

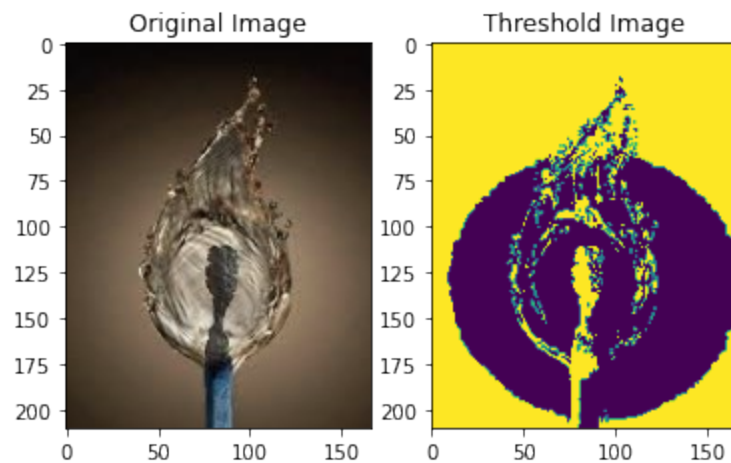
```
[1]: import cv2
import numpy as np
from matplotlib import pyplot as plt
```

```
[2]: def showImage(imageForShowing):
plt.figure(figsize = (2.5, 2.5))
plt.imshow(imageForShowing)
```

```
[3]: im = cv2.imread("5d.jpg", cv2.IMREAD_GRAYSCALE)
original = cv2.imread("5d.jpg")
```

```
[4]: _, im = cv2.threshold(im, 72, 255, cv2.THRESH_BINARY_INV)
#ret, im = cv2.threshold(im, 100, 255, cv2.THRESH_BINARY_INV+cv2.THRESH_OTSU)
#ret, im = cv2.threshold(im, 100, 255, cv2.THRESH_OTSU)
```

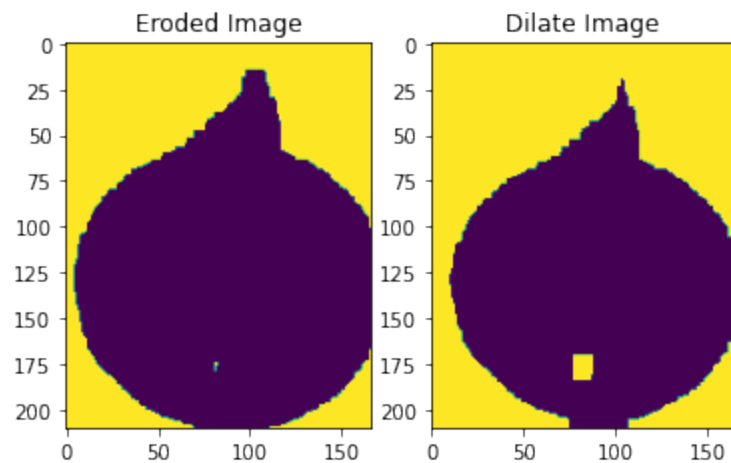
```
[5]: plt.subplot(121),plt.imshow(original)
plt.title('Original Image')
plt.subplot(122),plt.imshow(im)
plt.title('Threshold Image')
```



```
[6]: kernel = np.ones((10,10),np.uint8)
im = cv2.erode(im, kernel)
```

```
[7]: kernel = np.ones((10,10),np.uint8)
dilateImage = cv2.dilate(im, kernel, iterations = 1)
```

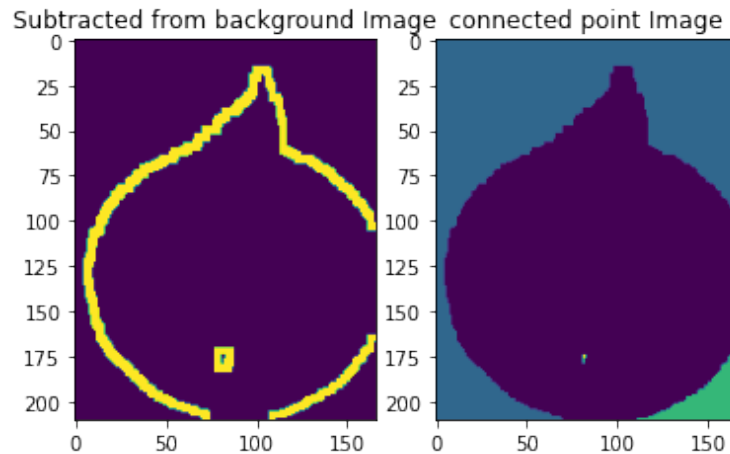
```
[8]: plt.subplot(121),plt.imshow(im)
plt.title('Eroded Image')
plt.subplot(122),plt.imshow(dilateImage)
plt.title('Dilate Image')
```



```
[9]: unknown = cv2.subtract(dilateImage,im)
```

```
[10]: _, markers = cv2.connectedComponents(im)
```

```
[11]: plt.subplot(121),plt.imshow(unknown)
plt.title('Subtracted from background Image')
plt.subplot(122),plt.imshow(markers)
plt.title('connected point Image')
```



```
[12]: markers = markers + 1
markers[unknown==255] = 0
```

```
[13]: markers = cv2.watershed(original,markers)
original[markers== -1] = [250, 0, 210]
```

```
[14]: plt.subplot(121),plt.imshow(markers)
plt.title('Watershed marker Image')
plt.subplot(122),plt.imshow(original)
plt.title('Original Marked Image')
```

