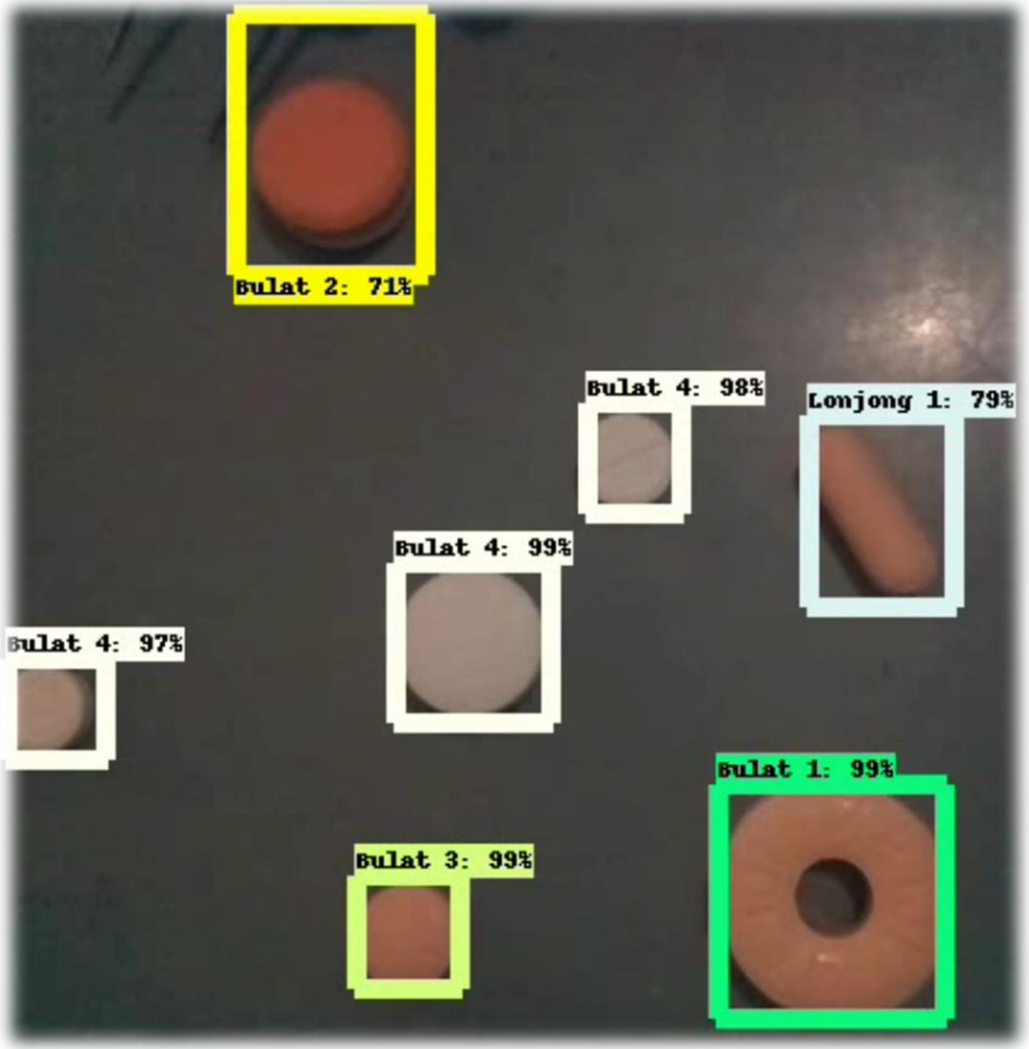
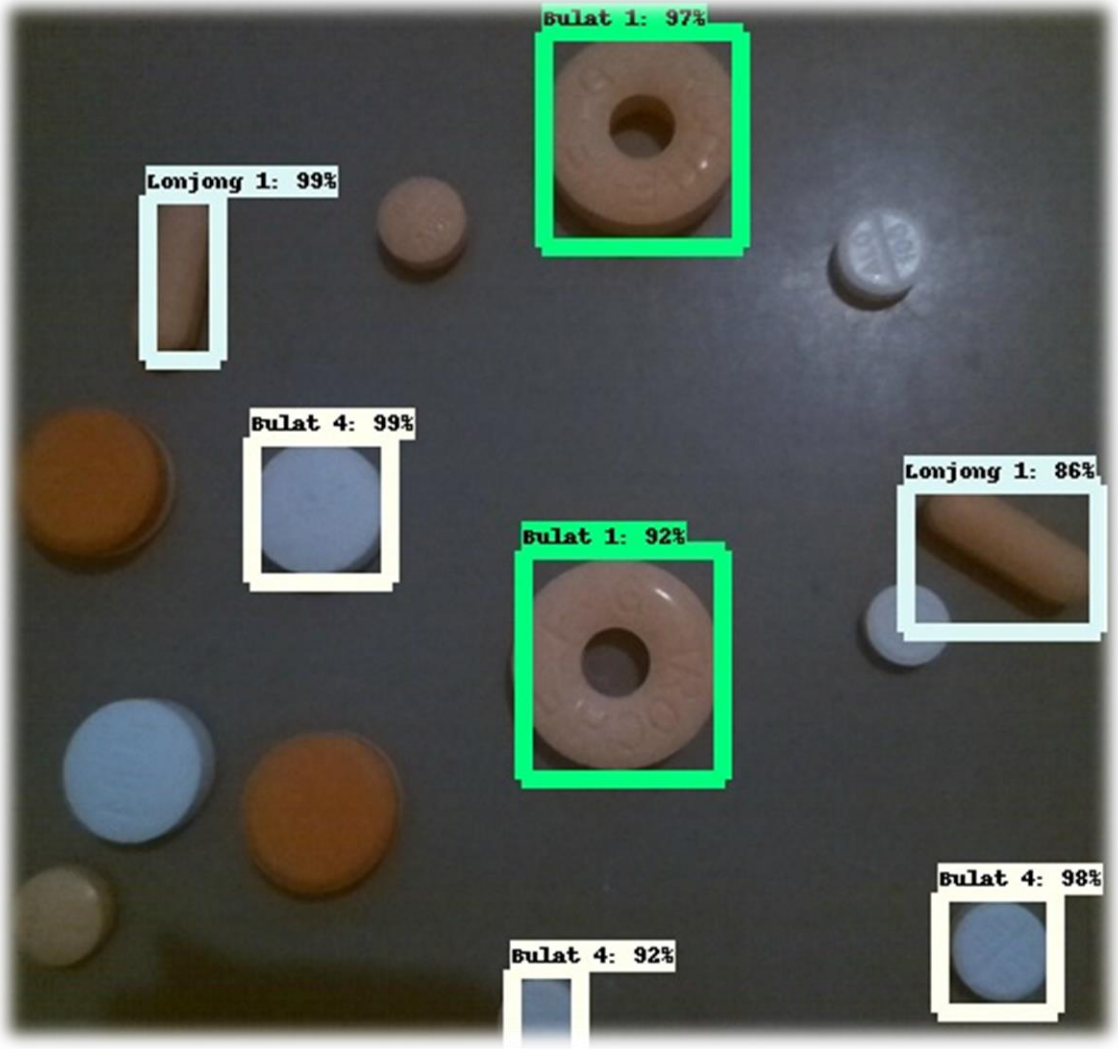




