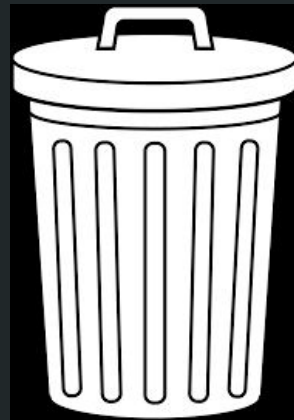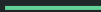# TrashcAIn

Objective

TrashcAIn goes wherever you are.

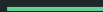# Hardware

車體 ＋ 視覺運算

車體：

- STM32 Nucleo-144開發板
- 直流馬達 x2
- 藍芽
- 垃圾桶

Hardware

車體 ＋ 視覺運算
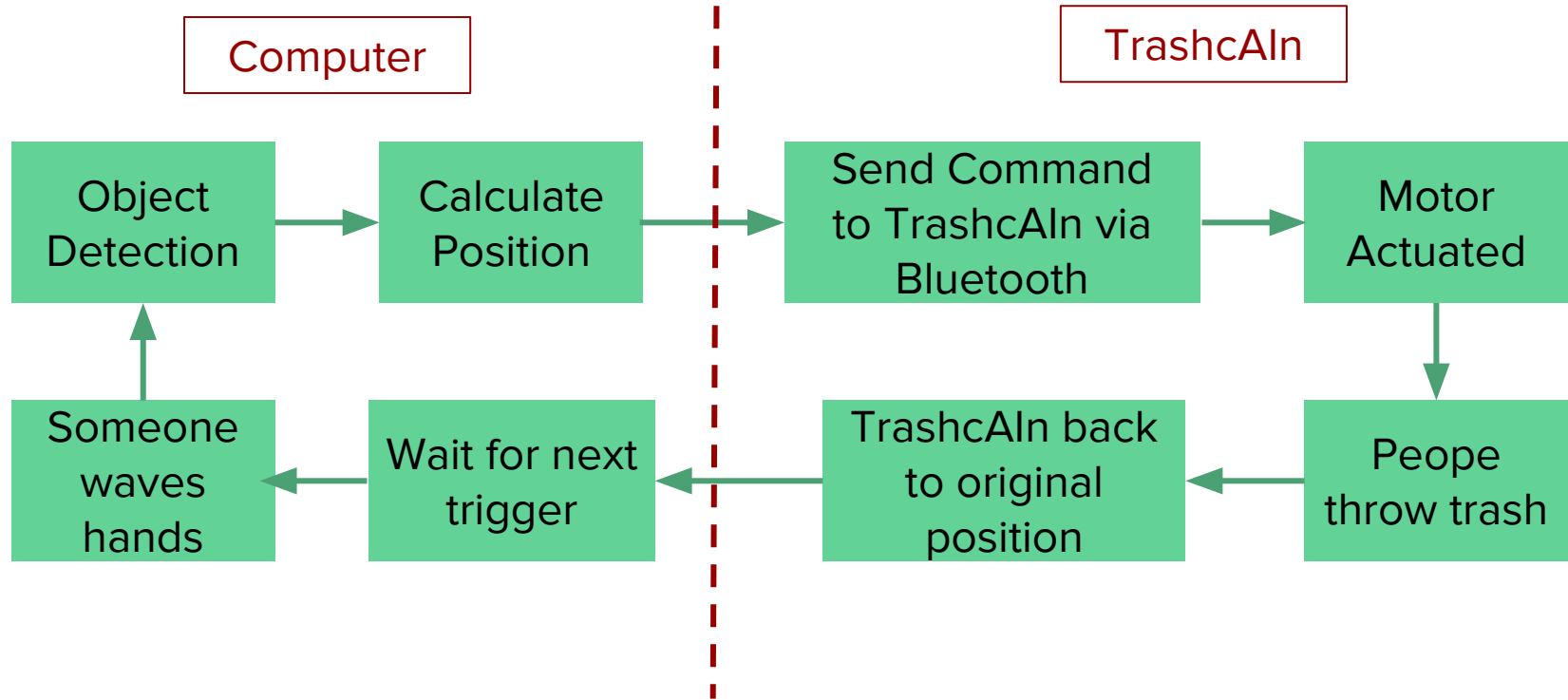
視覺運算：

- MacBook Pro
- webcam

System Design

TrashcAIn

Object Detection → Calculate Position → Send Command to TrashcAIn via Bluetooth → Motor Actuated

