



ENHANCING ROAD SAFETY : WHITE LINE AND PLATE NUMBER DETECTION POWERED BY YOLOV8

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1. INTRODUCTION

- The number of traffic offenses in Malaysia is rising daily, involving appropriate action from the government or traffic police. This project detects the offender's registration plate number using image detection technologies and stores it in a text file as a solution to this problem.
- YOLOV8, and Pytesseract an advanced machine learning algorithms, and are being used. The aim of this project is to provide law enforcement with a simple-to-operate and precise method of summoning offenders.

2. PROBLEM STATEMENT



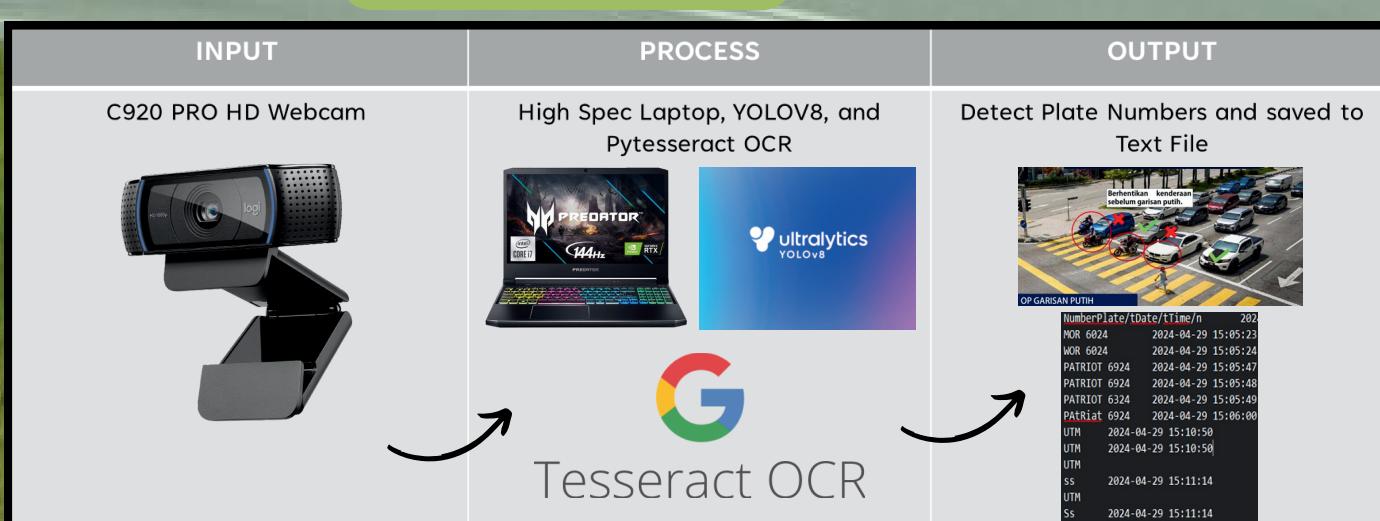
- This situation shows that road users stop vehicles crossing the white line. This situation involves between the authorities and road users.
- The way to solve this problem is to develop a system that makes it easier for the traffic department or even the traffic police in Malaysia.