Tablet Recognition using Deep Learning

Hanif Izzudin Rahman

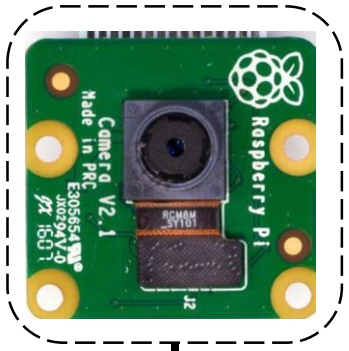
Outline

- Background
- Design System
- Datasets
- 4 Main Step
- Result
- Summary
- Reference

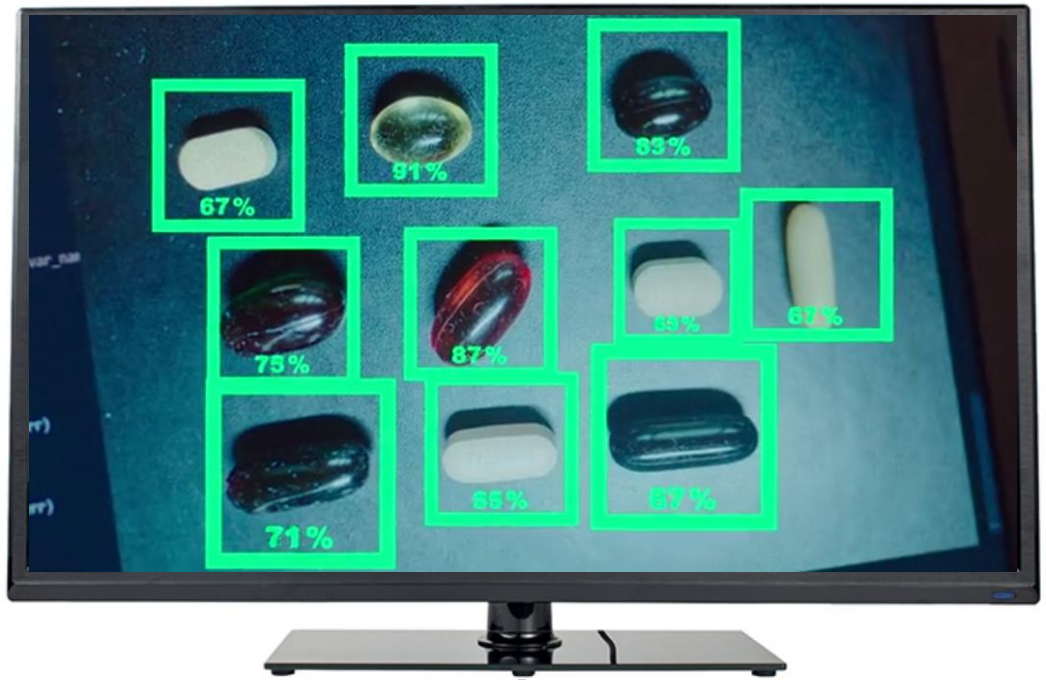
Background

Design System (“Prototype”)

