

# Camera Display

For Orin motherboard users, simply open a web browser and enter the IP address:8888 to access jupyter-lab and run directly. For Jetson-Nano motherboard users, you need to first enter the docker container, then enter the following command in docker:

```
cd  
jupyter-lab --allow-root
```

Then open a web browser and enter IP address:9999 to access jupyter-lab and run the following program.

## 1. Camera Reading

```
capture=cv.VideoCapture(0)
```

Parameter meaning:

The parameter 0 in VideoCapture() indicates opening the USB camera.

If you need to check the camera device number, please enter the following command:

```
ls /dev/video*
```

## 2. Display Camera Video

```
ret,img = frame.read()
```

Return value meaning:

ret: ret is a boolean value that determines whether a correct frame was read back

img: The image data of each frame

## 3. Code and Actual Effect Display

Program path:

```
#Jetson-Nano users need to enter the docker container to view  
~/dofbot_pro/dofbot_basic_visual/scripts/01.Camera_Demo.ipynb
```

Main code:

```
import cv2  
import ipywidgets.widgets as widgets  
import time  
from dofbot_utils.fps import FPS  
#Camera display component
```

```
#bgr8 to jpeg format
def bgr8_to_jpeg(value, quality=75):
    return bytes(cv2.imencode('.jpg', value)[1])
```

```
#Set up camera display components
image_widget = widgets.Image(format='jpeg', width=600, height=500)
fps = FPS()
cap = cv2.VideoCapture(0)

width=640
height=480
cap.set(cv2.CAP_PROP_FRAME_WIDTH, width)
cap.set(cv2.CAP_PROP_FRAME_HEIGHT, height)

print("Camera state:", cap.isOpened())
```

```
# Display camera assembly
display(image_widget)
try:
    while cap.isOpened():
        ret, frame = cap.read()
        fps.update_fps()
        fps.show_fps(frame)
        image_widget.value = bgr8_to_jpeg(frame)
        time.sleep(0.01)
except KeyboardInterrupt:
    print(" Program closed! ")
    pass
```

```
#release
#Release
cap.release()
```

Click "Run All Code Blocks" on the toolbar, scroll to the bottom, and you should be able to see the images captured by the USB camera.





If you need to stop the program, please click the stop button on the toolbar.

