Face detection

1. Experimental purpose

Face detection for driving the car

2. Experimental path source code

Enter the car system, end the car program, enter "ip (ip is the car's ip): 8888" in the browser, enter the password "yahboom"
Then log in
Enter the path **Rider-pi_class/5.AI Visual Recognition Course/11. Face detection** and run **12_Face_detection.ipynb**.

Or enter the command in the terminal to directly start the python script

```
cd /home/pi/Rider-pi_class/5.AI Visual Recognition Course/11. Face detection
python3 FaceDetection_USB.py
```

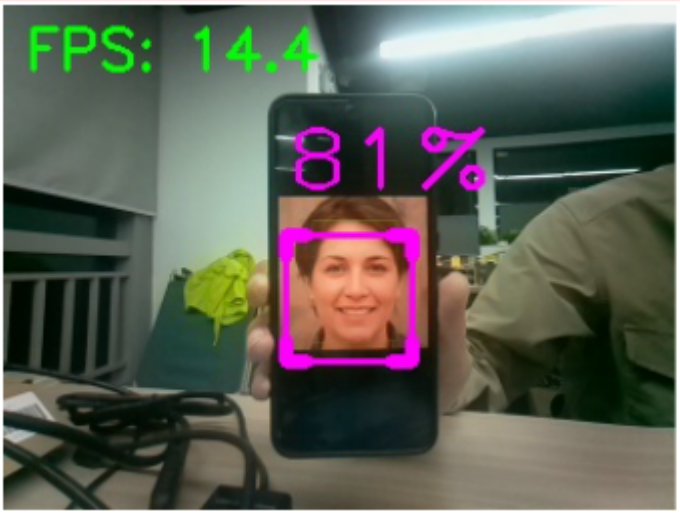
3. Experimental phenomenon

After running the source code, you can see that the car will detect the face and select it

```
            #把画面显示在lcd屏上
            b, g, r = cv.split(frame)
            image = cv.merge((r, g, b))
            imgok = Image.fromarray(image)
            mydisplay.ShowImage(imgok)

    except KeyboardInterrupt:
        capture.release()
```

```
capture get FPS :  30.0
INFO: Created TensorFlow Lite XNNPACK delegate for CPU.
```



4. Main source code analysis

```
if __name__ == '__main__':
    capture = cv.VideoCapture(0)
    # capture.set(0, cv.VideoWriter.fourcc('M', 'J', 'P', 'G'))
    capture.set(cv.CAP_PROP_FRAME_WIDTH, 320)
    capture.set(cv.CAP_PROP_FRAME_HEIGHT, 240)
    print("capture get FPS : ", capture.get(cv.CAP_PROP_FPS))
    pTime, cTime = 0, 0
    face_detector = FaceDetector(0.75)
    display(image_widget)
    try:
        while capture.isOpened():
            ret, frame = capture.read()
            # frame = cv.flip(frame, 1)
            frame,_ = face_detector.findFaces(frame)
            if cv.waitKey(1) & 0xFF == ord('q'): break
            cTime = time.time()
            fps = 1 / (cTime - pTime)
            pTime = cTime
            text = "FPS : " + str(int(fps))
            cv.putText(frame, f"FPS: {fps:.1f}", (10, 30),
cv.FONT_HERSHEY_SIMPLEX, 0.9, (0, 255, 0), 2)
            image_widget.value = bgr8_to_jpeg(frame)

            #Display the image on the LCD screen
            b, g, r = cv.split(frame)
            image = cv.merge((r, g, b))
            imgok = Image.fromarray(image)
            mydisplay.ShowImage(imgok)

    except KeyboardInterrupt:
        capture.release()
```

The car calls the detected face model, selects the recognized face results, and displays the recognition rate.