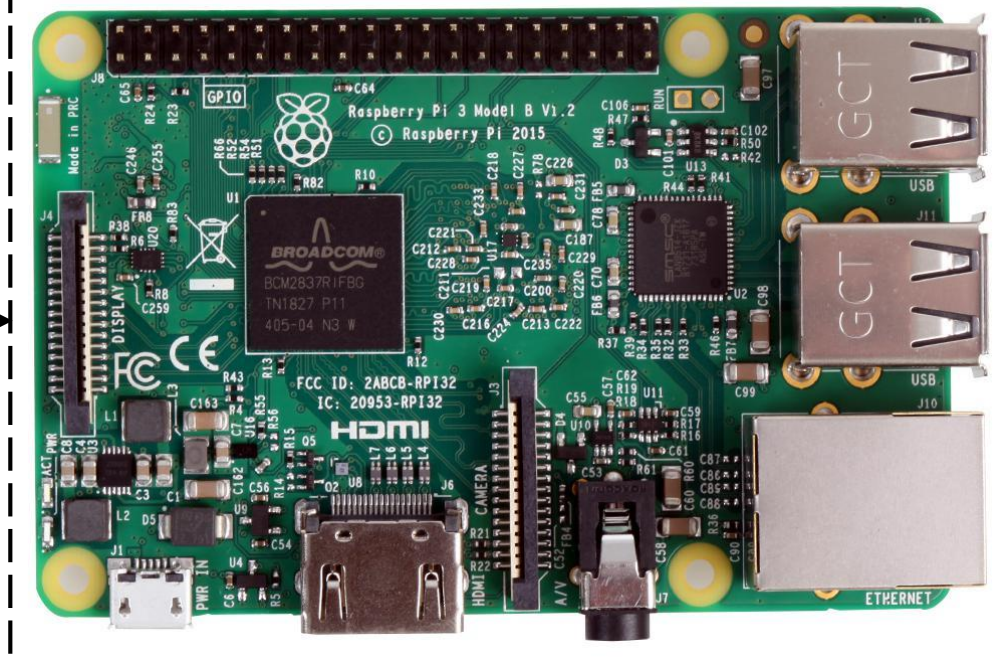
Raspberry Pi Camera



LCD



Raspberry Pi 3



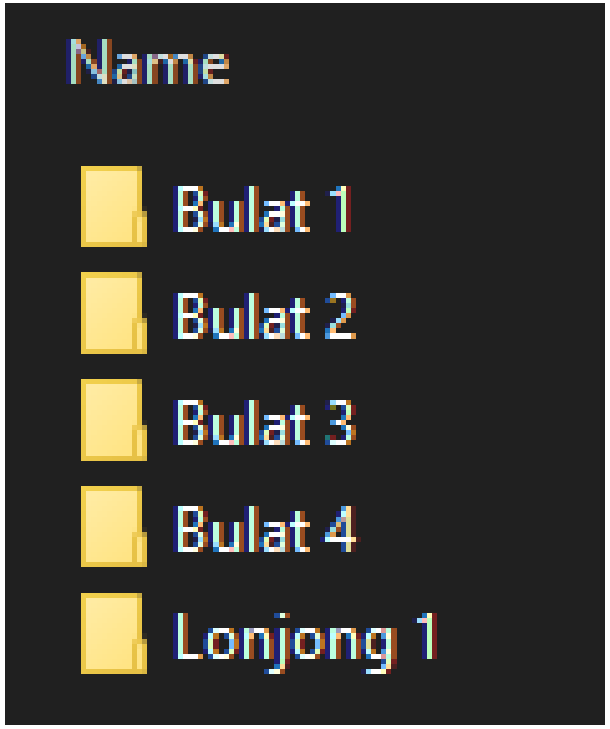
Datasets

- **Metformin** “Diabetes”
- **Simvastatin** “Kolestrol”
- **Amlodipine** “Darah Tinggi”
- **FG Troches** “Radang Tenggorokan”
- **Allopurinol** “Asam Urat”
- **Bodrex** “Sakit Kepala”
- **Ibuprofen** “Pereda Nyeri”

4 Main Step

1. Collecting Data
2. Annotation
3. Training (Google Colab)
4. Embed AI in Raspberry Pi 3 Model B V1.2

1. Collecting Data



Bulat 1 (10 Data)

