

License Plate Recognition

1. Purpose of the experiment

Drive the mechanical dog to detect the license plate

2. Experimental path source code

Enter the system of the robot dog, end the robot dog program, enter "ip (ip is the ip of the robot dog): 8888" in the browser, enter the password "yahboom"



and log in. Enter the path of `cd ~/DOGZILLA_Lite_class/5.AI Visual Recognition Course/06. License Plate Recognition` and run `Camera-Based_License_plate_recognition.ipynb`. You can also enter the command in the terminal to directly start the python script

```
python3 camera_license.py
```

3. Experimental Phenomenon

After running the source code, you can see that the robot dog can recognize the license plate.



4. Main source code analysis

```

try:
    code=0
    confidence=0
    type_idx=0
    box=0
    image=0
    display(image_widget)
    # 中文字体加载 Chinese font loading
    font_ch = ImageFont.truetype("platech.ttf", 20, 0)
    # 实例化识别对象 Instantiate the recognition object
    catcher =
lpr3.LicensePlateCatcher(detect_level=lpr3.DETECT_LEVEL_LOW)#DETECT_LEVEL_HIGH64
0*640

    camera = cv2.VideoCapture(0)      # 定义摄像头对象, 参数0表示第一个摄像头, 默认
640x480 Define the camera object. Parameter 0 indicates the first camera. The
default resolution is 640x480.
    camera.set(3, 320)
    camera.set(4, 240)
    pTime, cTime = 0, 0
    while True:
        ret, frame = camera.read()
        # 执行识别算法 Execute the recognition algorithm
        results = catcher(frame)
        # 计算帧率 Calculate frame rate
        cTime = time.time()
        fps = 1 / (cTime - pTime)
        pTime = cTime
        text = "FPS : " + str(int(fps))
        cv2.putText(frame, f"FPS: {fps:.1f}", (10, 30),
cv2.FONT_HERSHEY_SIMPLEX, 0.9, (0, 255, 0), 2)
        # 初始化图像变量 Initialize image variables
        image = frame.copy() # 使用原始帧作为默认图像 Use original frame as default
image
        for code, confidence, type_idx, box in results:
            text = f"{code} - {confidence:.2f}"
            image = draw_plate_on_image(frame, box, text, font=font_ch)

        if results and len(results) > 0:
            code, confidence, _, _ = results[0]
            carcher_str = f'carcher : {code}'
            confidence_str = f'confidence: {confidence:.2f}'

            image_widget.value = bgr8_to_jpeg(image)

        #显示在机械狗的lcd屏幕上 Displayed on the LCD screen of the robot dog
        b,g,r = cv2.split(frame)
        img = cv2.merge((r,g,b))
        imgok = Image.fromarray(img)
        mydisplay.ShowImage(imgok)

        # cv2.imshow('frame', frame)
        cher_list = results[0] if results and results[0] is not None else None
        if cher_list is not None:
            print(cher_list)
        # if cv2.waitKey(1) & 0xFF == ord('q'):

```

```
        #         break

except KeyboardInterrupt:
    # picam2.stop()
    # picam2.close()
    camera.release()
```

Through the program, the robot dog will call the camera and then, based on the corresponding model, the camera will recognize the license plate information and display it on the robot dog screen and the computer screen at the same time.