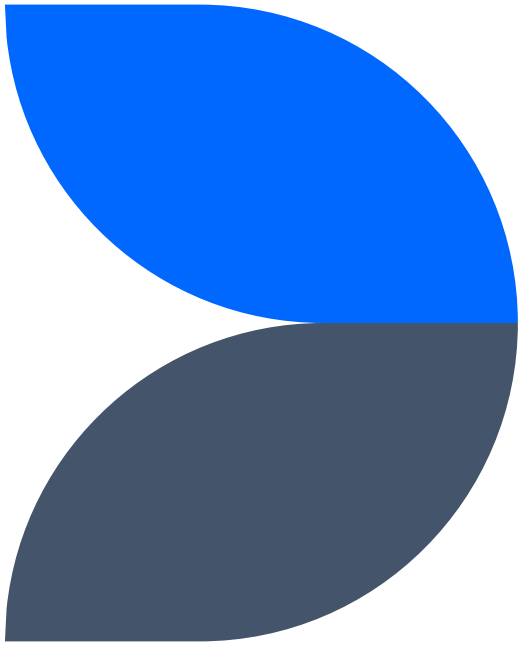
How to make a Cockroach Killer

Even

Someone I want to appreciate



George

Capitan Gi

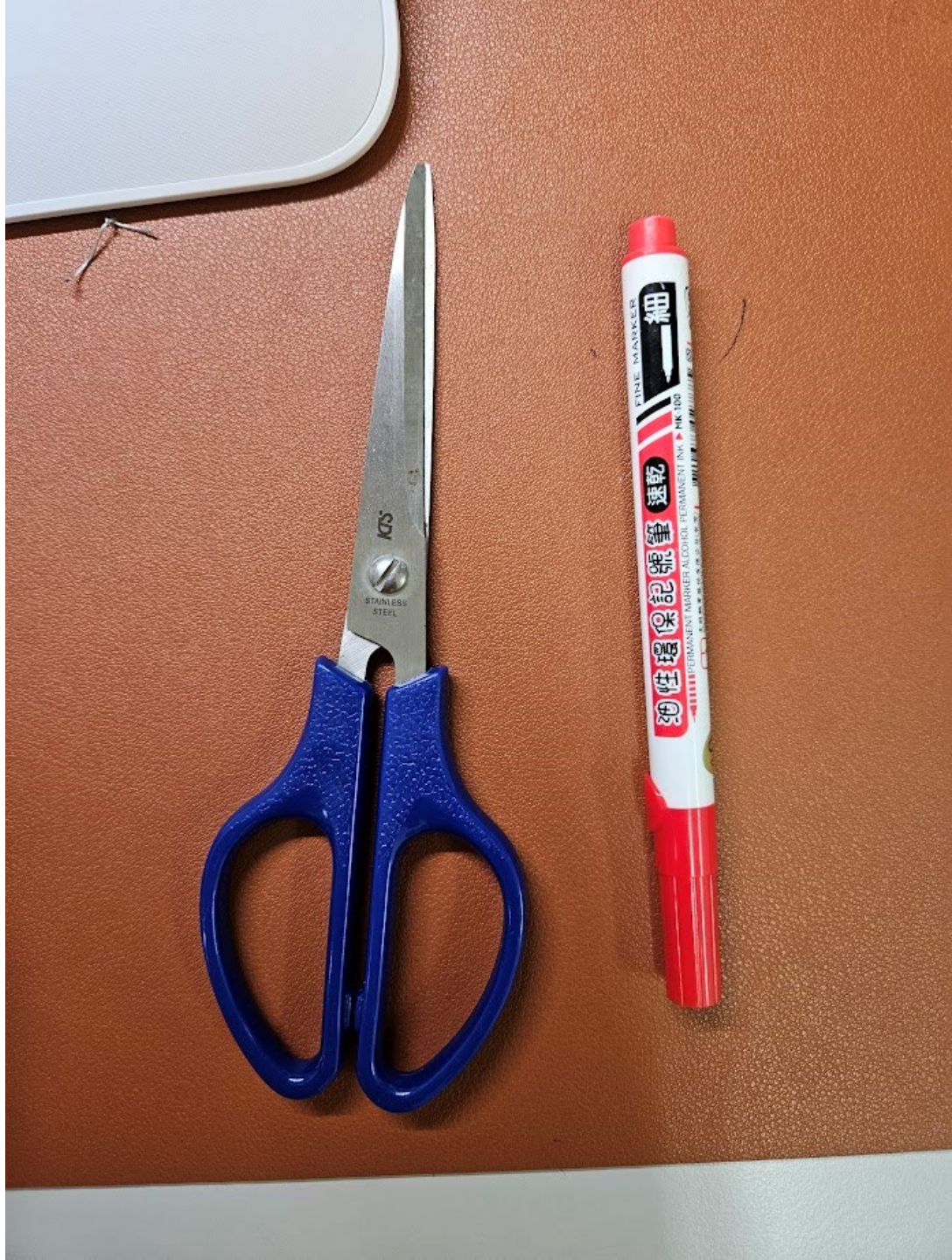
But I still don’t know where he had helped me.

