

## ABSTRACT

The vehicle number plate can be a vehicle identification which is a unique identity for the vehicle. With the rapid development of deep learning techniques, innovative new license plate recognition systems have received much attention from researchers worldwide. Automatic Number Plate Recognition (ANPR) is an intelligent system that recognizes characters on vehicle number plates. This system has many applications, such as law enforcement, parking lot management, toll terminals, traffic regulation, etc. The ANPR system consists of four different steps, namely capturing vehicle images, detecting vehicle license plates, character segmentation, and character recognition. This research focuses on the stage of detecting the location of the vehicle license plate. The researcher proposes a vehicle license plate identification system using YOLOv5. The dataset we used for this research is our dataset which consists of an image dataset from Google open images and an Indonesian license plate dataset. The process of detecting vehicle license plates in the system starts from the vehicle image *input* stage, predicting vehicle license plates, to cropping vehicle license plates. Our proposed license plate detection system generates a 14-megabyte model with an average precision of 96.3% and a test time of 4.9 ms on a still image using an Nvidia T4 GPU. In the process of testing the license plate detection system, it was successful in predicting 198 license plate images from 200 vehicle images with an accuracy value of 99%.

**Keywords: Automatic Number Plate Recognition, License Plate Detection, YOLOv5, Deep learning.**