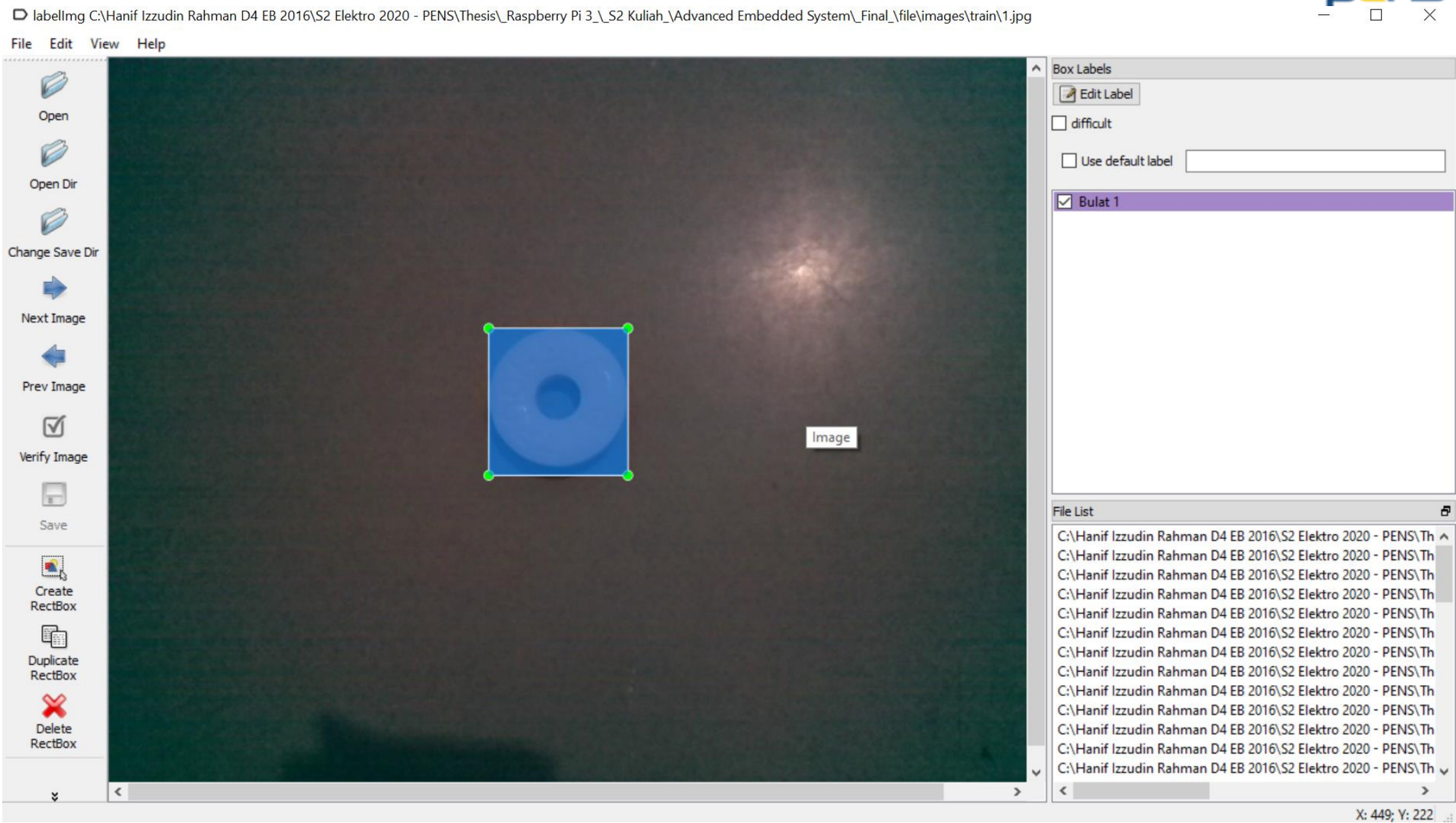
Bulat 2 (10 Data)

Bulat 3 (10 Data)

Bulat 4 (10 Data)

Lonjong 1 (15 Data)

2. Annotation



3. Training (Google Colab)

"Menggunakan SSD terlatih dengan MobileNetV2 pada MSCOCO Dataset"

Object Detection → Feature Extraction → Classification

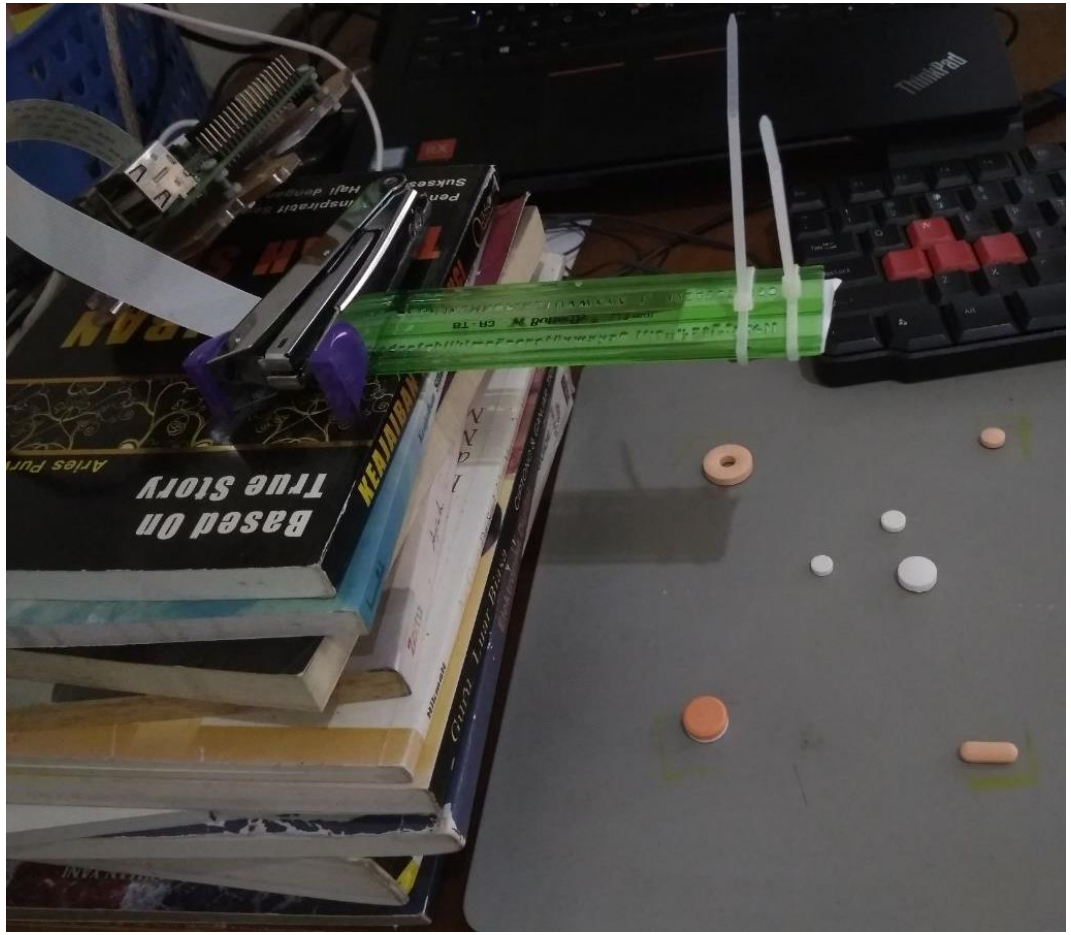
Single-Shot Detector (SSD)