Lab 717

Every time
if I need
some things

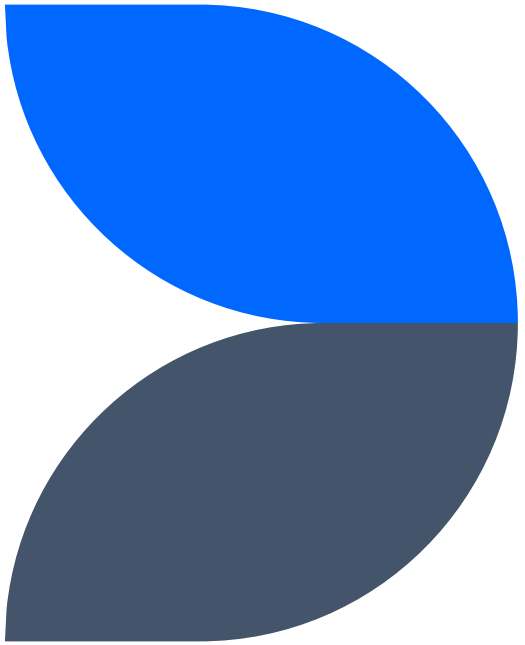
2024/1/5

Because they never lock their door.

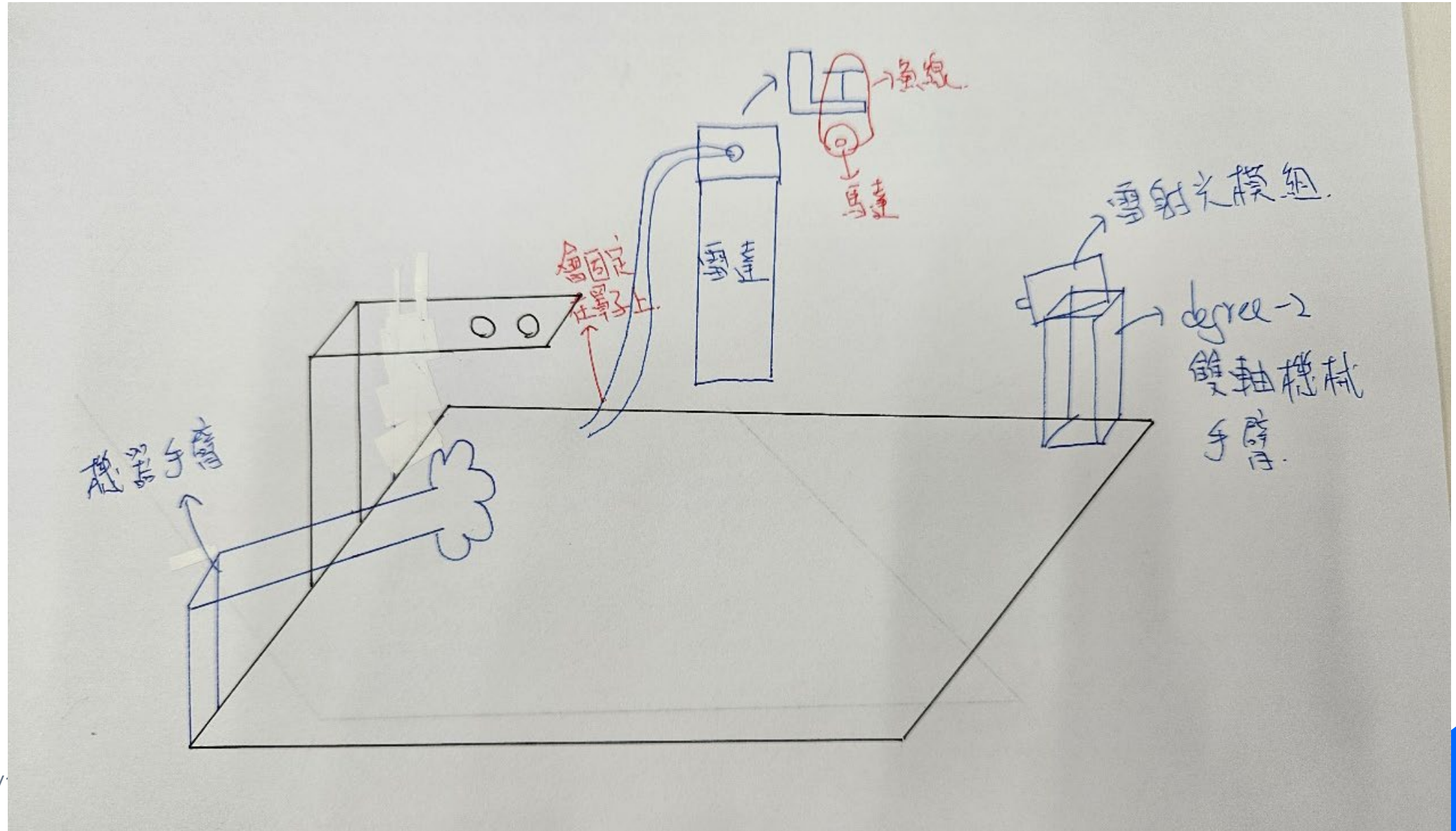


2024/1/5

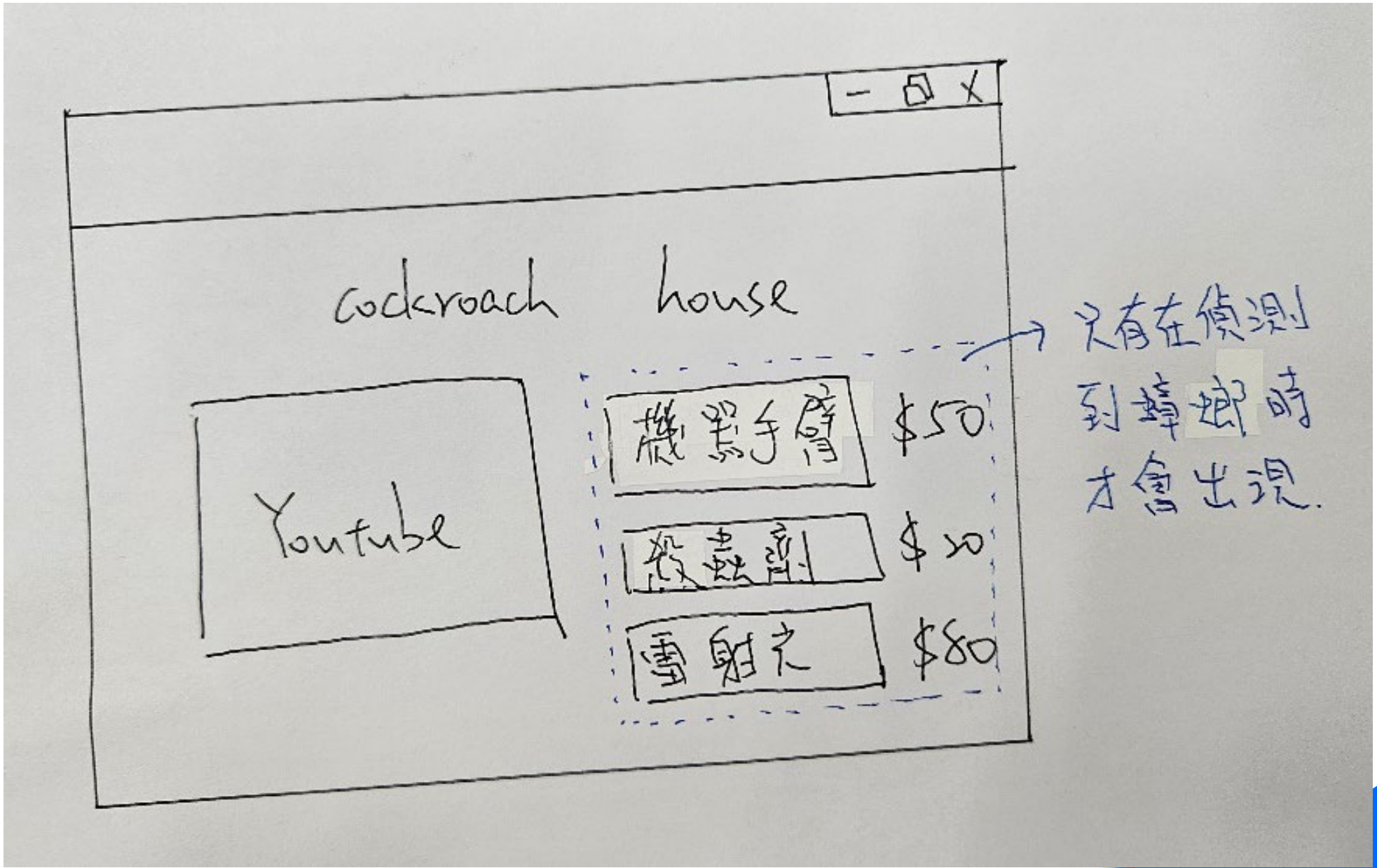
Design Diagram



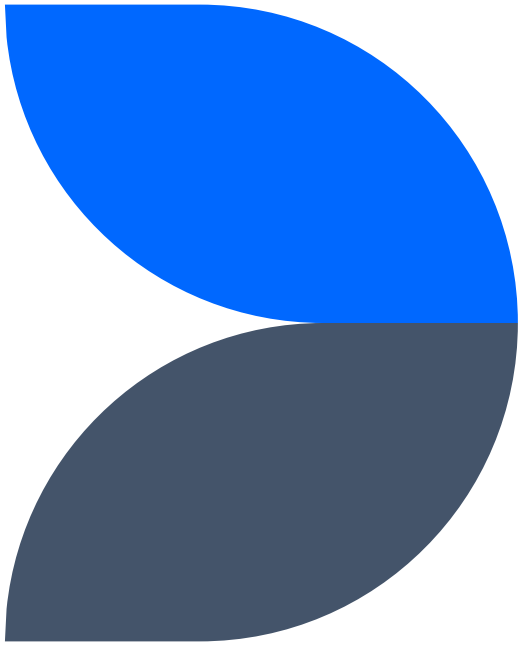
Design Diagram



Website

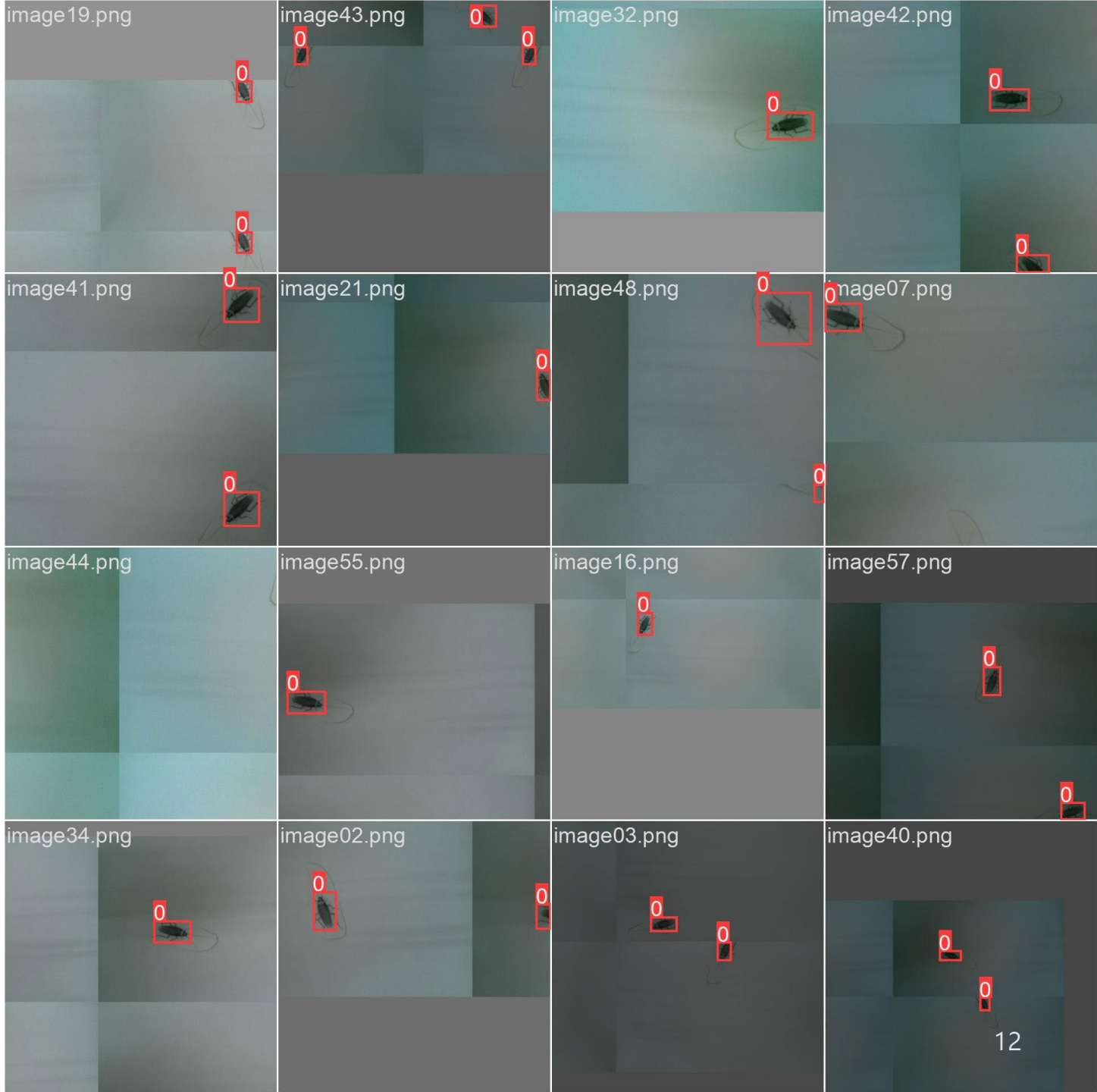

