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In [2]: import cv2
import numpy as np
from matplotlib import pyplot as plt

#Load the image
image = cv2.imread("apple.jpg")
gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

#Apply thresholding to create a binary image
ret, thresh = cv2.threshold(gray, 0, 255, cv2.THRESH_BINARY_INV + cv2.THRESH_OTSU)

#Morphological operations to remove noise
kernel = np.ones((3, 3), np.uint8)
opening = cv2.morphologyEx(thresh, cv2.MORPH_OPEN, kernel, iterations=2)

#Sure background area
sure_bg = cv2.dilate(opening, kernel, iterations=3)

#finding sure foreground area
dist_transform = cv2.distanceTransform(opening, cv2.DIST_L2, 5)
ret, sure_fg = cv2.threshold(dist_transform, 0.7 * dist_transform.max(), 255, 0)

#finding unknown region
sure_fg = np.uint8(sure_fg)
unknown = cv2.subtract(sure_bg, sure_fg)

#Marker Labeling
ret, markers = cv2.connectedComponents(sure_fg)
markers = markers + 1
markers[unknown == 255] = 0

#apply watershed algorithm
markers = cv2.watershed(image, markers)
image[markers == -1] = [0, 0, 255] #Mark watershed boundaries

#Display the result
plt.imshow(cv2.cvtColor(image, cv2.COLOR_BGR2RGB))
plt.show()
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In [ ]: