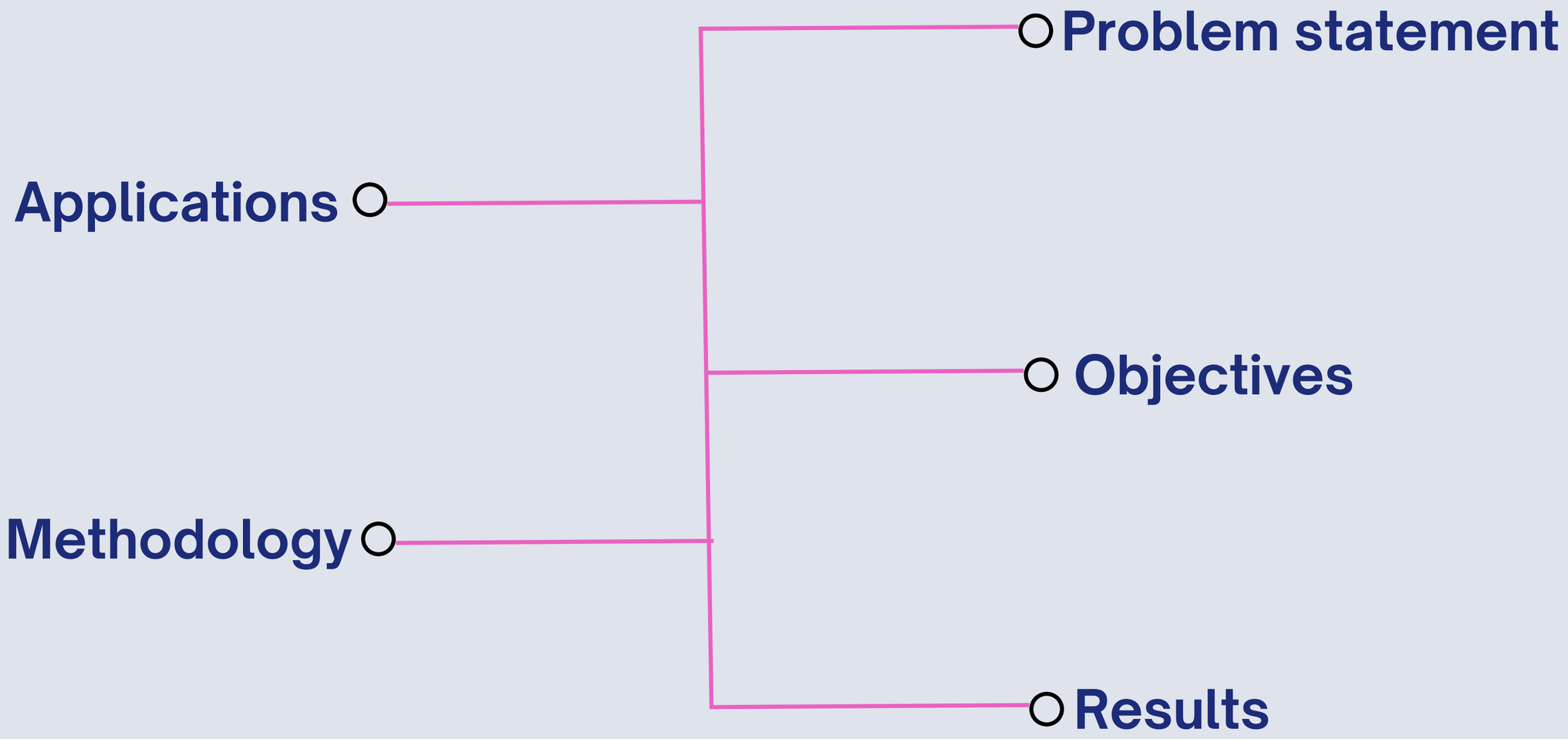
Vehicle Detection using OpenCV and Python

By
Naman Sharma (102005069)
Sanya Passey (102005070)

Aspects Covered



Problem Statement

- Existing traffic monitoring systems are not accurate or real-time enough.
- Traditional methods cannot count vehicles, classify them by type, or analyze traffic patterns well.
- This prevents traffic authorities from making informed decisions and responding to congestion quickly.