cockroach house
Youtube
機器手臂
$50
殺蟲劑
$30
雷射光
$80
只有在偵測到蟑螂時才會出現.

Steps

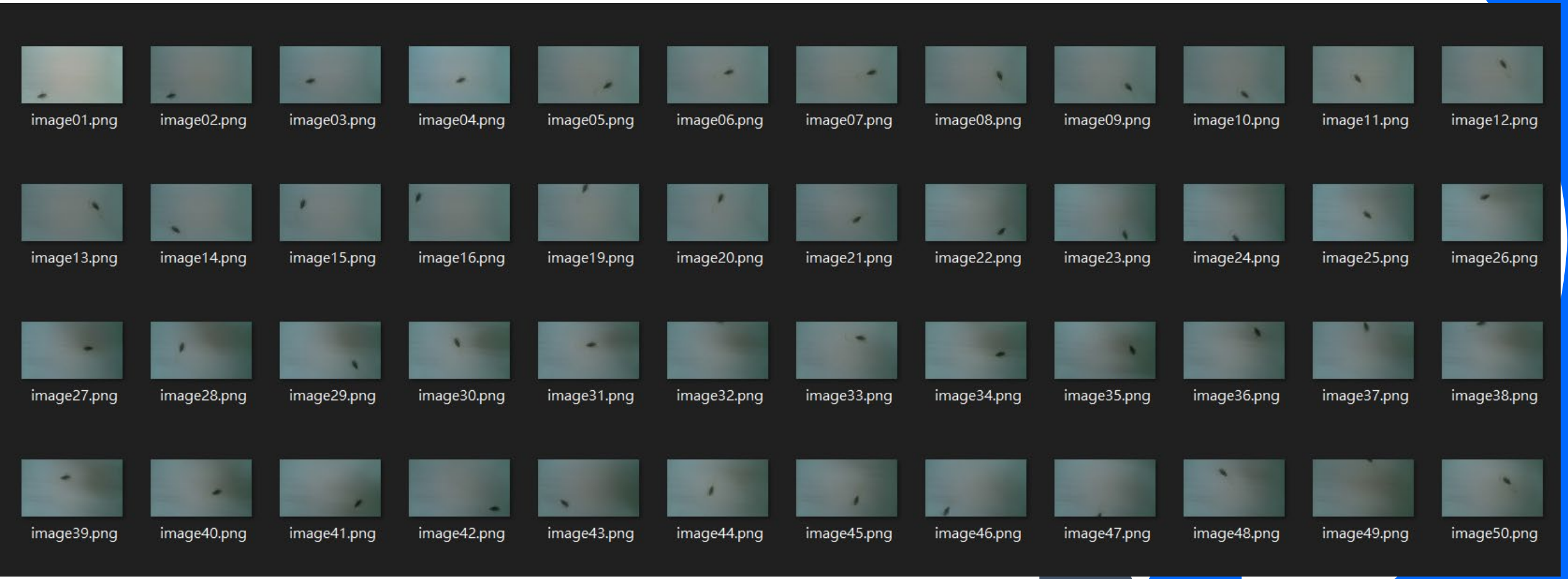


1. Train a Volo v8 model
2. Set up Camera module
3. Deploy to Raspberry
4. Streaming camera video to 127.0.0.1:8888
5. Detect Cockroach by Yolo v8
6. Use SG90 to make a Hitter
7. Demo

Train a Volo v8 model



Prepare photo



Label data


labelImg
File Edit View Help
Open
Open Dir
Change Save Dir
Next Image
Prev Image
Verify Image
Save
YOLO
Create RectBox
Duplicate RectBox
Delete RectBox
Zoom In
100 %
Zoom Out
Fit Window
Box Labels
Edit Label
difficult
Use default label
File List
Loaded image03.png
英
上午 08:53
2024/1/4

Train it!

