Trash Car Train Data Set Preparation

Introduction

There has 4 classes and 5 instance in the `trash_c4_i5` dataset in total. This booklet is used to guide image taking and labeling to create `trash_c4_i5` dataset.

Image prepare

1. Number
   We need 100 images per instance. 50 images on the green floor and 50 images on the mutative background.
2. Environment
    1. Green floor images:
        1. Multiple instances on the same images.
        2. Simulate real environment.
    2. Mutative background images: 3. Keep lighting strength changing. 4. Background changing. NO TWO SAME IMAGE.
3. Naming

   Image should start at `001.jpg` and end at `100.jpg` the corresponding label should as same as images.
4. Files Level

```
trash_c4_i5
|-- data
    |-- predefined_classes.txt
    |-- trash_c4_i5.yaml
|-- images
    |-- train
        |-- 1.jpg
        ...
    |-- valid
        |-- 1.jpg
        ...
|-- labels
    |-- train
        |-- 1.txt
        ...
    |-- valid
        |-- 1.txt
        ...
```

5. Camera and Image Size

   Use RGB camera which used in competition environment. And take the size of 640×480.

Label annotation

Label app: click to check and download.

The classes order is shown as below, DO NOT change this order.

```
bottle
battery
cup
orange
paper
```

The file is arranged as below:

1. The default order is predefined in the file `trash_c4_i5/data/predefined_classes.txt`.
2. The annotations target dir is `trash_c4_i5/labels/`.
3. The images are saved in dir `trash_c4_i5/images/.`

The name of annotation must be as same as image. Must choose the `yolo` style to label all the images.

The useful hotkeys:

Ctrl + u	**Load all of the images from a directory**
Ctrl + r	Change the default annotation target dir
Ctrl + s	Save
Ctrl + d	Copy the current label and rect box
Ctrl + Shift + d	Delete the current image
Space	Flag the current image as verified
w	Create a rect box
d	Next image
a	Previous image
del	Delete the selected rect box
Ctrl++	Zoom in
Ctrl--	Zoom out
↑→↓←	Keyboard arrows to move selected rect box

Train

> you can train with --img 1280 and/or --rect, though --rect is not recommended for best results. Which is trained as mosaics.

Reference

Image size

[1] https://github.com/ultralytics/yolov5/issues/974

[2] https://github.com/ultralytics/yolov5/issues/700

Multiple GPU:

[3] https://github.com/ultralytics/yolov5/issues/475