

Aerial View Pedestrian Detection and Counting (Multiple Camera System)

Problem Statement: - In this challenge, the participant needs to build a robust pedestrian detection system which can detect and count the people in real-time from a fixed camera position 15-25 feet above the ground level.

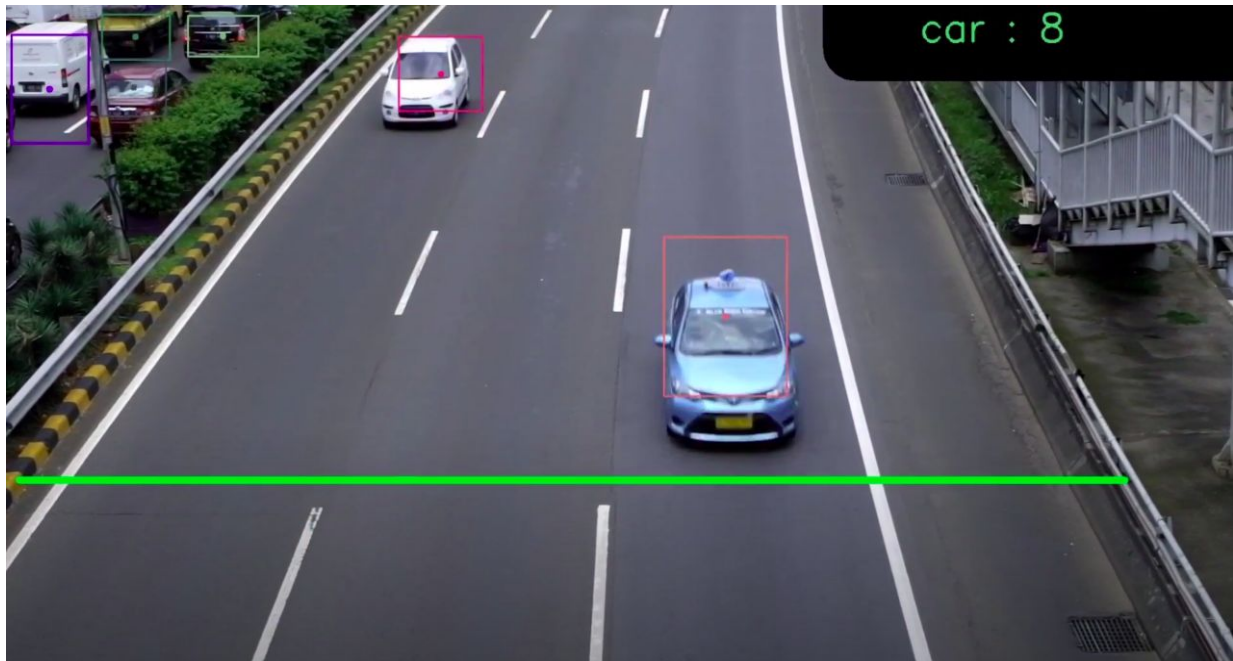
Camera Calibrations : -

1. Top view: position the camera such that it takes the top view of the crowd.
2. Height of the camera from ground - 15feet(minimum) -25 feet(maximum)
3. Setup minimum 3 cameras.

Virtual Lines to be drawn in a frame:-

Different Virtual lines must be present in the frame to detect a person coming in and going out of the frame.

Example: - In the above picture the green line is a virtual line.



Pedestrian Sample Image :-



So in your case, you need two virtual lines.

