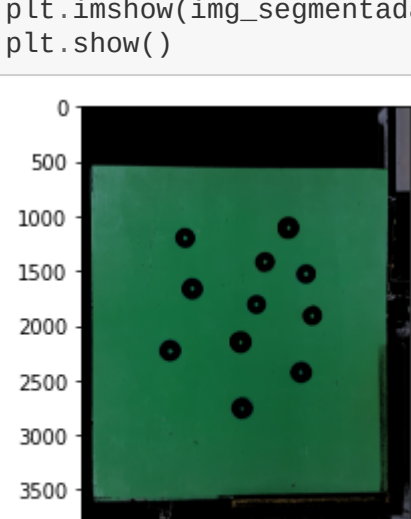
print(color_mean.flatten().tolist())
print(color_std.flatten().tolist())
```



```
[50.7372, 124.7552, 93.583]
[6.915702145118749, 6.514650639903845, 6.984218710779471]
```

```
In [4]: mask = cv.inRange(imgRGB, color_mean-color_std*8, color_mean+color_std*8)
img_segmentada = cv.bitwise_and(imgRGB, imgRGB, mask=mask)
```

```
plt.figure(3)
plt.imshow(img_segmentada)
plt.show()
```



Rojo

```
In [13]: img_muestra = imgRGB[1950:1980,2100:2150,:]
plt.figure(2)
plt.imshow(img_muestra)
plt.show()

color_mean, color_std = cv.meanStdDev(img_muestra)

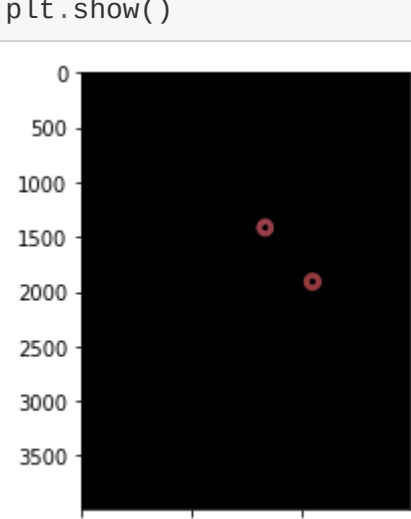
print(color_mean.flatten().tolist())
print(color_std.flatten().tolist())
```



```
[151.35266666666666, 60.28933333333333, 65.80133333333333]
[1.6880835945596886, 1.9463520293674326, 2.544903054254736]
```

```
In [14]: mask = cv.inRange(imgRGB, color_mean-color_std*8, color_mean+color_std*8)
img_segmentada = cv.bitwise_and(imgRGB, imgRGB, mask=mask)
```

```
plt.figure(3)
plt.imshow(img_segmentada)
plt.show()
```

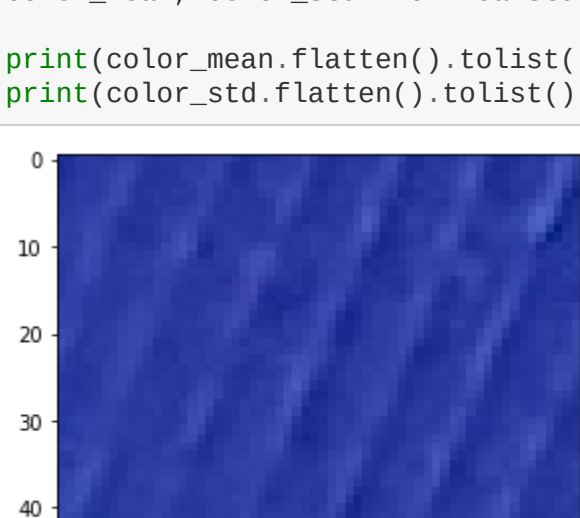


Azul

```
In [40]: img_muestra = imgRGB[1650:1700,920:980,:]
plt.figure(2)
plt.imshow(img_muestra)
plt.show()

color_mean, color_std = cv.meanStdDev(img_muestra)

print(color_mean.flatten().tolist())
print(color_std.flatten().tolist())
```



```
[44.042, 59.806333333333335, 160.71733333333333]
[8.589619859652288, 8.667650194192692, 8.476404478839592]
```

```
In [50]: mask = cv.inRange(imgRGB, color_mean-color_std*7, color_mean+color_std*7)
img_segmentada = cv.bitwise_and(imgRGB, imgRGB, mask=mask)
```

```
plt.figure(3)
plt.imshow(img_segmentada)
plt.show()
```

