

## ABSTRACT

Computer vision is defined as a field of study that seeks to develop techniques to help computers "see" and understand digital image content such as photos and videos. Computer vision combines cameras, software, and artificial intelligence (AI) that allow systems to "see" and identify objects. Computer vision uses deep learning to form a neural network that helps the system in image processing and analysis. The computer vision model can detect and recognize objects and can track the movement of objects. The use of computer vision in this final project is for object detection.

In this final project, a system that can read *QR Code* on a moving car is designed. The method used in this research is using the Faster R-CNN method and the pre-trained model ResNet50 as the object detection model, namely *QR Code*. This research use 400 training data in the form of *QR Code* images and 15 testing data in the form of video with a frame rate of 60 fps.

System performance analysis is carried out by using two system test parameters, namely loss training and system accuracy. In this final project research, it can be seen that the best model configuration is in a model with a number of training steps 20K and a batch size 1. The best speed variation for reading *QR Code* is at a speed of 20 km/hour and 40 km/hour with an accuracy of 80%. This system gets a frame rate of 4.9-5.3 fps.

**Keyword:** *Object Detection, QR Code, Faster R-CNN*