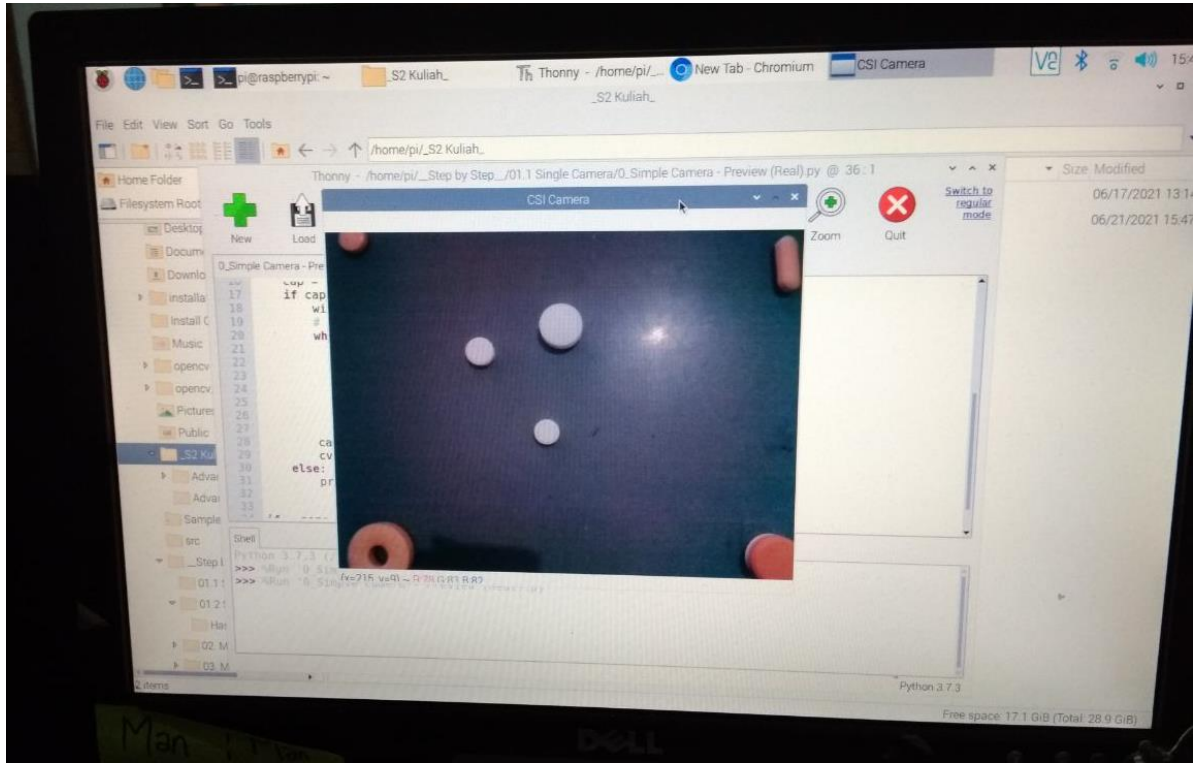
MobileNet V2

5 Classes:

- Bulat 1
- Bulat 2
- Bulat 3
- Bulat 4
- Lonjong 1

