ABSTRACT

In this increasingly modern era, public awareness about the importance of obeying traffic rules is sometimes still underestimated. As a result, the rate of traffic accidents in Indonesia continues to increase every year. One of the violations that are often encountered is excess passengers on motorbikes. This can reduce the level of safety of motorcyclists and other road users. Therefore, we need a system that can detect violations of excess passengers on motorcycle vehicles.

A system to detect excess passenger violations is designed using the Faster Region based Convolutional Neural Network (Faster R-CNN) algorithm that uses the Python programming language, along with machine learning libraries such as, Tensorflow, and OpenCV. The dataset used is a custom dataset which consists of 3 categories. Each category contains 300 images,the total of the dataset used is 900 images.

The best model used is obtained using the Confusion Matrix calculation on the dataset. The model using 95% train and 5% test, results has an accuracy value of 92%, recall value of 88%, precision value of 86%, steps of 150000, batch size of 1, epochs of 10 and Learning Rate of 0.002.

Keywords*: Detection of Violations, Excess Motorcycle Passengers, Faster Region based Convolutional Neural Network (Faster R-CNN).*