

ABSTRACT

Recent development of Artificial Intelligence has been pushed many applications including autonomous vehicle which is valuable to present low emission and low risk vehicle. To be able to run this advanced vehicle, AI technology that support vision capability is preferable. One of the AI technology is segmentation that recognized specific object on an images.

In this research, object segmentation method is used for recognizing road, and it is developed using deep learning concept. The deep learning based object segmentation used in this research rely on residual network architecture (ResNet 50). The segmented road performed by the network model is then analyzed to produce steering control recommendation. The recommendation is signals that will be transmitted to the steering control system of 3 wheels electric vehicle.

The experiment result showed that the segmentation method based on ResNet 50 can be used for controlling steering because the model has shorter delay process in segmenting object, and it makes the steering process work realtime.

Keywords : Convolutional Neural Network (CNN), Deep Learning, Image Processing, Residual Network, Semantic Segmentation, Thermal FLIR