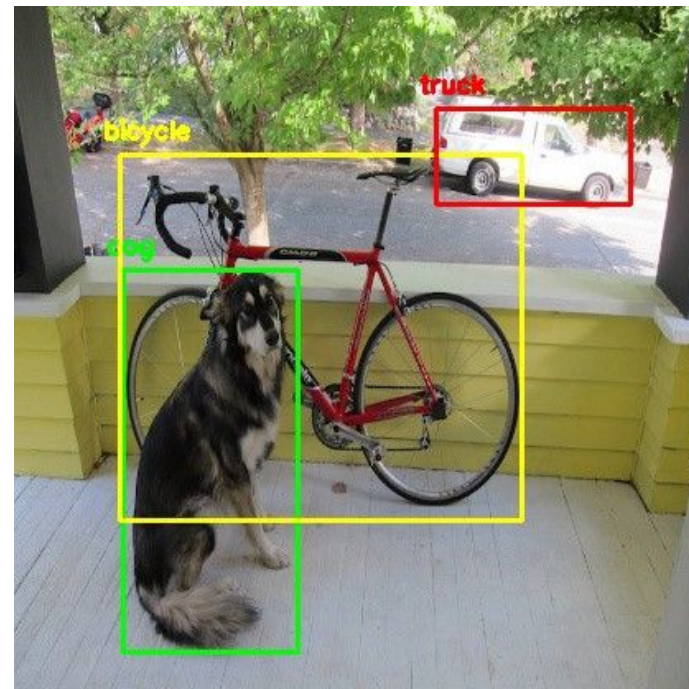Someone waves hands ← Wait for next trigger ← TrashcAIn back to original position ← Peope throw trash ← Motor Actuated
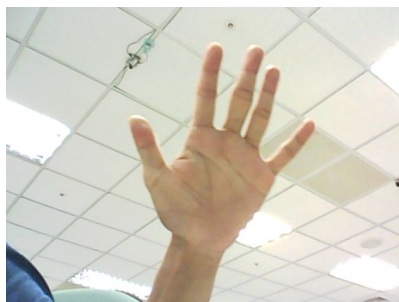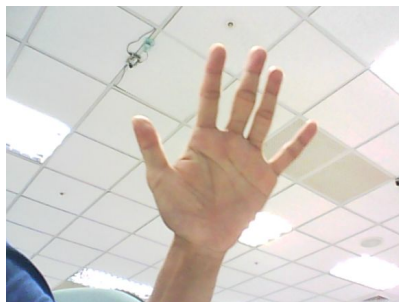
Object Detection

- **Yolo** object detection model
- Computationally expensive
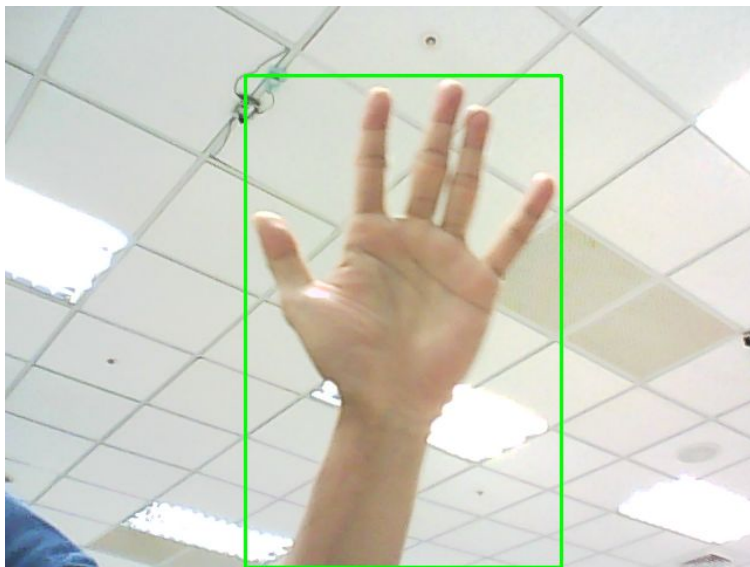- Turn to traditional computer vision algorithm

Object Detection

- **Difference** of 2 continuous frames
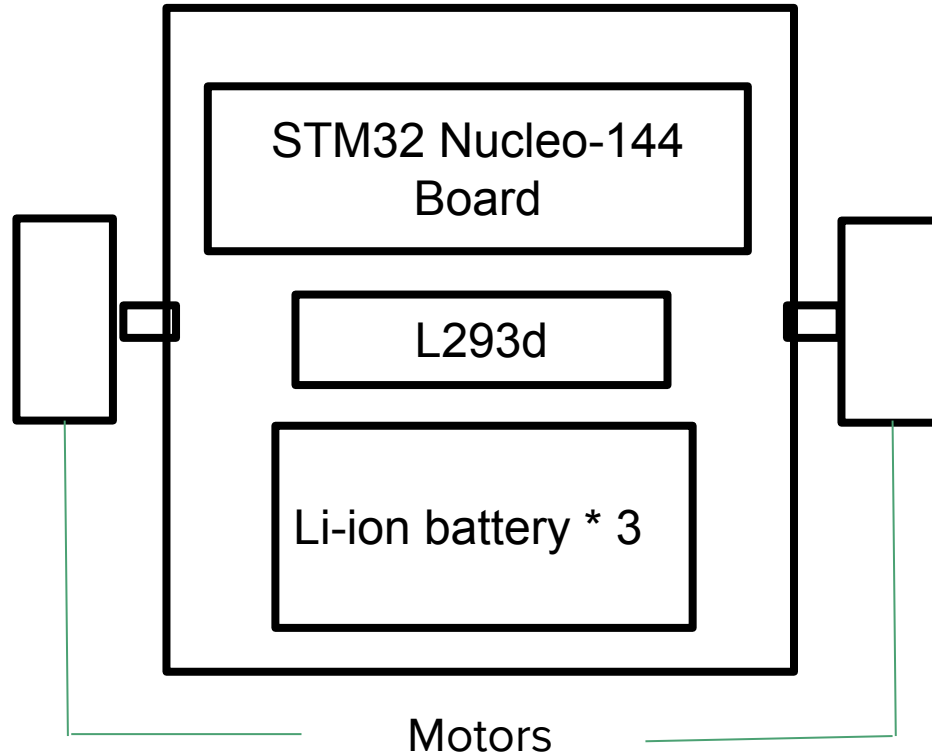- we can find the contour of the moving object

Object Detection

- find the bounding box according to the contour
- Calculate the center of bounding box as the target position

TrashcAIn Architecture

STM32 Nucleo-144
Board

L293d

Li-ion battery * 3

Motors

DEMO

2019 MakeNTU Group 2 超萌妹子

Thanks for your attention.