4. Embed AI in Raspberry Pi 3 Model B V1.2



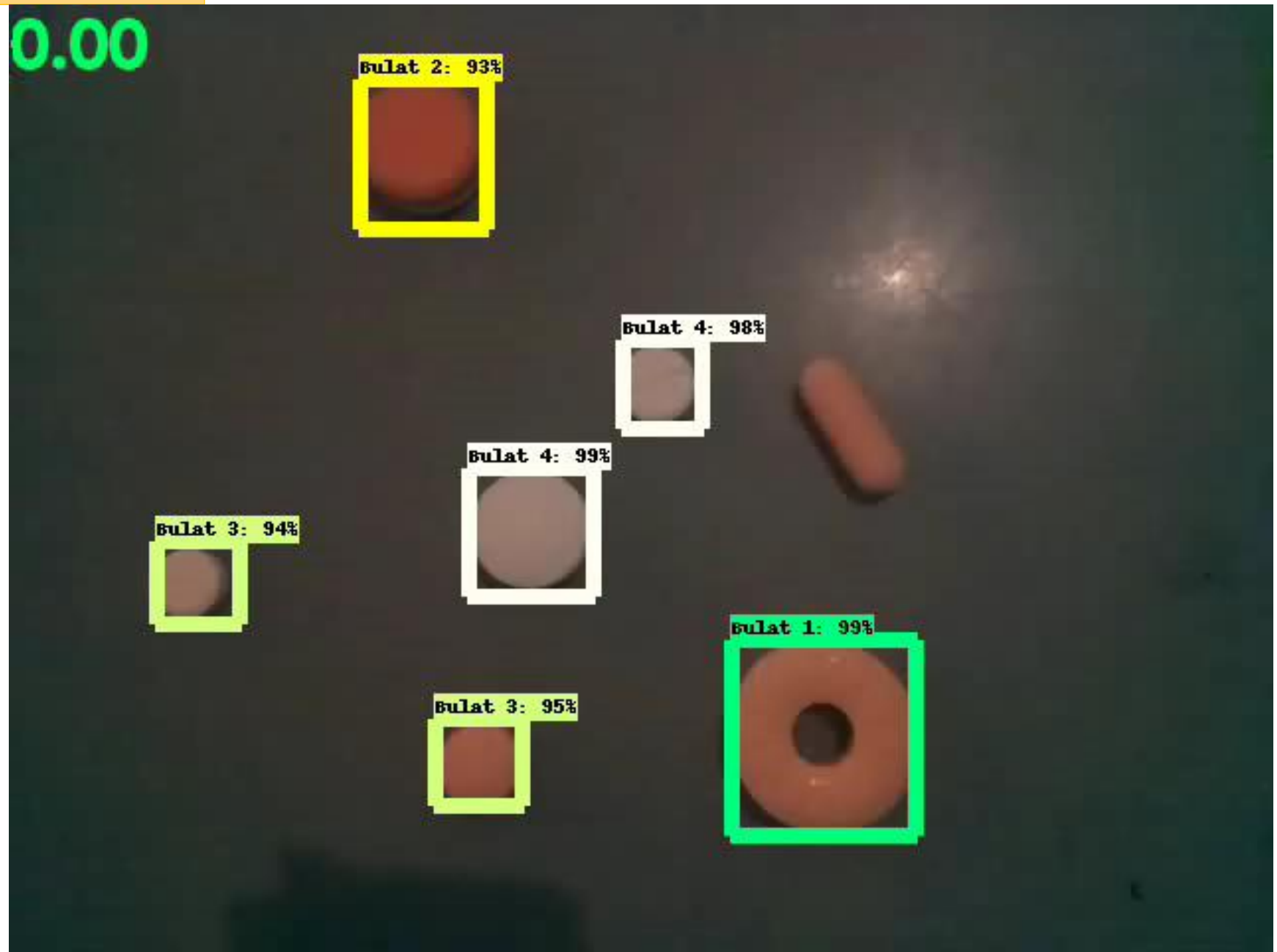


RESULT

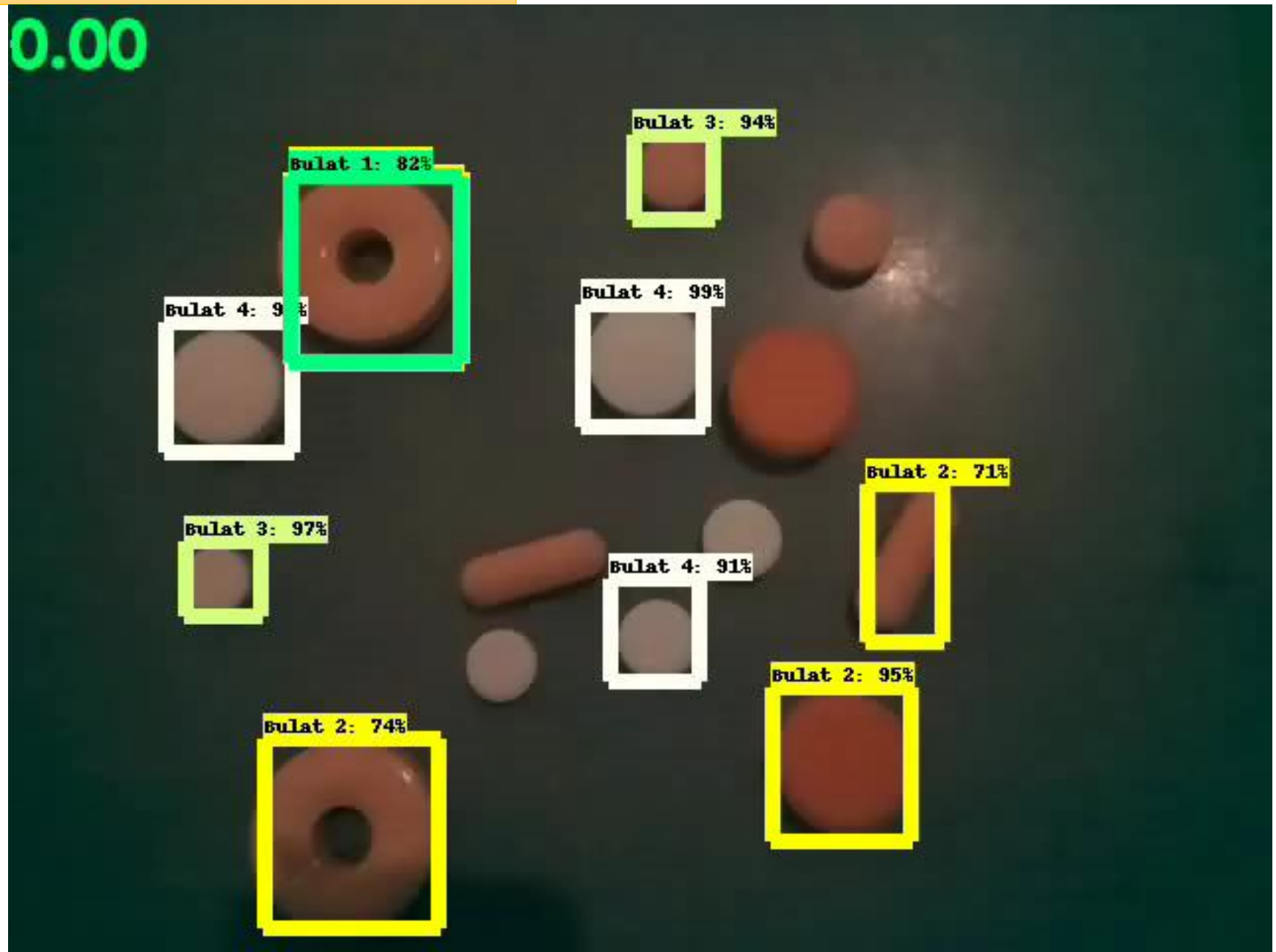
RESULT


Bulat 1: 97%