3. OBJECTIVE

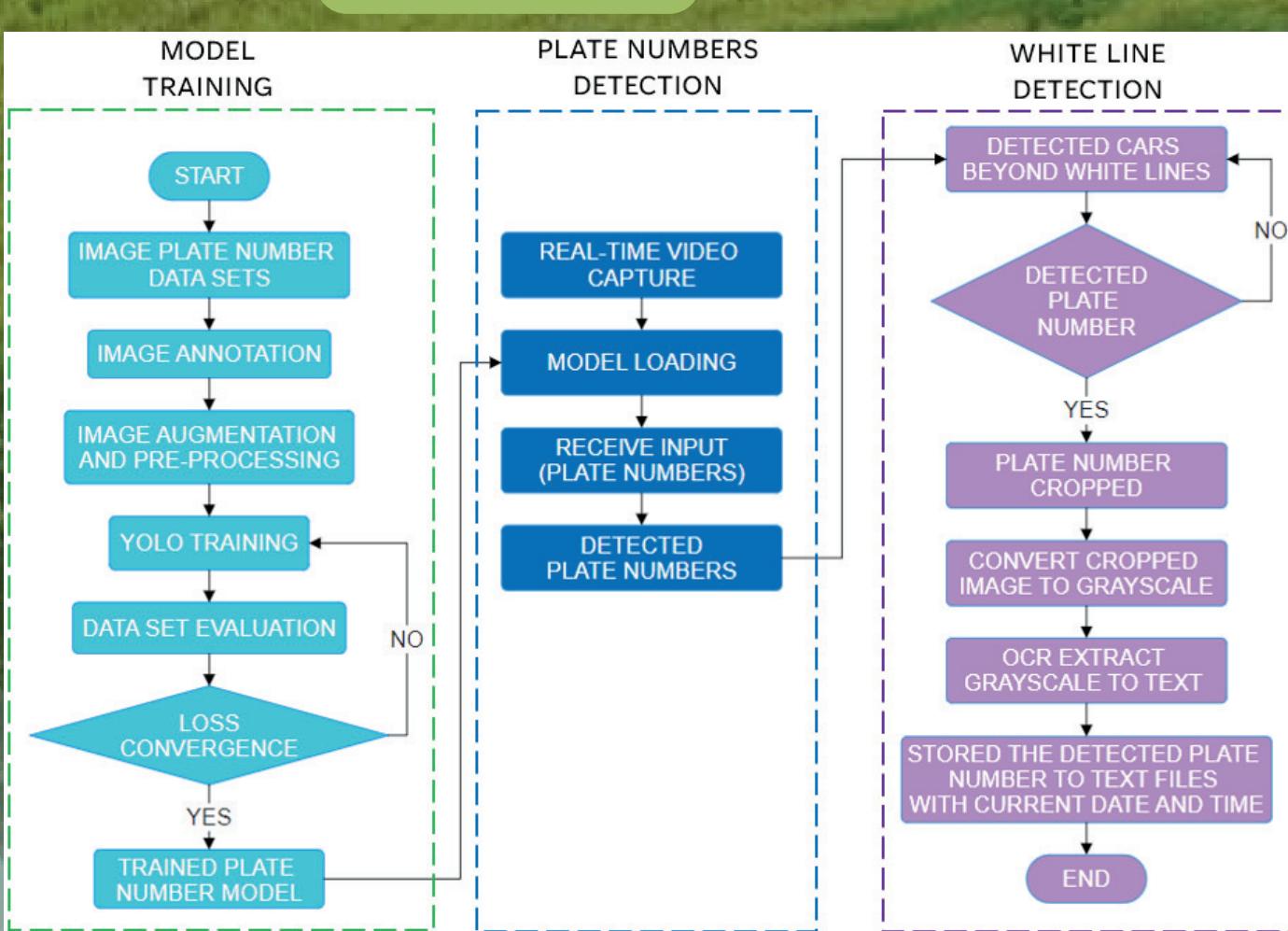
- To design a traffic offense monitoring system powered by YOLOV8.
- To develop a prototype for plate number detection powered by YOLOV8.
- To test and evaluate a prototype for plate number detection powered by YOLOV8.