Applications

- Real-time Analysis
- Traffic monitoring and management
- Intelligent Transportation System
- Urban Planning
- Road Safety
- Parking Management

Objectives

1. Refine Accurate Vehicle Detection Mechanisms
2. Enhance Vehicle Counting Capabilities
3. Facilitate Real-Time Traffic Insights
4. Explore Diverse Applications

Methodology

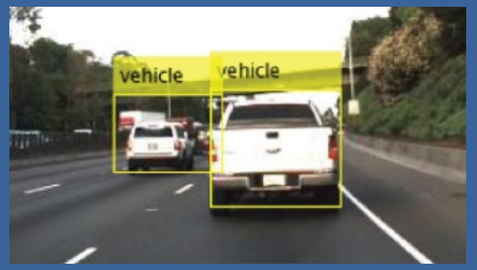
Steps

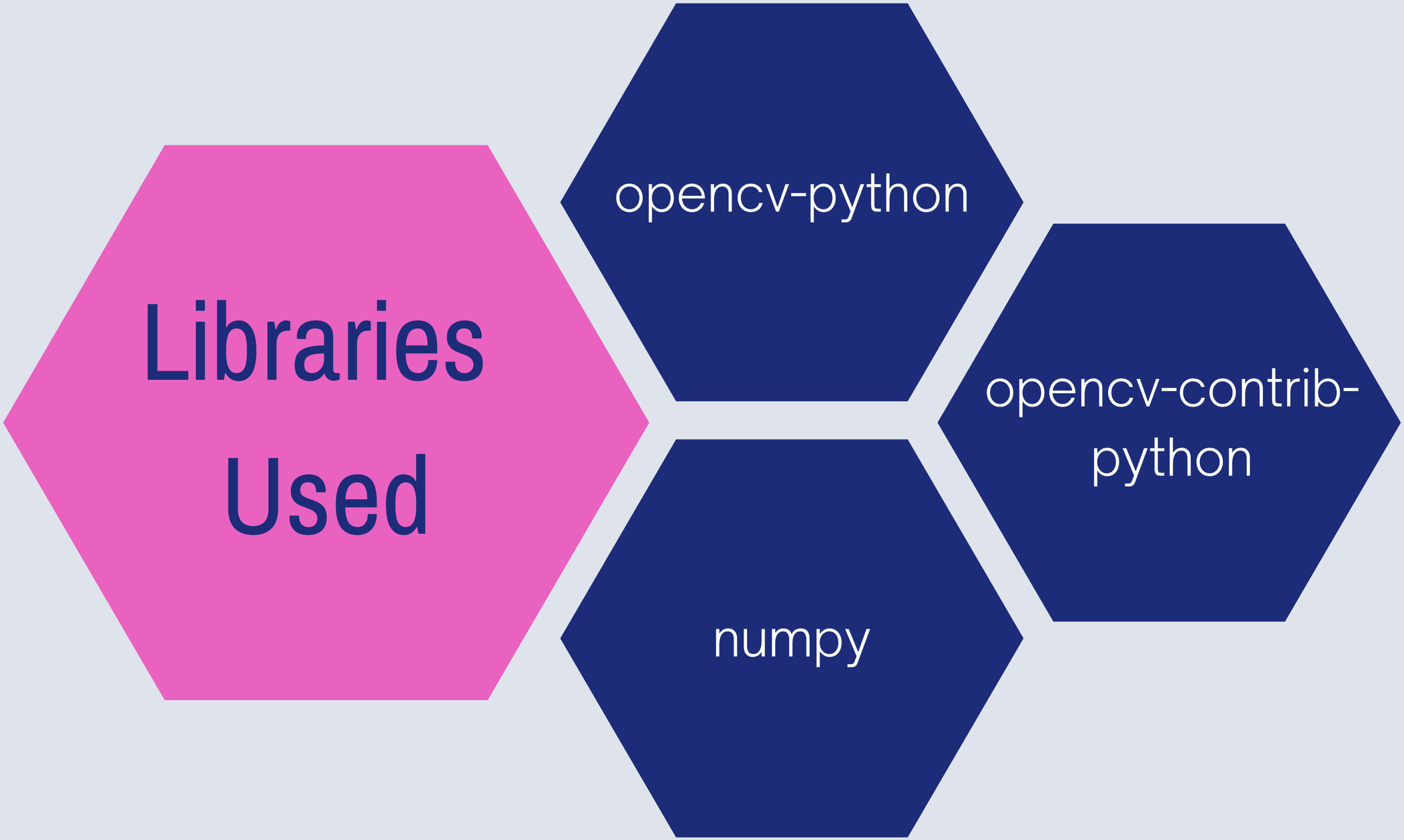
1 Frame Differencing

2 Image Thresholding

3 Finding Contours

4 Image Dilation



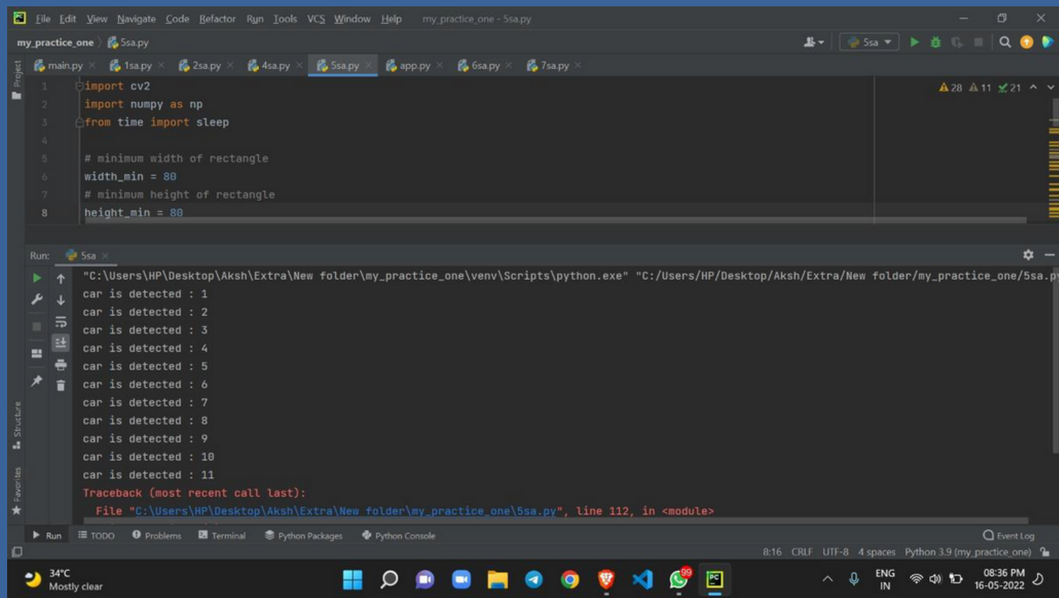

Libraries Used
opencv-python
opencv-contrib-python
numpy


Detectar


VEHICLE COUNT : 4
VEHICLE COUNT : 4

Results


Video Original
VEHICLE COUNT : 8
VEHICLE COUNT : 7


import cv2
import numpy as np
from time import sleep
# minimum width of rectangle
width_min = 80
# minimum height of rectangle
height_min = 80
"C:\Users\HP\Desktop\Aksh\Extra\New folder\my_practice_one\venv\Scripts\python.exe" "C:/Users/HP/Desktop/Aksh/Extra/New folder/my_practice_one/5sa.py
car is detected : 1
car is detected : 2
car is detected : 3
car is detected : 4
car is detected : 5
car is detected : 6
car is detected : 7
car is detected : 8
car is detected : 9
car is detected : 10
car is detected : 11
Traceback (most recent call last):
File "C:\Users\HP\Desktop\Aksh\Extra\New folder\my_practice_one\5sa.py", line 112, in <module>

Thank You