REAL TIME VIOLENCE ALERT SYSTEM

2ND PROJECT REVIEW

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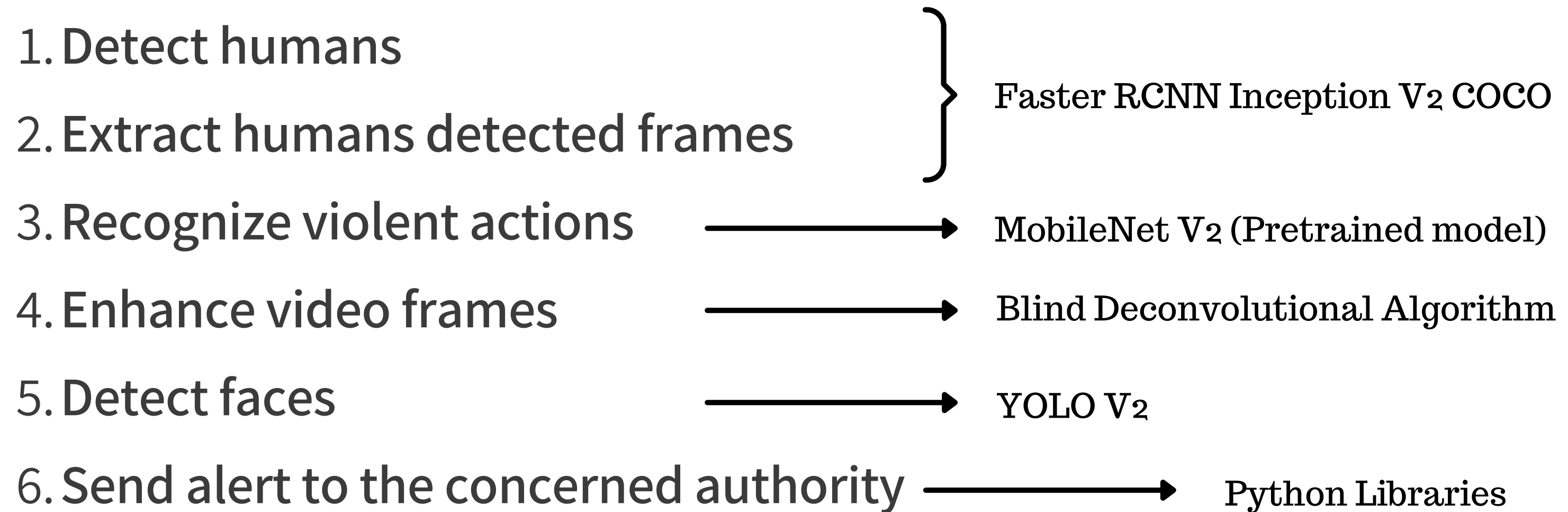Mannu Thomas S7 CS2 35

PROBLEM STATEMENT

- Nowadays CCTV Surveillance is used to a greater extent but still it lacks the feature of automatic violence detection.
- Manual monitoring is not much of a feasible task and the time taken to respond to the situation is also crucial.
- So we need a real-time violence alert system to detect any violence and notify the concerned authorities with the required details in real-time.

