10. Opencv application--polygonal contour

Due to the influence of noise and illumination, the contour of the object will appear irregular. It is not conducive to analyzing the image content based on the irregular contour shape. At this time, the contour of the object needs to be fitted into a regular geometric shape. The image contour can be fitted into a rectangle, polygon, etc. according to the needs.

10.1.1. Use

Source launch file path: /opt/ros/noetic/share/opencv_apps/launch

Step 1: Start the camera

```
roslaunch astra_visual opencv_apps.launch img_flip:=false
```

- img_flip parameter: whether the image needs to be flipped horizontally, the default is false.

The [usb_cam-test.launch] file opens the [web_video_server] node by default, and you can directly use the [IP:8080] web page to view the image in real time.

Step 2: Start the corner detection function of Opencv_apps

```
roslaunch opencv_apps convex_hull.launch # Polygon outline
```

Each function case will have a parameter [debug_view], Boolean type, whether to use Opencv to display the image, displayed by default.

If you do not need to display, set it to [False], for example

```
roslaunch opencv_apps convex_hull.launch debug_view:=False
```

However, after starting in this way, some cases may not be displayed in other ways, because in the source code, some [debug_view] is set to [False], which will turn off the image processing.

10.1.2, Display method

- rqt_image_view

Enter the following command and select the corresponding topic

```
rqt_image_view
```

- opencv

The system displays by default, no processing is required.

- Web viewing

(Under the same LAN) Enter IP+port in the browser, for example:

```
192.168.2.116:8080
```

For specific IP, use your current virtual machine IP.

10.1.3, Effect display

The image captured by the camera is combined into a polygonal outline.