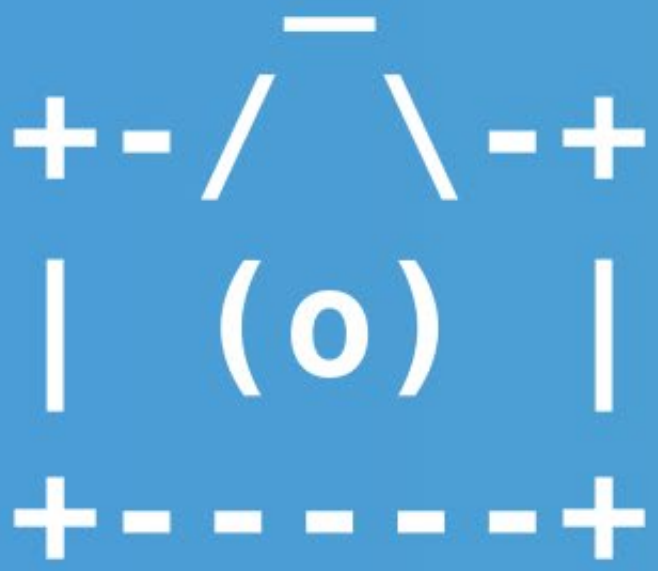
```
model = YOLO('yolov8n.yaml')  # build a new model from YAML
model = YOLO('yolov8n.pt')  # load a pretrained model (recommended for training)
model = YOLO('yolov8n.yaml').load('yolov8n.pt')  # build from YAML and transfer weights

# Train the model
results = model.train(data='cockroach.yaml', epochs=500, batch = -1, imgsz=640)
```

```
Plotting labels to runs/detect/train2/labels.jpg...
optimizer: 'optimizer=auto' found, ignoring 'lr0=0.01' and 'momentum=0.937' and determining best 'optimizer', 'lr0' and 'momentum' automatically...
optimizer: AdamW(lr=0.002, momentum=0.9) with parameter groups 57 weight(decay=0.0), 64 weight(decay=0.0006171875), 63 bias(decay=0.0)
500 epochs...

      Epoch    GPU_mem   box_loss   cls_loss   dfl_loss  Instances       Size
      1/500      9.34G      2.338      4.736      1.898        100        640: 100%|██████████| 1/1 [00:00<00:00,  3.16it/s]
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 1/1 [00:00<00:00,  1.62it/s]                 all         31         31     0.0029      0.871     0.0253    0.00524

      Epoch    GPU_mem   box_loss   cls_loss   dfl_loss  Instances       Size
      2/500      9.25G      2.228      4.597      1.799        116        640: 100%|██████████| 1/1 [00:01<00:00,  1.24s/it]
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 1/1 [00:01<00:00,  1.65s/it]                 all         31         31    0.00301      0.903     0.0232    0.00484

      Epoch    GPU_mem   box_loss   cls_loss   dfl_loss  Instances       Size
      3/500      8.86G      2.295      4.589      1.819        128        640: 100%|██████████| 1/1 [00:00<00:00,  1.44it/s]
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 1/1 [00:01<00:00,  1.04s/it]                 all         31         31    0.00301      0.903     0.0257    0.00531

      Epoch    GPU_mem   box_loss   cls_loss   dfl_loss  Instances       Size
      4/500      9.25G      2.227      4.477      1.808        121        640: 100%|██████████| 1/1 [00:00<00:00,  1.77it/s]
                 Class     Images  Instances      Box(P          R      mAP50  mAP50-95): 100%|██████████| 1/1 [00:00<00:00,  2.04it/s]                 all         31         31     0.0029      0.871     0.0236    0.00497
```