Lonjong 1: 99%
Bulat 4: 99%
Lonjong 1: 86%
Bulat 1: 92%
Bulat 4: 98%
Bulat 4: 92%

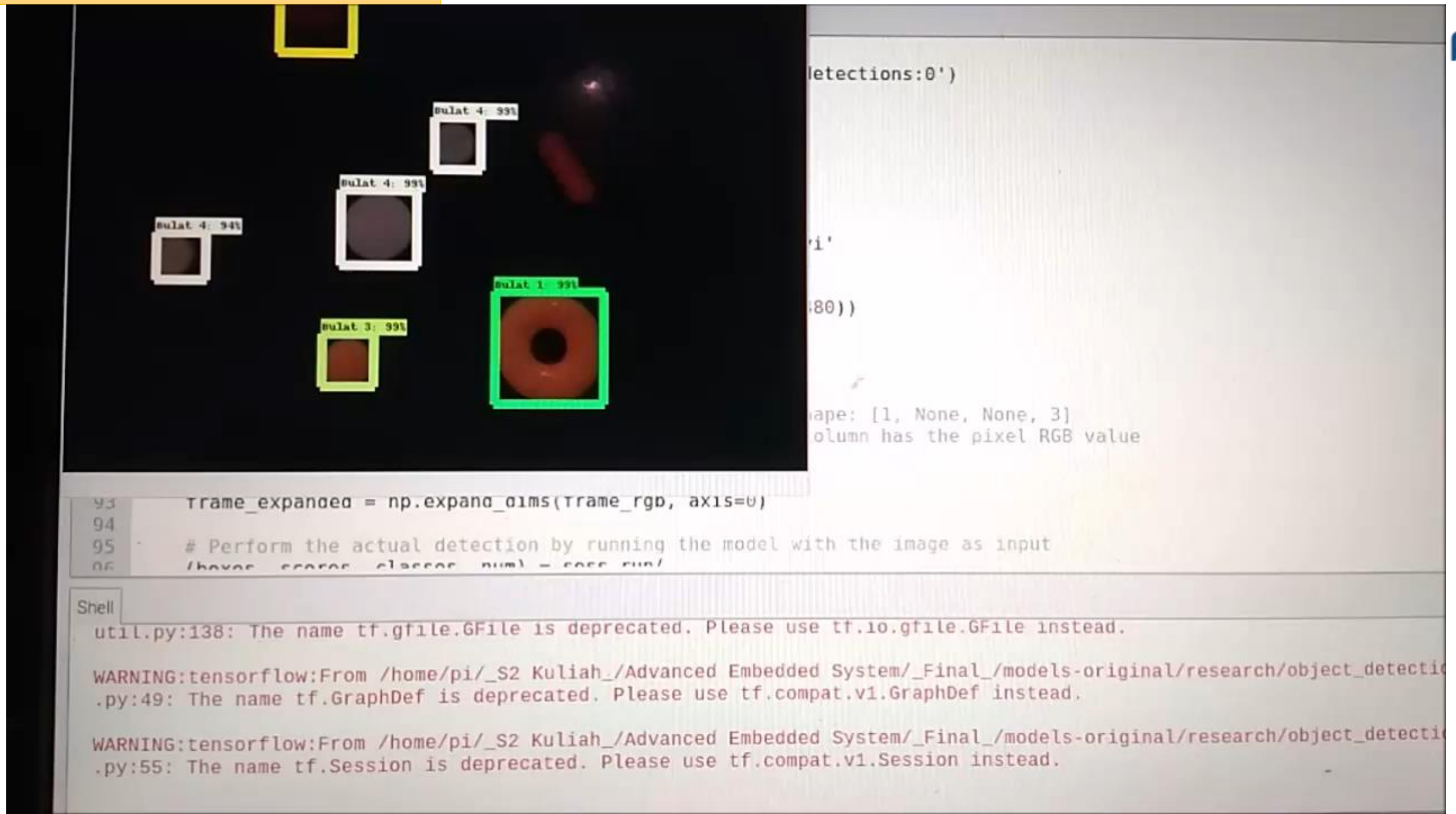
RESULT (Video)



