## **Garbage identification**

Test according to the trained model, and the trained object name can be recognized.

## 1. Main code

Code path:/root/Dofbot/6.Al\_Visuall/7.Garbage identification.ipynb

The following code content needs to be executed according to the actual step. It cannot be run all at once. Running the last unit will directly exit the thread. The specific code can be viewed in the code path.

Import various libraries and model files

```
#!/usr/bin/env python3
# coding: utf-8
import time
import torch
import rospy
import Arm_Lib
import cv2 as cv
import numpy as np
from time import sleep
from numpy import random
from utils.torch_utils import select_device
from models.experimental import attempt_load
from utils.general import non_max_suppression, scale_coords, xyxy2xywh,
plot_one_box
model_path = '/root/Dofbot/6.AI_Visual/model0.pt'
#Initialize
device = select_device()
# Load model
model = attempt_load(model_path, map_location=device)
```

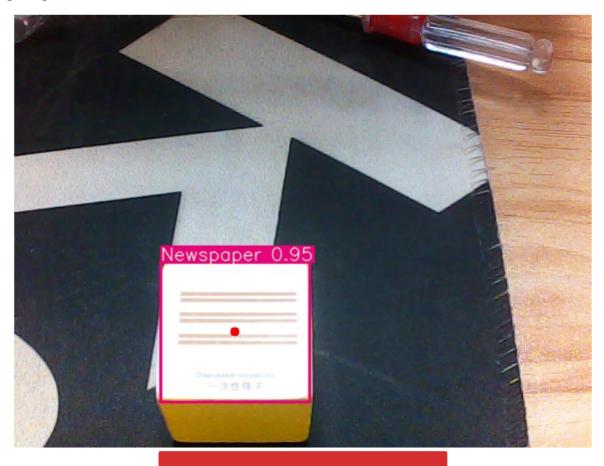
garbage identification function

```
def garbage_getName(self):
         name = "None"
         if self.status == 'waiting':
             self.frame, msg = self.garbage_identify.garbage_run(self.frame)
             for key, pos in msg.items(): name = key
             if name == "Zip_top_can": (self.garbage_num, self.garbage_class) =
('00', '01')
             if name == "old_school_bag": (self.garbage_num, self.garbage_class)
= ('01', '01')
             if name == "Newspaper": (self.garbage_num, self.garbage_class) =
('02', '01')
             if name == "Book": (self.garbage_num, self.garbage_class) = ('03',
'01')
             if name == "Toilet_paper": (self.garbage_num, self.garbage_class) =
('04', '02')
            if name == "Peach_pit": (self.garbage_num, self.garbage_class) =
('05', '02')
             if name == "Cigarette_butts": (self.garbage_num, self.garbage_class)
= ('06', '02')
             if name == "Disposable_chopsticks": (self.garbage_num,
self.garbage_class) = ('07', '02')
             if name == "Egg_shell": (self.garbage_num, self.garbage_class) =
('08', '03')
             if name == "Apple_core": (self.garbage_num, self.garbage_class) =
('09', '03')
             if name == "Watermelon_rind": (self.garbage_num, self.garbage_class)
= ('10', '03')
            if name == "Fish_bone": (self.garbage_num, self.garbage_class) =
('11', '03')
             if name == "Expired_tablets": (self.garbage_num, self.garbage_class)
= ('12', '04')
             if name == "Expired_cosmetics": (self.garbage_num,
self.garbage_class) = ('13', '04')
             if name == "Used_batteries": (self.garbage_num, self.garbage_class)
= ('14', '04')
            if name == "Syringe": (self.garbage_num, self.garbage_class) =
('15', '04')
             if name == "None": (self.garbage_num, self.garbage_class) = ('None',
'None')
```

Main thread:

```
def camera():
    # Open camera Open camera
    capture = cv.VideoCapture(0)
    # Loop execution when the camera is turned on normally
    while capture.isOpened():
        try:
        _, img = capture.read()
        img = cv.resize(img, (640, 480))
        img = single_garbage.single_garbage_run(img)
        if model == 'Exit':
        cv.destroyAllWindows()
```

After the program block is run, you can see the following interface to identify the corresponding garbage.



Exit