

# ***IMPLEMENTATION OF THE YOLO ALGORITHM IN THE VEHICLE DETECTION AND COUNTING SYSTEM ENTERING THE BENGKALIS RO-RO SHIP***

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## ***ABSTRACT***

*Vehicle counting at the Bengkalis Ro-Ro Port is still performed manually, which may lead to recording errors and delays in information delivery. This research aims to implement the YOLOv4-tiny algorithm for detecting and counting vehicles entering the Bengkalis Ro-Ro ferry using field video recordings. The system was developed using Python, the OpenCV library, a MySQL database, and a website to display vehicle counting results. The results show that the system is capable of detecting and counting motorcycles, cars, and trucks while automatically displaying the results through a website. Based on the experiments, the highest average accuracy of 80.16% was achieved in Experiment 2, Video 1. The accuracy was influenced by object size, vehicle distance from the camera, occlusion, tracking performance, and cross-classification between cars and trucks. The developed system can be used as an alternative solution to support vehicle traffic monitoring at the Bengkalis Ro-Ro Port.*

***Keywords*** : YOLOv4-tiny, detection, vehicle counting, website, Ro-Ro Bengkalis.