RESULT (Video) - Double



Real FPS Video

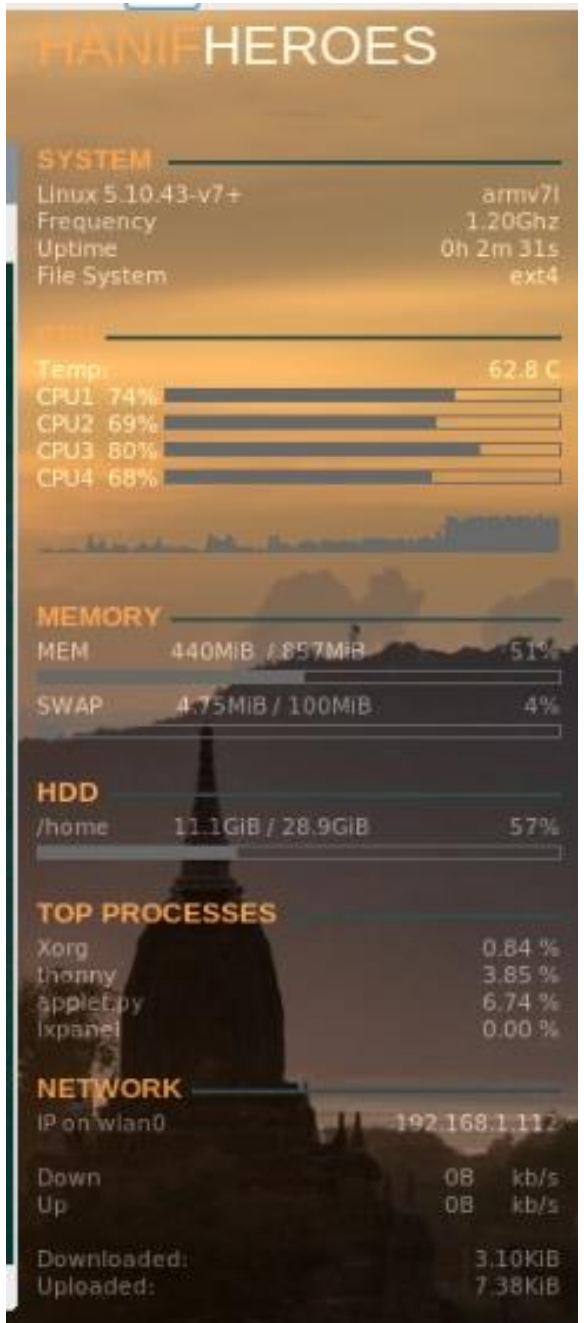


Summary

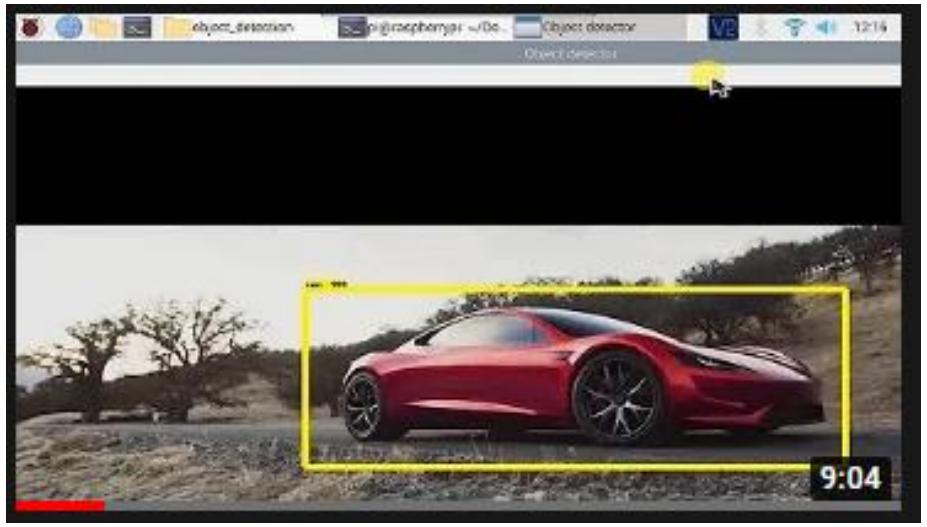
➔ Object yang dideteksi tidak akurat, terutama untuk object “Lonjong 1”. Ini dikarenakan dataset yang di-train hanya sedikit (15 Data)

Raspberry Pi 3 Model B V1.2

➔Distance : 8 cm
➔Angle : 0 Degree
➔FPS : 1.2
➔Memory Usage : 440 Mb
➔CPU Load : 72.5 %
➔Temperature : 62.8



Reference



https://www.youtube.com/watch?v=J-rocbCaGFQ

Thank You!

https://github.com/hanifizzudinrahman/Tablet-Recognition-using-Deep-Learning