4. METHODOLOGY

BLOCK DIAGRAM PROJECT



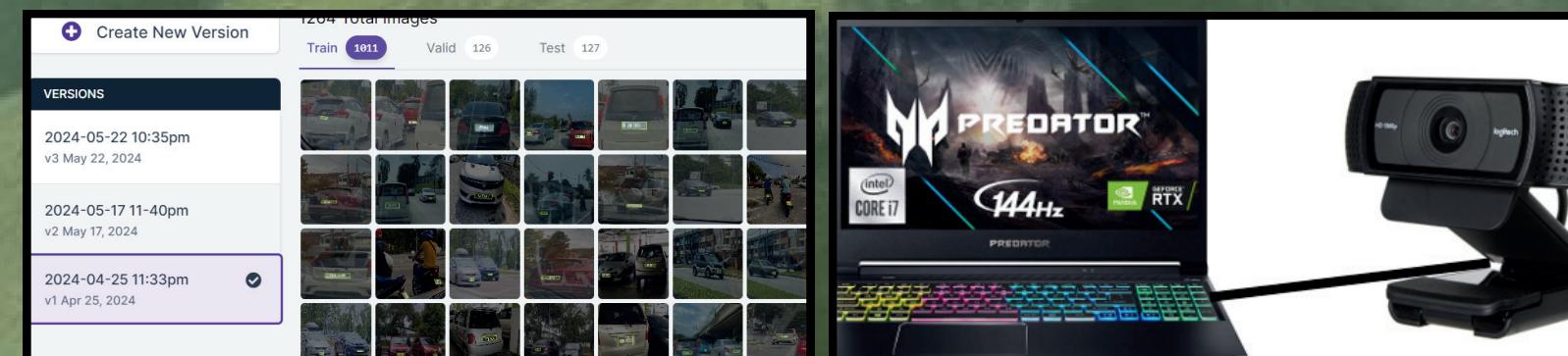
FLOWCHART PROJECT



5. EXPERIMENTS AND RESULTS

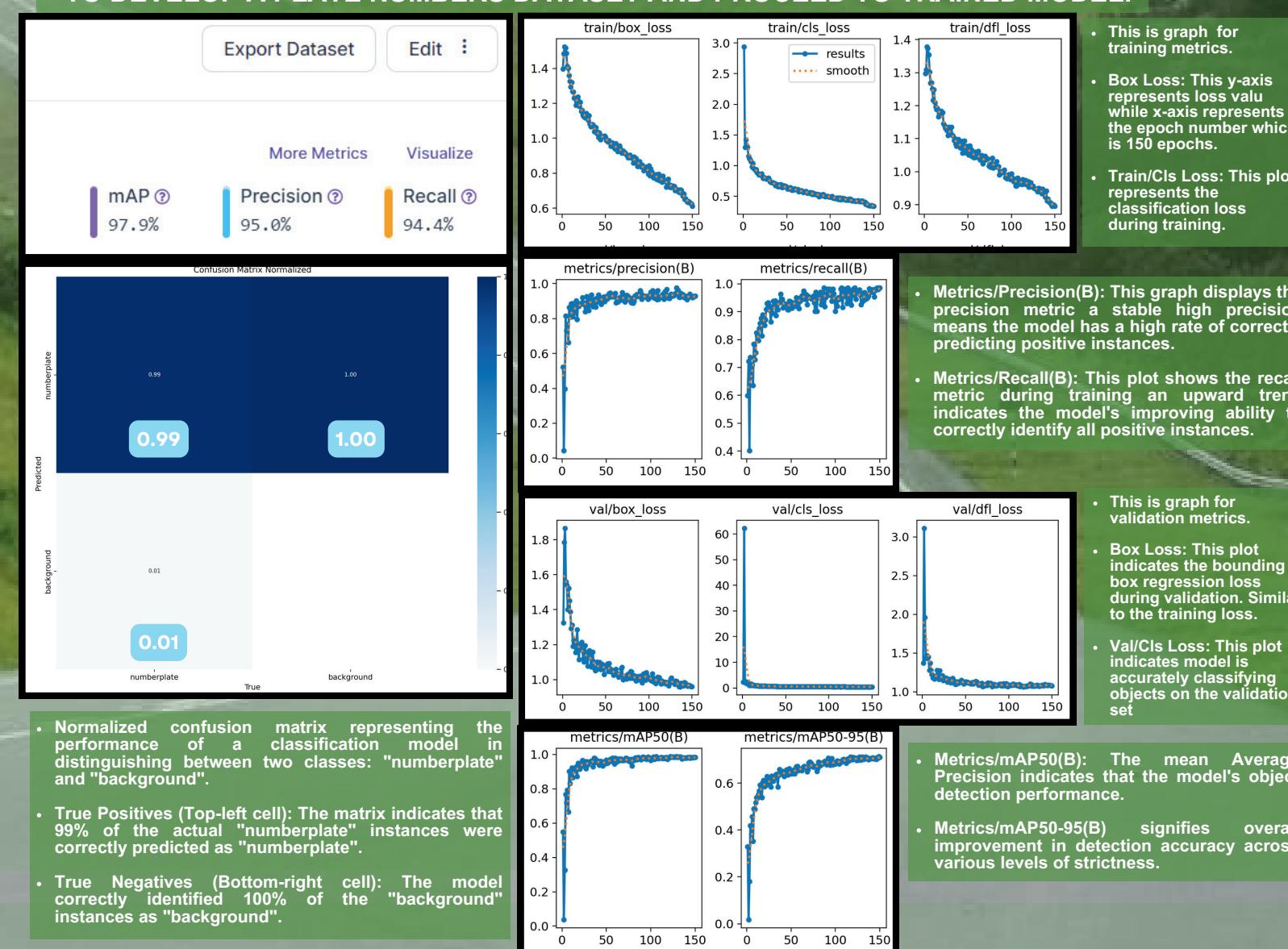
EXPERIMENTS 1

- TO DESIGN A PLATE NUMBERS DETECTION SYSTEM.