MODULES

- **HUMAN DETECTION**

- **VIOLENCE DETECTION**

- **IMAGE ENHANCEMENT**

- **ALERT SYSTEM**

METHODOLOGY

1. Detect humans
2. Extract humans detected frames → Faster RCNN Inception V2 COCO
3. Recognize violent actions → MobileNet V2 (Pretrained model)
4. Enhance video frames → Blind Deconvolutional Algorithm
5. Detect faces → YOLO V2
6. Send alert to the concerned authority → Python Libraries
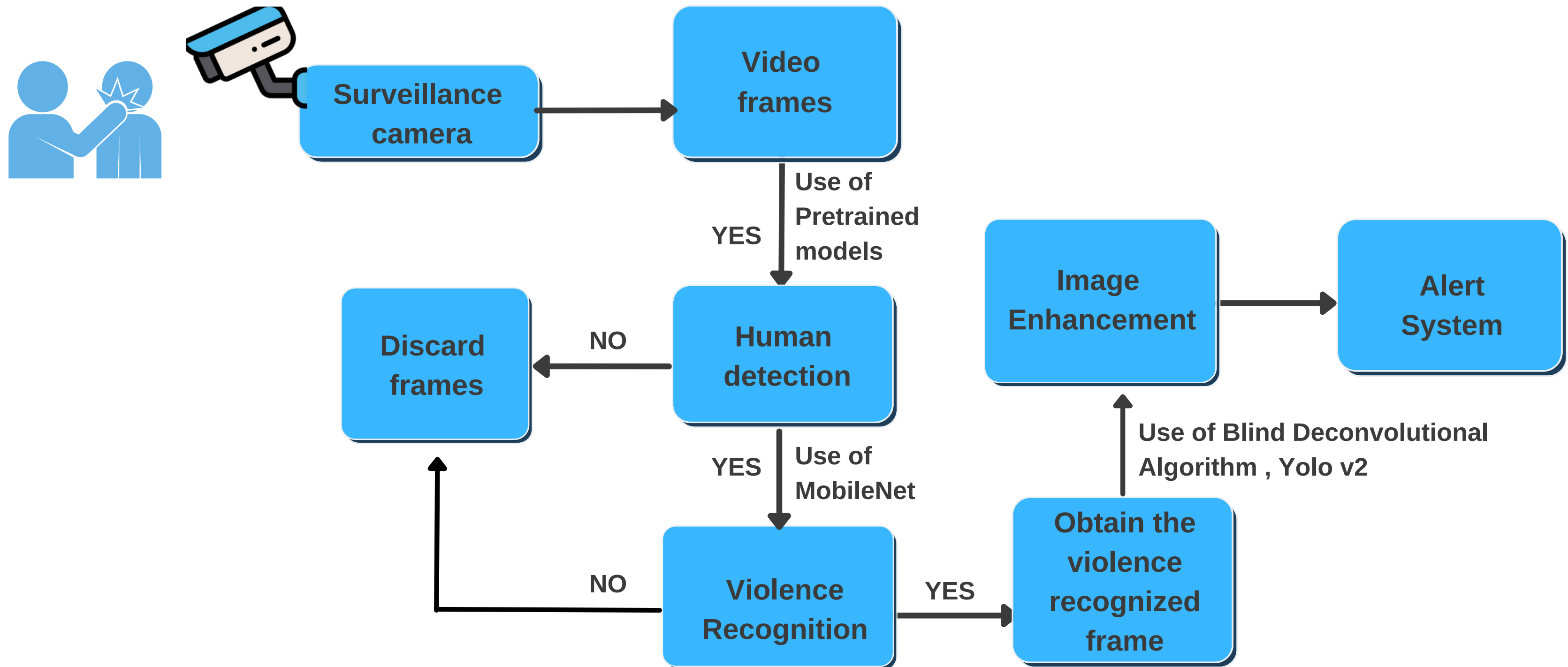
OPERATING ENVIRONMENT
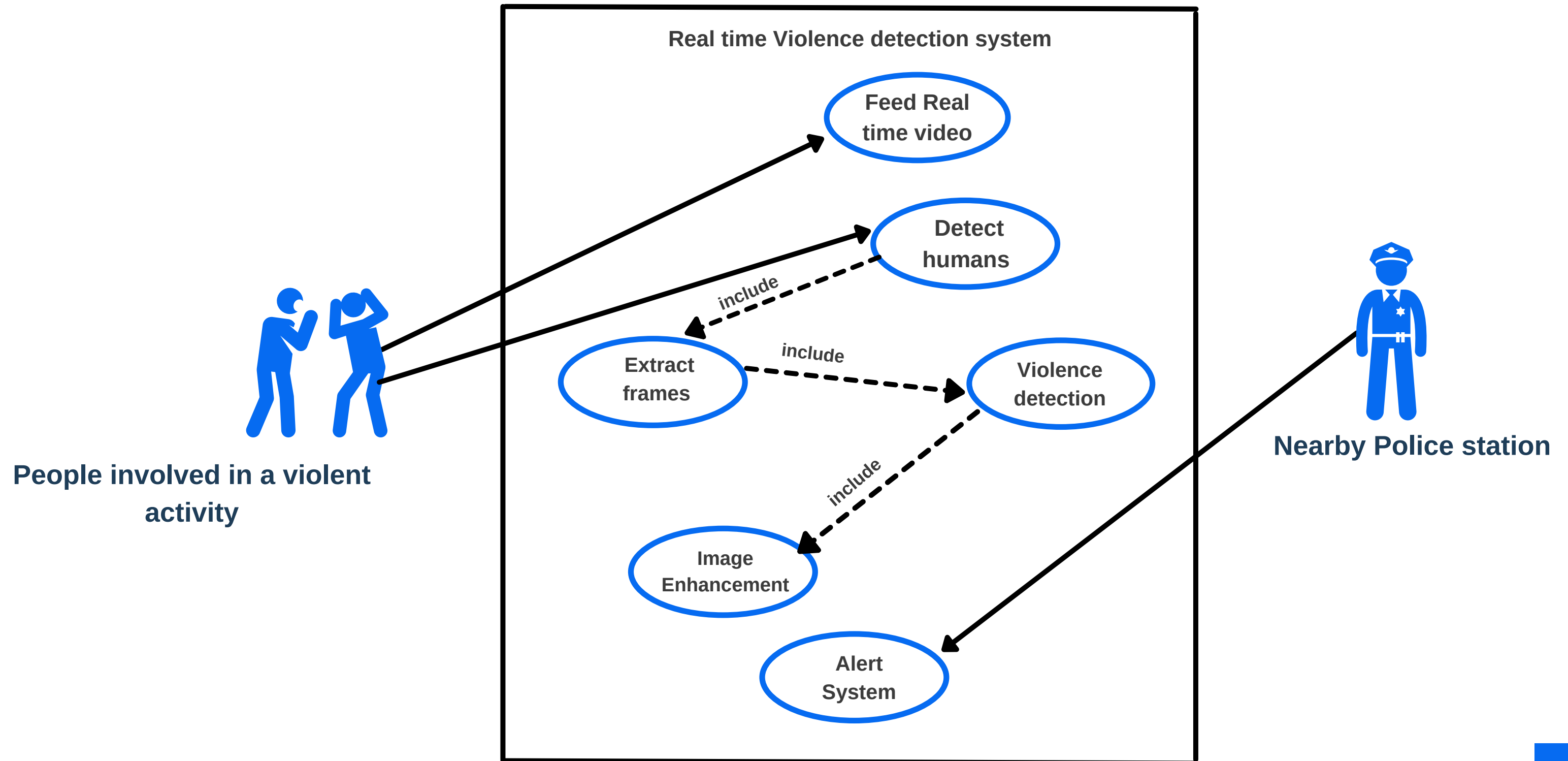
PYTHON

