Rectangle and circle drawing

1. Drawing of rectangle

rectangle(img, pt1, pt2, color, thickness=None, lineType=None, shift=None)

Parameter Description:

img: canvas or carrier image.

pt1, pt2: required parameters. The vertices of the rectangle represent the vertex and the diagonal vertex respectively, that is, the upper left corner and the lower right corner of the rectangle (these two vertices can determine a unique rectangle)

color: required parameter. Used to set the color of the rectangle

thickness: optional parameter. Used to set the width of the rectangular side. When the value is a negative number, it means filling the rectangle.

lineType: optional parameter. Used to set the type of line segment, optional 8 (8 adjacent connecting lines - default), 4 (4 adjacent connecting lines) and cv2.LINE_AA is anti-aliasing

2. Drawing of circles

cv2.circle(img, center, radius, color[,thickness[,lineType]])

Parameter Description:

img: canvas or carrier image

center: is the coordinate of the center of the circle, format: (50,50)

radius: radius

color: color

thickness: Line thickness. Defaults to 1. If -1, fill solid.

lineType: line type. The default is 8, connection type. The following table explains

Parameters	Description
cv2.FILLED	fill
cv2.LINE_4	4 connection types
cv2.LINE_8	8 connection type
cv2.LINE_AA	Anti-aliasing, this parameter will make the lines smoother

3. Draw an ellipse

cv2.ellipse(img, center, axes, angle, StartAngle, endAngle, color[,thickness[,lineType]])

center: center point of the ellipse, (x, x)

axes: refers to the short radius and long radius, (x, x)

angle: refers to the angle of counterclockwise rotation

StartAngle: The angle of the starting angle of the arc endAngle: the angle of the arc's end angle

For img and color, please refer to the description of the circle.

# The fifth parameter refers to the angle at which the drawing starts counterclockwise, and the sixth parameter refers to the angle at which the drawing ends counterclockwise.

# If the 456 parameter is added with a sign, it represents the opposite direction, that is, clockwise.

4. Draw polygons

cv2.polylines(img,[pts],isClosed, color[,thickness[,lineType]])

pts: vertices of the polygon

isClosed: Whether it is closed. (True/False)

Other parameters refer to the drawing parameters of the circle.

- Start Docker

After entering the Raspberry Pi 5 desktop, open a terminal and run the following command to start the container corresponding to Dofbot:

```
./Docker_Ros.sh
```

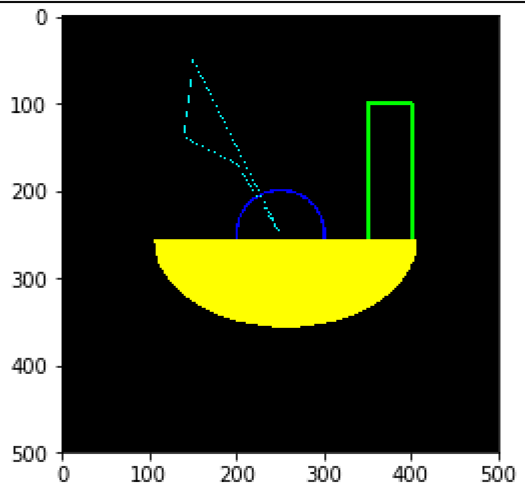
Access Jupyter Lab within Docker:

```
IP:9999 // Example: 192.168.1.11:9999
```

Code path:/root/Dofbot/4.opencv/3.draw_picture/05_rectangle_circle.ipynb**

```
import cv2
import numpy as np
newImageInfo = (500,500,3)
dst = np.zeros(newImageInfo,np.uint8)
# 1 2 upper left corner 3 lower right corner 4 5 fill -1 >0 line w
cv2.rectangle(dst,(350,100),(400,270),(0,255,0),3)
# 2 center 3 r
cv2.circle(dst,(250,250),(50),(255,0,0),2)
# 2 center 3 axis 4 angle 5 begin 6 end 7
cv2.ellipse(dst, (256,256), (150,100), 0, 0, 180, (0,255,255), -1)
points = np.array([[150,50], [140,140], [200,170], [250,250], [150,50]],
np.int32)
#print(points.shape)
points = points.reshape((-1,1,2))
#print(points.shape)
cv2.polylines(dst,[points],True,(255,255,0))
# cv2.imshow('dst',dst)
     #cv2.waitKey(0)
```

```
import matplotlib.pyplot as plt
dst = cv2.cvtColor(dst, cv2.COLOR_BGR2RGB)
plt.imshow(dst)
plt.show()
```


0
100
200
300
400
500
0
100
200
300
400
500