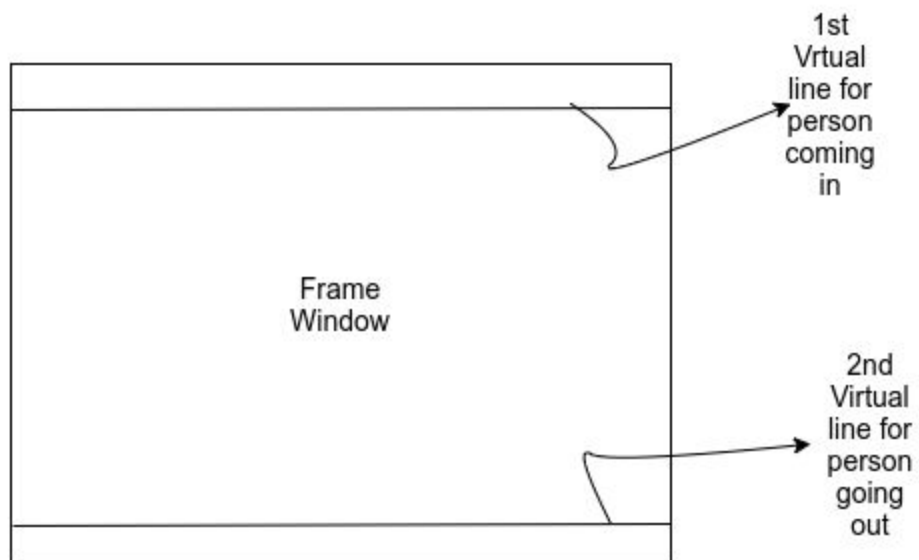
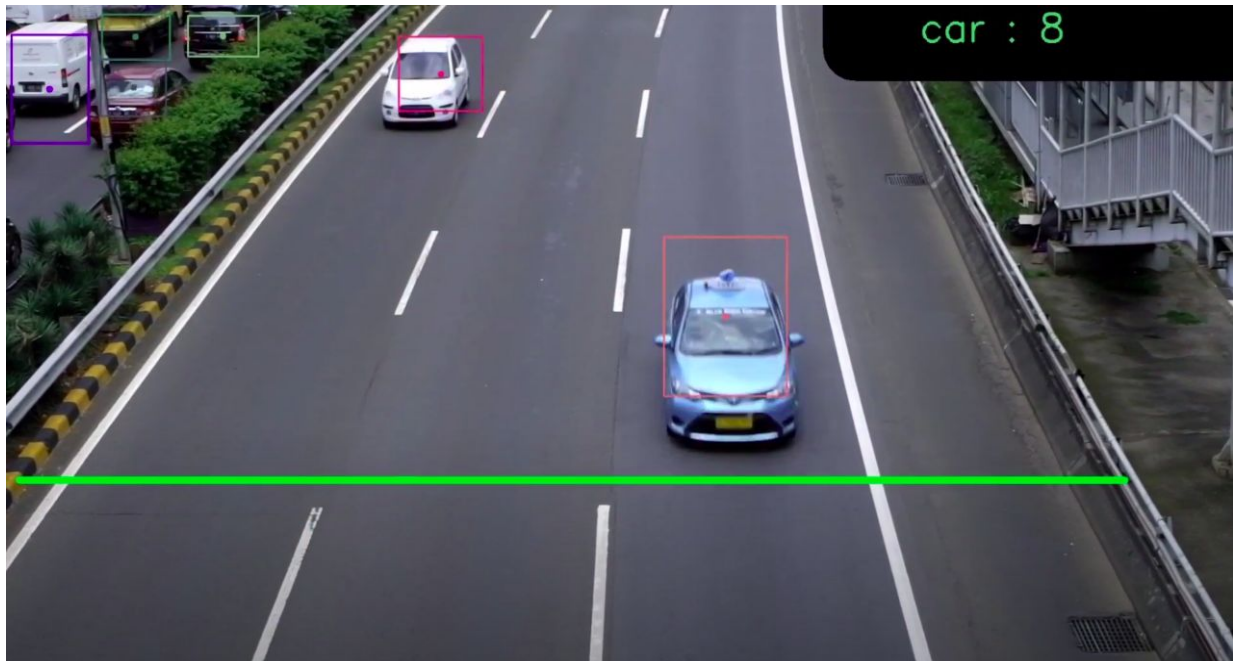
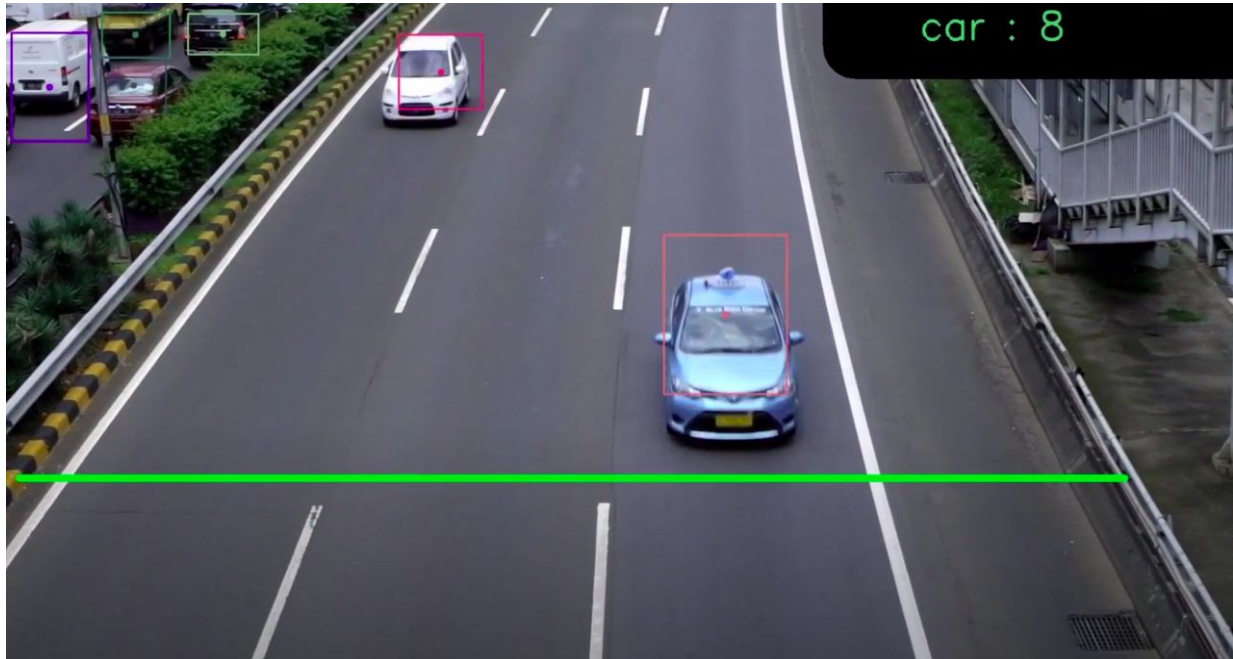


