



CAR DETECTION

GROUP 4

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INTRODUCTION



Our project leverages **YOLO** (You Only Look Once) technology for real-time vehicle detection at traffic signals. By accurately counting the number of cars waiting at each intersection, our system can dynamically adjust traffic light timings to prioritize signals with higher traffic volumes.



We gathered data from various online sources to ensure a comprehensive and diverse dataset.



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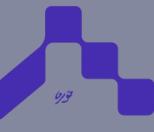
CHALLENGE / SOLUTION

Challenge

Traditional traffic management systems operate on fixed schedules and do not adapt to real-time traffic conditions. This can result in wasted time at signals, increased driver frustration, and increased emissions from parked vehicles.

Solution

Our solution is to implement an intelligent traffic management system using YOLO (You Only Look Once) technology for real-time vehicle counting.

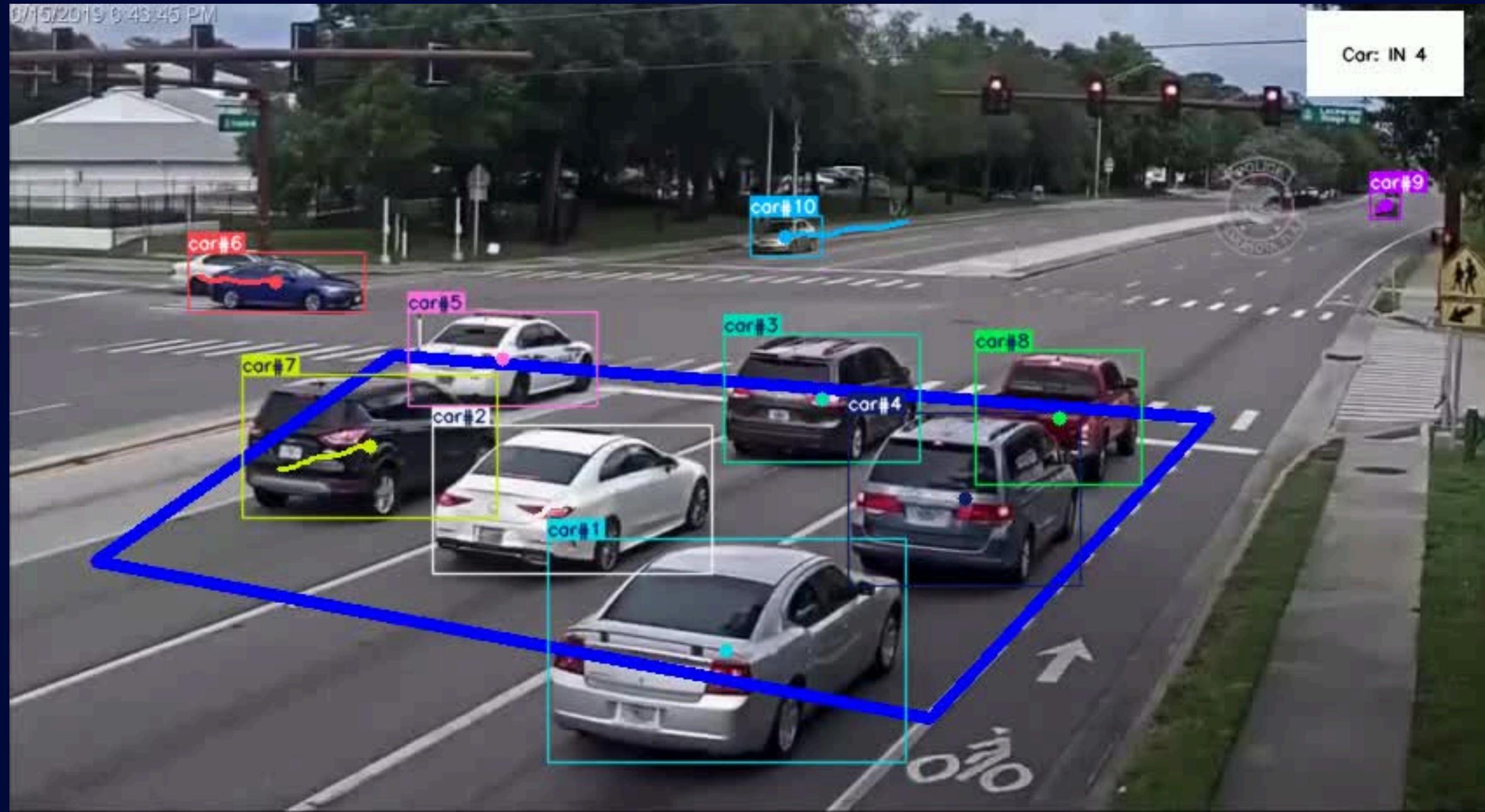


BEFORE DETECTION



RESULTS

TRAFFIC LIGHT COUNTING





RESULTS

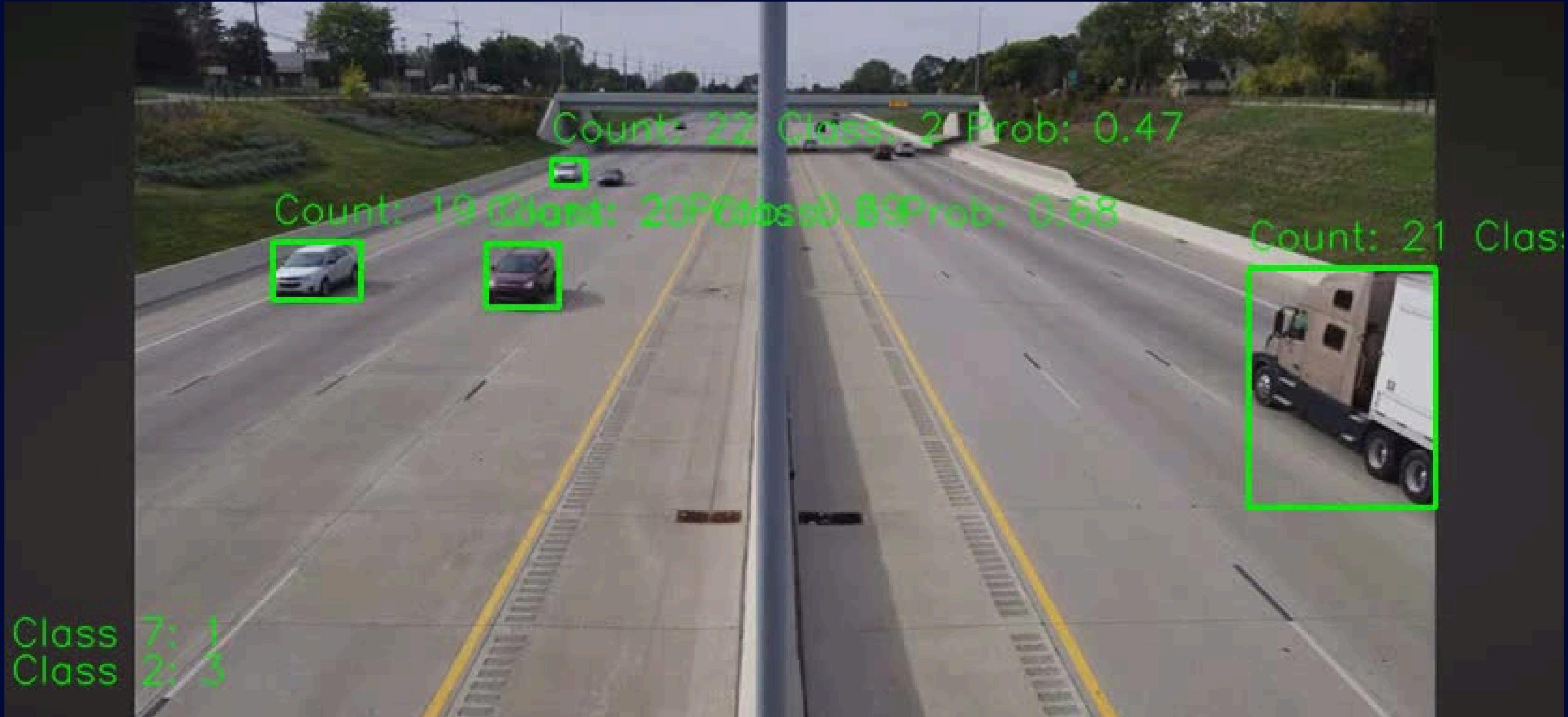
ACCURACY

Model summary (fused): 168 layers, 3,006,233 parameters, 0 gradients, 8.1 GFLOPs						
Class	Images	Instances	Box(P	R	mAP50	mAP50-95): 100% 5/5
all	150	1635	0.679	0.755	0.75	0.642
Bus	27	27	0.546	0.49	0.466	0.405
Truck	117	265	0.676	0.848	0.832	0.708
cars	150	1343	0.817	0.926	0.95	0.813



