

Count number of Object using Python-OpenCV

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In this article, we will use image processing to count the number of Objects using OpenCV in Python.

Module needed

- **OpenCv:** OpenCv is an open-source library that is useful for computer vision applications such as image processing, video processing, facial recognition, and detection, etc.
- **Numpy:** Numpy is a python package for scientific computing. It is a popular math library for Machine Learning. The main Object of Numpy is a multidimensional array.
- **Matplotlib:** Matplotlib is a Python library used for data visualization and graphical plotting of the data.

Image Used:.



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Stepwise implementation

Step 1: Import required libraries.

Python3

```
# Import libraries
import cv2
import numpy as np
import matplotlib.pyplot as plt
```

Step 2: We will read the image by using "**cv2.imread(image-name)**" command & then convert this image into grayscale image using "**cv2.cvtColor(image-name, cv2.COLOR_BGR2GRAY)**" command.

Python3

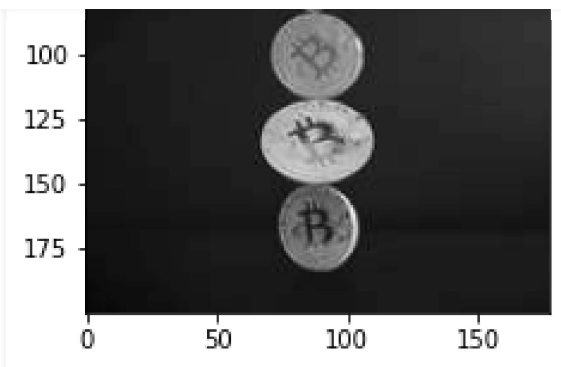
```
image = cv2.imread('coins.jpg')
gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
plt.imshow(gray, cmap='gray')
```



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Step 3: For counting, we have to detect the edges but before detecting the edges we have to make the image blur to avoid the noises. Use "**cv2.GaussianBlur(image-name, Kernal size, std. deviation)**".

Python3

```
blur = cv2.GaussianBlur(gray, (11, 11), 0)
plt.imshow(blur, cmap='gray')
```

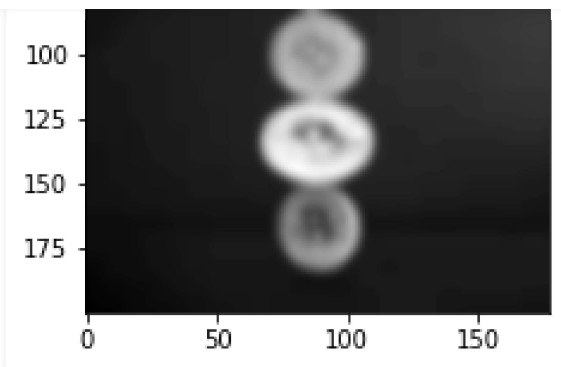
Output:



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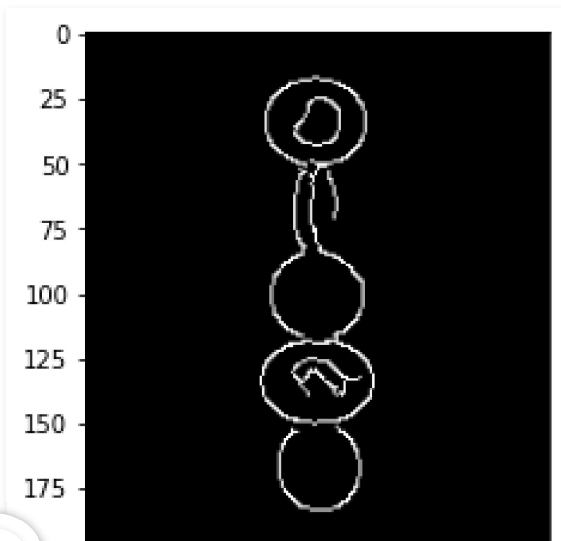
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Step 4: Now we will detect edges using a canny algorithm, 2nd & 3rd parameters in `cv2.canny()` function are threshold values. a value between 30 & 150 are consider as an edge for this image.

Python3

```
canny = cv2.Canny(blur, 30, 150, 3)
plt.imshow(canny, cmap='gray')
```

Output:



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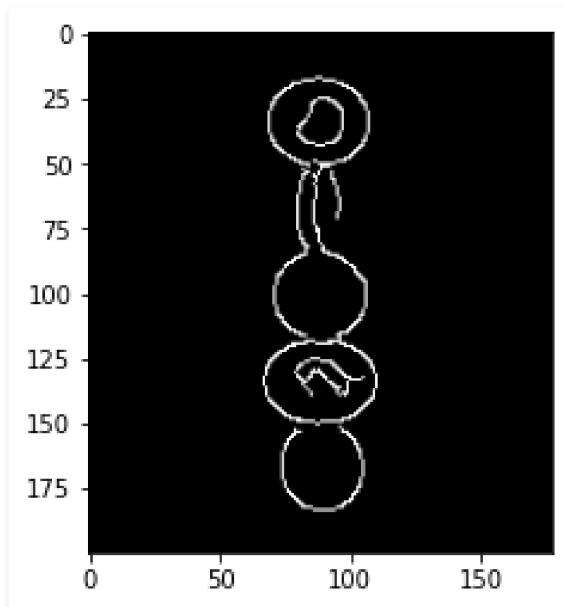
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```
dilated = cv2.dilate(canny, (1, 1), iterations=0)
plt.imshow(dilated, cmap='gray')
```

Output:



Step 6: Now we have to calculate the contour in the image & convert the image into RGB from BGR & then draw the contours.

Python3

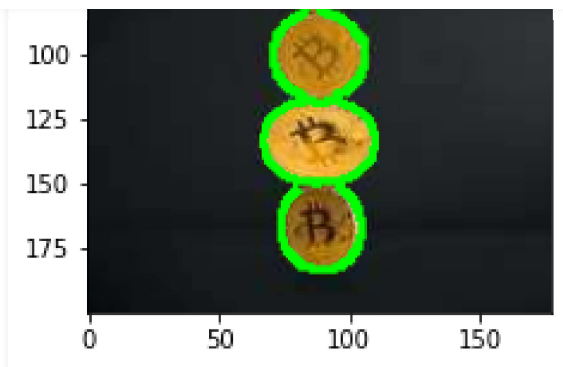
```
(cnt, hierarchy) = cv2.findContours(
    dilated.copy(), cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_NONE)
rgb = cv2.cvtColor(image, cv2.COLOR_BGR2RGB)
cv2.drawContours(rgb, cnt, -1, (0, 255, 0), 2)

plt.imshow(rgb)
```

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Step 7: Printing the result

Python3

```
print("coins in the image : ", len(cnt))
```

Output:

```
coins in the image: 5
```

Below is the complete implementation:

Python3

```
# Import libraries
import cv2
import numpy as np
import matplotlib.pyplot as plt

image = cv2.imread('coins.jpg')
gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

blur = cv2.GaussianBlur(gray, (11, 11), 0)
```

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Output:

coins in the image : 5

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