

REAL - TIME TRAFFIC LIGHT RECOGNITION WITH DEEP LEARNING

By

Fransiska
11501010

BACHELOR'S DEGREE
in

MECHANICAL ENGINEERING – MECHATRONICS CONCENTRATION
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY



SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
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July 2019
Revision after Thesis Defense on 18 July 2019

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

REAL – TIME TRAFFIC LIGHT RECOGNITION WITH DEEP LEARNING

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Due to the high number of car accidents caused by human error, the development of Automated Driver Assistance System (ADAS) has become an integral part in road safety. By improving the driver's awareness of road conditions, a lower car accidents number is expected. This thesis purpose is to contribute to the ADAS development by implementing traffic light and traffic sign recognition based on vision and Deep Learning. This purpose is achieved by implementing Convolutional Neural Network (CNN) model for the detection and classification job. The library that is used is TensorFlow. A dataset based on Indonesian traffic light and traffic sign is made for training the model, and training is conducted for the model. Testing is conducted with three methods, images, video, and live testing. The training and testing process is also conducted in CPU and GPU environment.

Keywords: ADAS, object detection, Convolutional Neural Network, TensorFlow, SSD, Faster R-CNN



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DEDICATION

I dedicate this works for the development of Machine Learning technology in
Indonesia



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