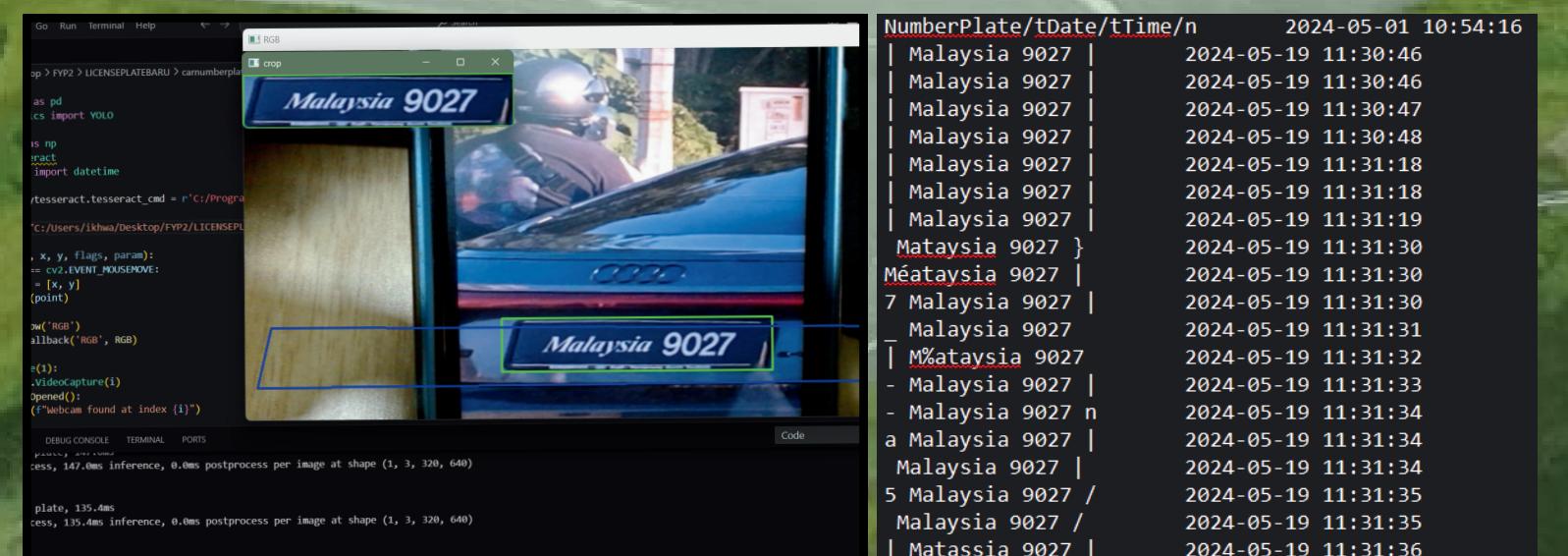
EXPERIMENTS 2

- TO DEVELOP A PLATE NUMBERS DATASET AND PROCEED TO TRAINED MODEL.



EXPERIMENTS 3

- TO TEST AND EVALUATE A PLATE NUMBERS DETECTION SYSTEM WITH REAL-TIME CAPTURING



6. CONCLUSION AND DISCUSSION

- This plate numbers detection system, developed by using YOLOV8 and Pytesseract OCR, aimed to detect traffic violations effectively and efficiently. Confusion matrix results, with a precision of 99%, models can detect plate numbers accurately. However, 100% of models incorrectly predicted a plate number when the actual label was the background. To address this problem, more plate number datasets must be added to help the model distinguish between plate numbers and the background more effectively. The model has an excellent ability to ignore non-number plate areas correctly.
- This research adds to the field of road infrastructure by showing how good the algorithm is for detecting characteristic plate numbers. This system is more useful and important because it can make it easier for superiors or the police to identify road offenses that are increasing. The results of this study can be used to improve the trained number plate model, improve vision, and look into other uses and improvements for the white line and plate number detection system. Also, using a high-spec and high-quality camera can help this system operate well in detecting or recognizing plate numbers. Overall, the accuracy of the system could achieve an average of 90%.

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