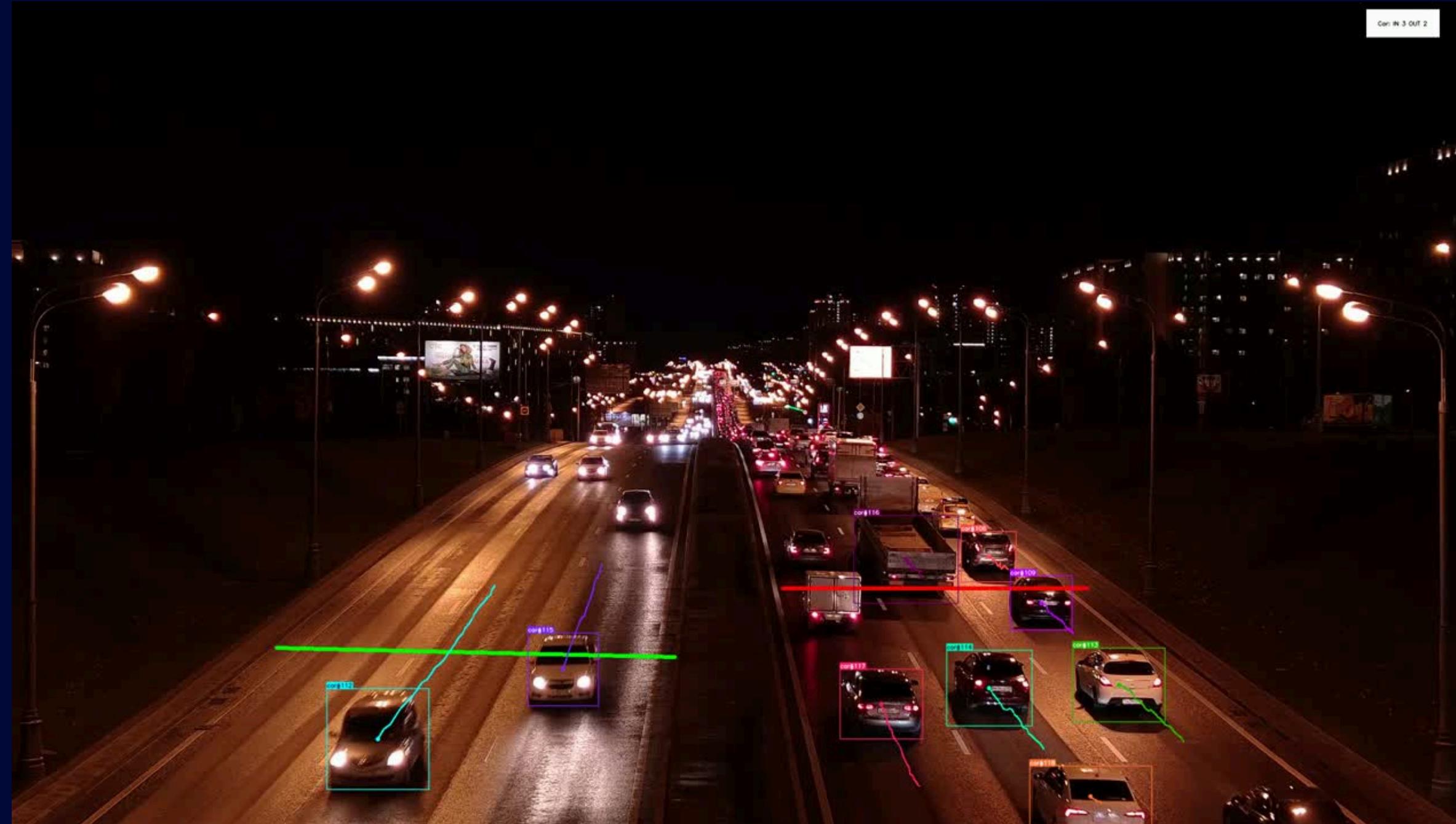
RESULTS

VEHICLE COUNT HIGHWAY



RESULTS

VEHICLE NIGHT COUNT





CONCLUSION

Our project has the potential to significantly improve traffic efficiency and reduce congestion, leading to:

- Shorter Travel Times: Drivers will experience reduced wait times at intersections, saving time and fuel.
- Reduced Emissions: Optimized traffic flow will minimize idling time and fuel consumption, contributing to a cleaner environment.
- Improved Safety: Smoother traffic flow can lead to fewer accidents and a safer driving experience.

BONUS TASKS

OCR



Using easy OCR, Reader function, to be read readtext from the images



BONUS TASKS

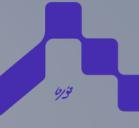
OCR





CONCLUSION

Our OCR project for traffic sign recognition has proven to be a valuable advancement in enhancing road safety and efficiency for smart vehicles. The system achieved high accuracy in recognizing traffic signs, which enables intelligent vehicles to make informed decisions quickly.



THANK YOU FOR WATCHING