Figure:- example.png

1. 1st virtual line is the entry line.
2. 2nd virtual line is the exit line.

Detections & Counting of the object to be achieved : -

1. M ng.



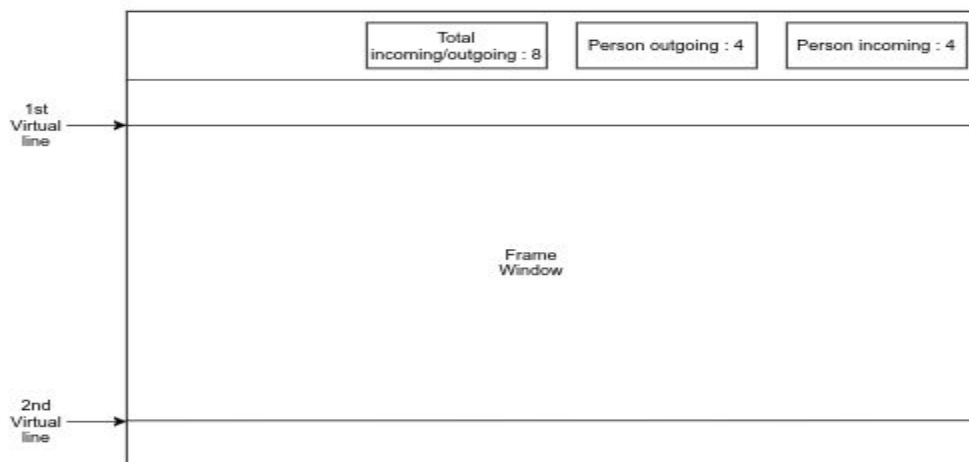
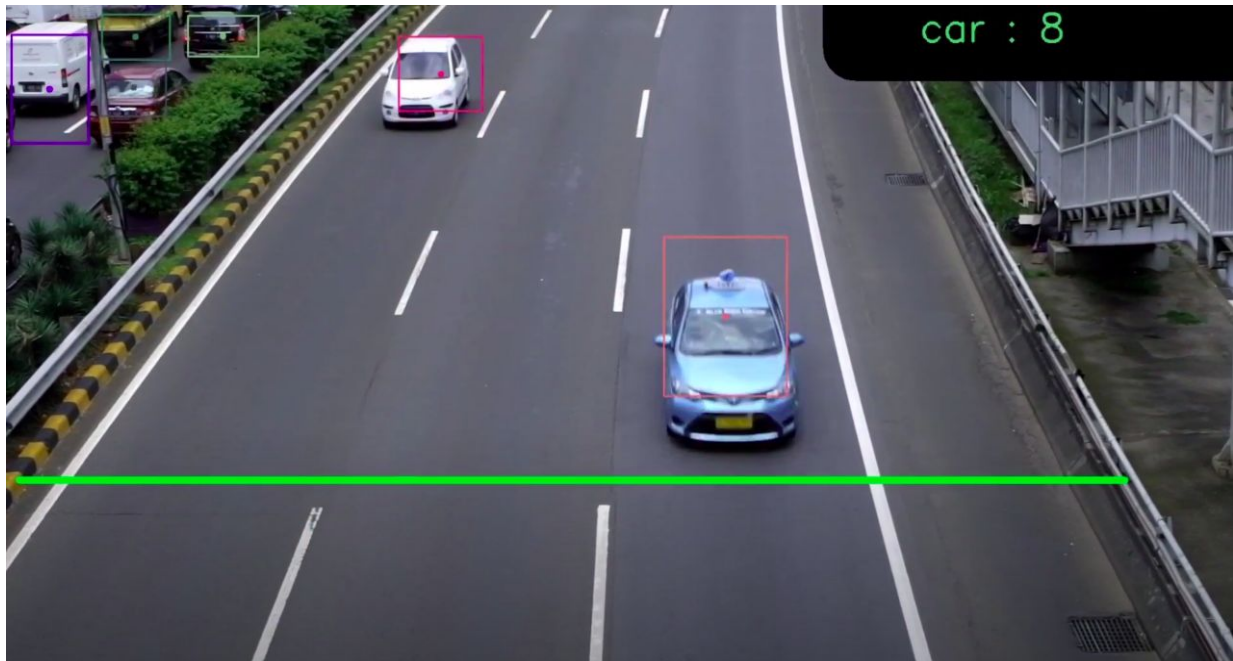
Description:- Consider the example figure:- *example.png*, when multiple persons are crossing the 1st virtual line(entry line) then they should be counted and similarly when multiple persons are crossing the 2nd virtual line(exit line) then they should also be counted. Both of these detections and counting activities should be done concurrently.