- The language used.

GOOGLE COLABORATORY

- Environment for running python and similiar Machine Learning and Deep Learning projects
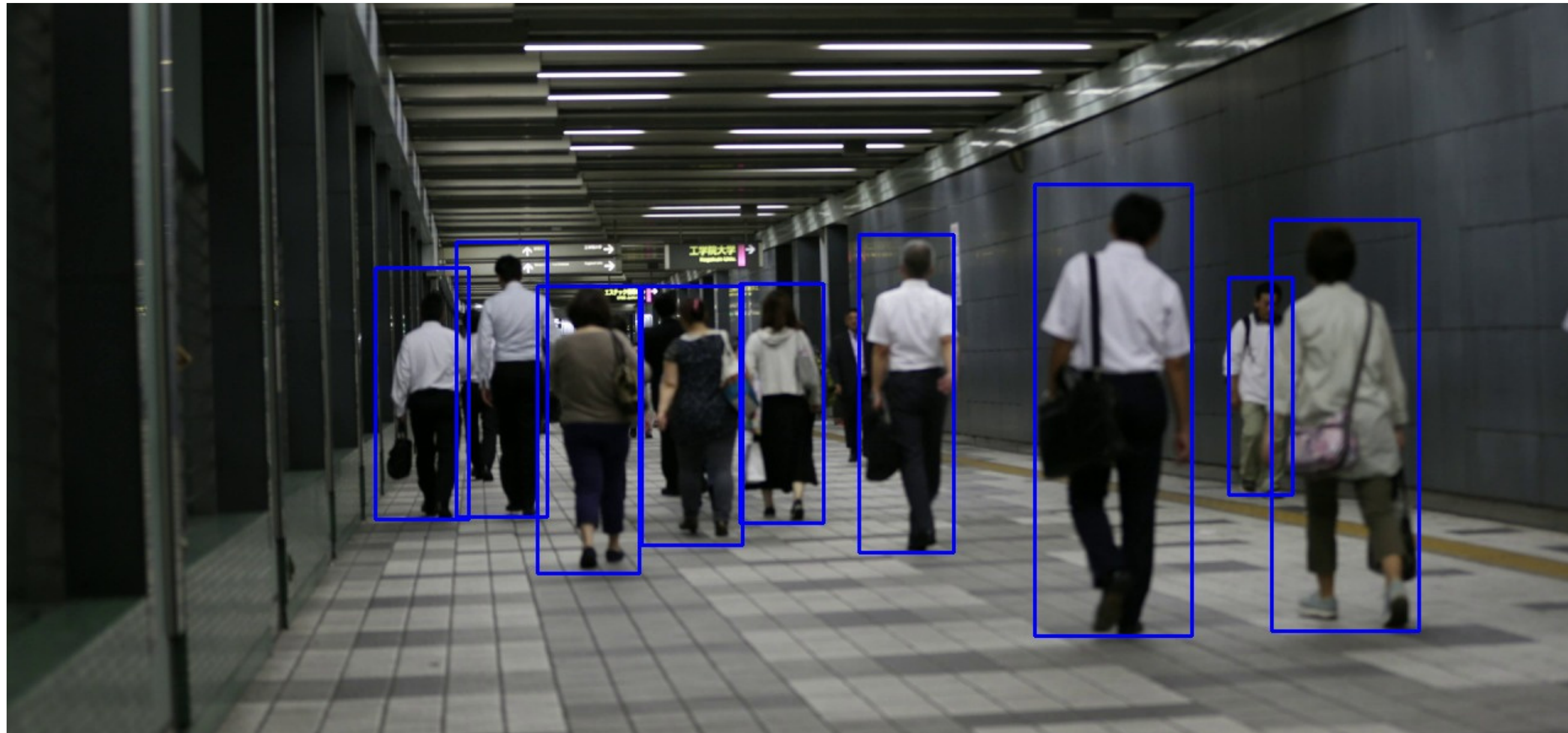
- Able to use Google's GPU and TPU

ARCHITECTURAL DIAGRAM

Surveillance camera → **Video frames**

Video frames → (YES, Use of Pretrained models) → **Human detection**

Human detection → (NO) → **Discard frames**

Human detection → (YES, Use of MobileNet) → **Violence Recognition**

Violence Recognition → (NO) → **Discard frames**

Violence Recognition → (YES) → **Obtain the violence recognized frame**

Obtain the violence recognized frame → (Use of Blind Deconvolutional Algorithm , Yolo v2) → **Image Enhancement**

Image Enhancement → **Alert System**

USE CASE DIAGRAM

RESULTS

Faster RCNN Inception V2 COCO

RESULTS

SSD Mobilenet V1 COCO

RESULTS

Three pre-trained models were compared and we obtained the following conclusions:

Accuracy

SSD Mobilenet V1 COCO < Faster RCNN Inception V2 COCO <= Faster RCNN Nas

Speed

SSD Mobilenet V1 COCO >= Faster RCNN Inception V2 COCO >> Faster RCNN Nas

THANK YOU