Get the weight file

And we will use it later

Set up the Camera module



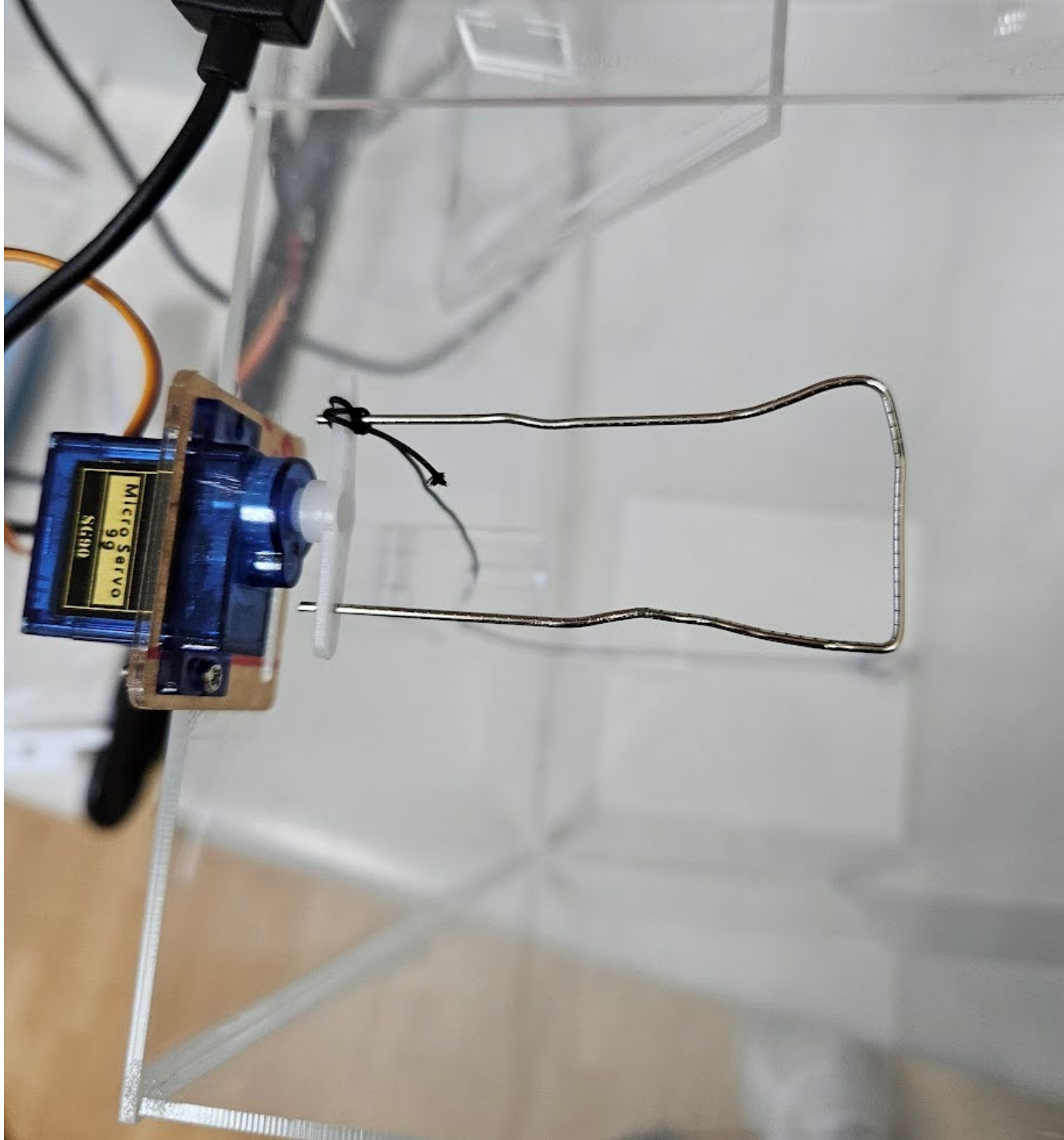
libcamera

There is too much blood and tear

So, Let’s skip them

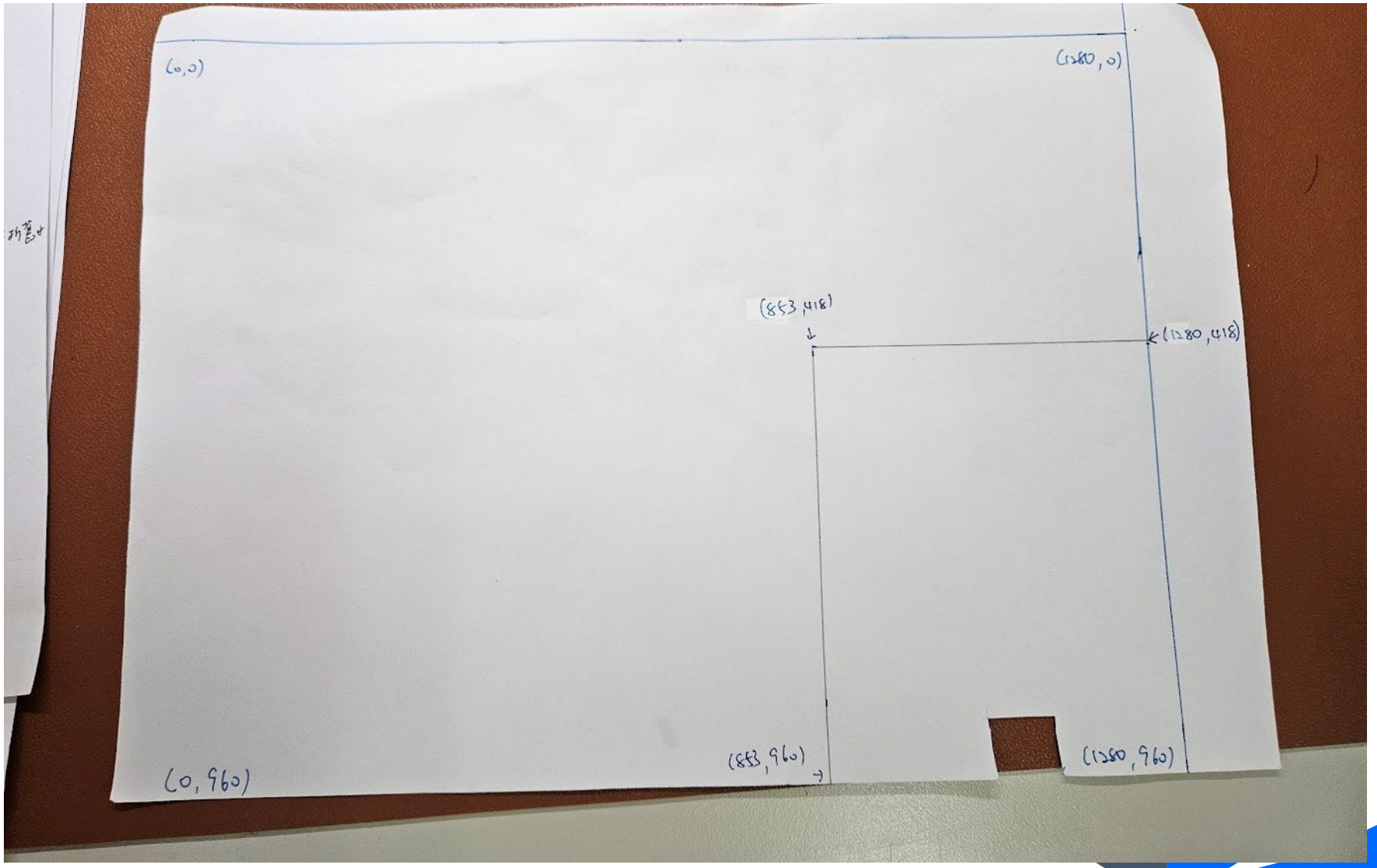
1. Train a Volo v8 model
2. Set up Camera module
3. Deploy to Raspberry
4. Streaming camera video to 127.0.0.1:8888
5. Detect Cockroach by Yolo v8
6. Use SG90 to make a Hitter
7. Demo

