

## ABSTRACT

The number of vehicles in Indonesia continues to grow each year, but this is not directly proportional to the amount of human resources owned by the Police Forces. This made the police overwhelmed when there were traffic violations. An easy way to find traffic violators is to identify the vehicle number plate, this is because each vehicle has a different number plate. Various methods have been carried out by the police such as installing CCTV at every crossroads, but this is not effective because it takes a long time for the system to find the location of vehicle license plates because the system is still manually operated by humans.

Mobile application for number plate detection are designed using a method called Faster Region Convolutional Neural Network (Faster R-CNN). Many studies have developed this method, but none has been used for number plate detection systems using mobile applications. This system are designed based on the Inception V2 architecture using *transfer learning* principle in Tensorflow and will be tested using an android smartphone. System are tested based on configuration which are learning rate and epoch. The output on this system is mean average precision that dictate the accuracy of this system.

The results is mean average precision with the value of 91.08% when learning rate is valued at  $10^{-2}$  and epoch is valued at 60. From the results of this experiment that have been done system could detect the license plate number using android smartphone from 1 meter and 2 meter. Results from the system are mean average precision with the value of 95.98% when detection distance is 1 meter and 97.05% when the distance is 2 meter.

Keywords: License Plate Detection, Faster R-CNN, Mobile Application.