Calculations to be Achieved and shown within each frame window : -

1. The count of the persons incoming for each frame window.
2. The count of the persons outgoing for each frame window.
3. Total count of the incoming & outcoming persons.

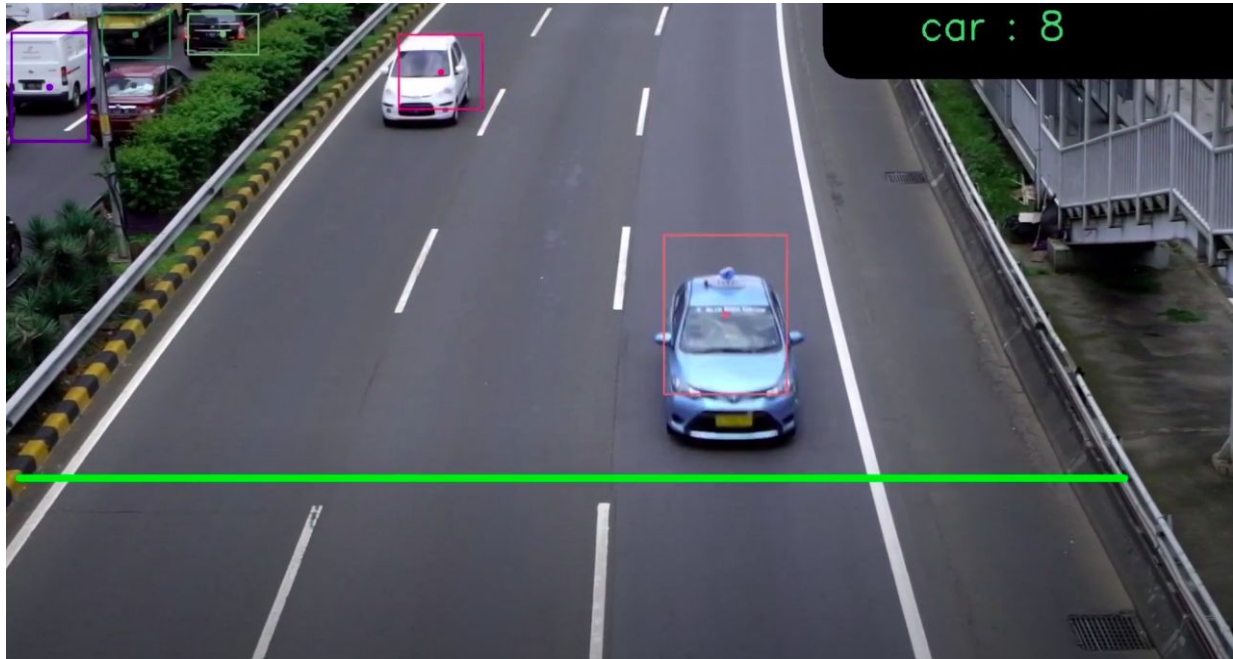
Maintain the execution records or logs.

In the following example image, a sample frame window with counts has been shown.



Dataset:-

The participant needs to collect their own real-time dataset or can use it from the internet if available according to the camera positions and requirements specified.



The dataset should also contain images in different lighting conditions like morning, afternoon, evening, and night.

Metrics to be achieved:-

1. Accuracy above 90%
2. Frames per second should be above 15 FPS