Hitter

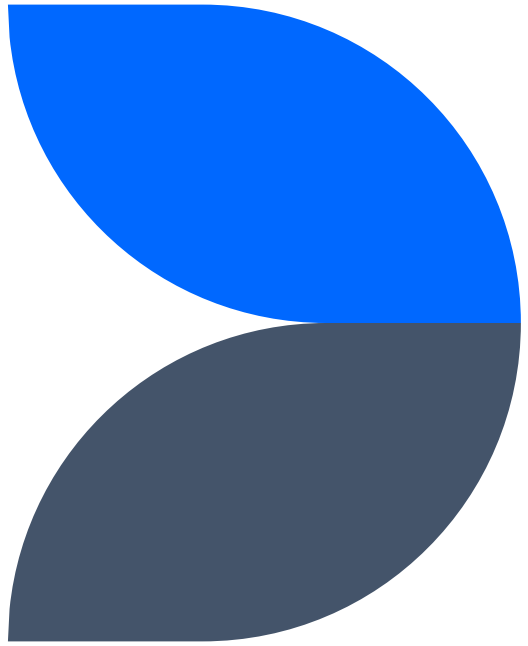


2024/1/5

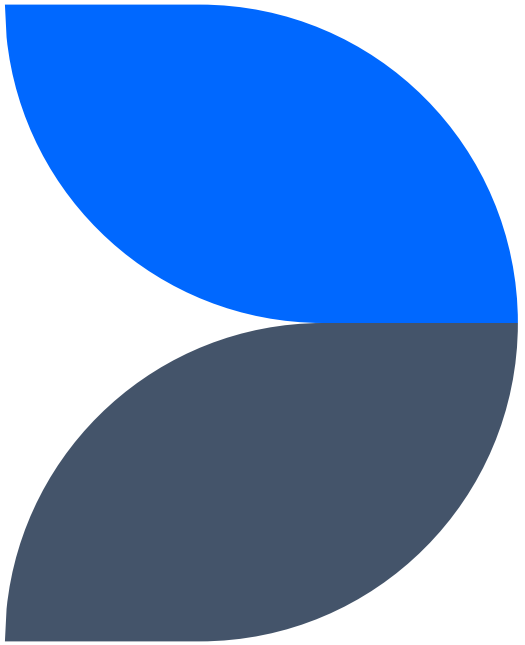
Available Range and anchor



Let’s Demo

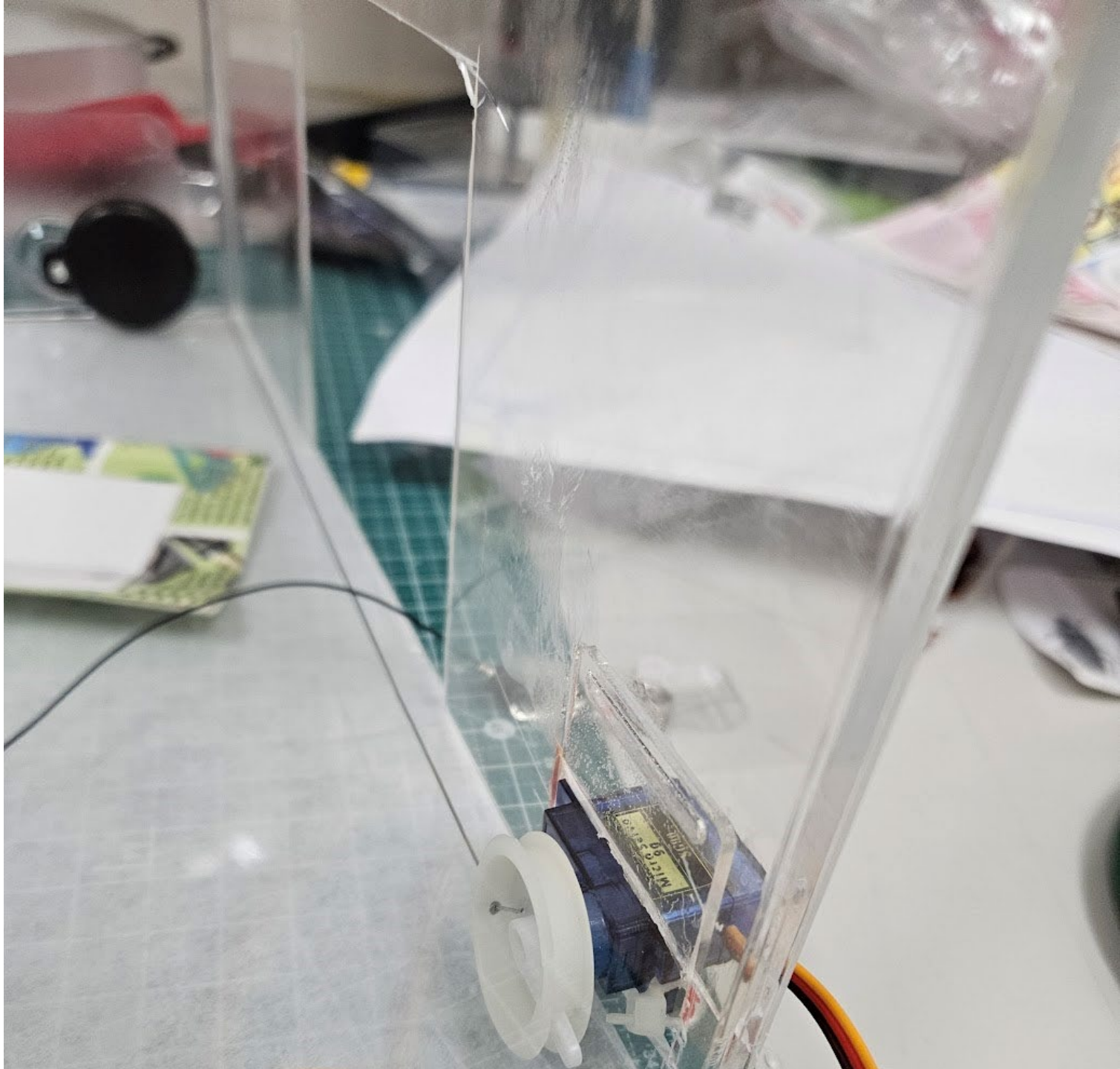


Something
Still
On the way

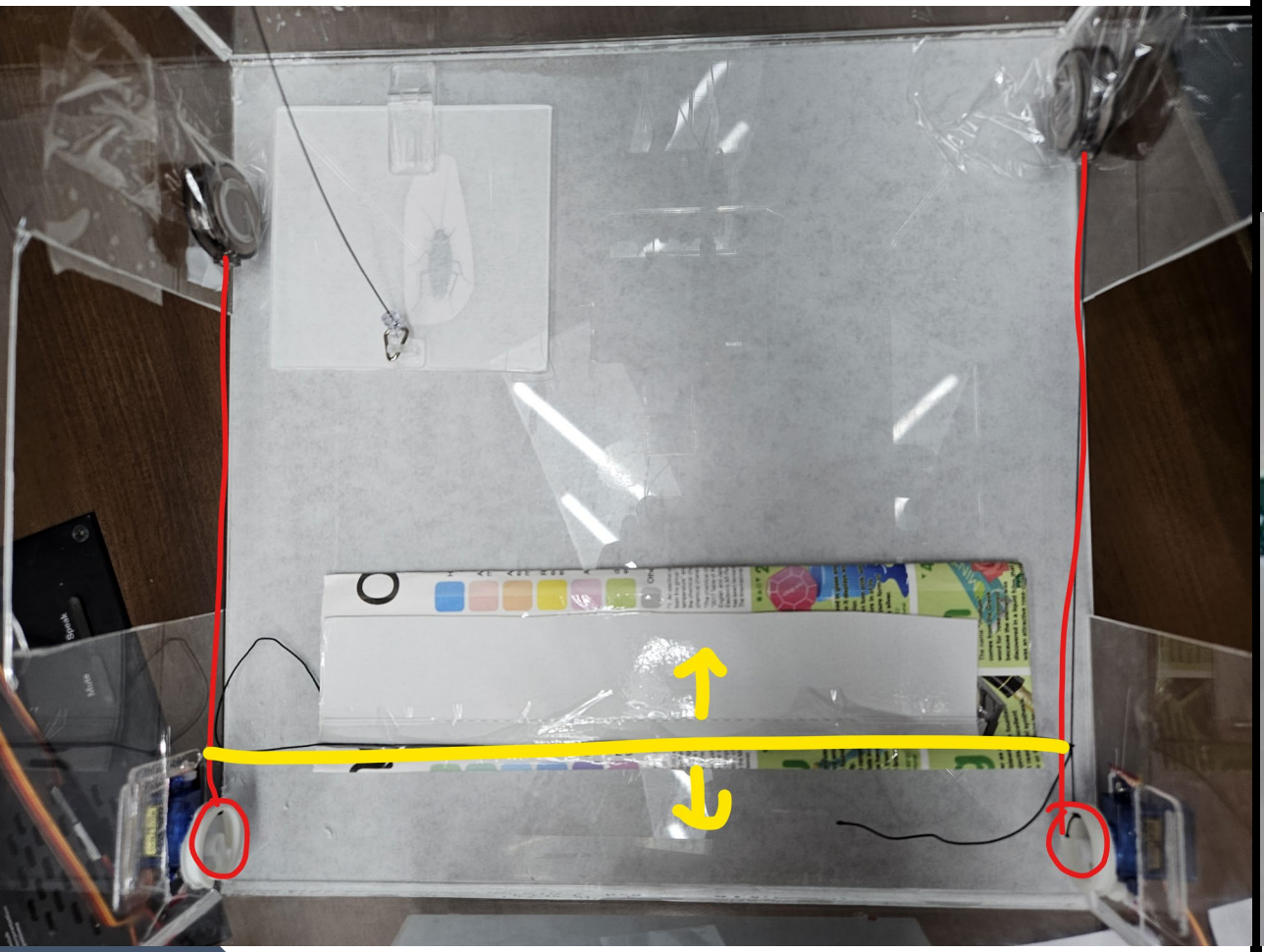


Cleaner

2024/1/5



Available



Problems

是在轉三小

Streaming Website

```
Camera __init__ sequence did not complete.
Traceback (most recent call last):
  File "/usr/lib/python3/dist-packages/picamera2/picamera2.py", line
    self._open_camera()
  File "/usr/lib/python3/dist-packages/picamera2/picamera2.py", line
    self.camera.acquire()
RuntimeError: Failed to acquire camera: Device or resource busy

During handling of the above exception, another exception occurred:
```

The Camera is holding when I want to launch Flask and PiCamera2 at the same time.

Thanks