IMPLEMENTATION OF LANE TRACKING SYSTEM WITH VISION ON AUTONOMOUS RACING CAR USING ROBOT OPERATING SYSTEM

By

Kevin Ariesta
11301025

BACHELOR'S DEGREE
in

MECHANICAL ENGINEERING - MECHATRONICS CONCENTRATION
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

SWISS GERMAN UNIVERSITY

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Revision after Thesis Defense on 25th July 2017

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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Thesis Advisor Date

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ABSTRACT

IMPLEMENTATION OF LANE TRACKING SYSTEM WITH VISION ON AUTONOMOUS RACING CAR USING ROBOT OPERATING SYSTEM

By

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Dr. Rusman Rusyadi, B. Eng., M.Sc, Advisor

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The objective of this thesis is to implement lane tracking system with vision on autonomous racing car using Robot Operating System. The main sensor of the lane tracking system is PS3 Eye Camera, which will be utilized as the vision system of the car. The lane tracking program will be supported with OpenCV library, which is the feature to process the captured image from the camera and enable lane detection system. In this lane tracking system, ROS will be utilized as the main software platform to execute all of the required packages for implementing the lane tracking system, such as the lane detection program and the controller. All of the software and program packages for this system will be stored in Nvidia Jetson Tegra K1 mini PC. Arduino will be used in this system as the controller for steering and drive motor. The testing of the lane tracking system will be limited only for detecting and following the white-coloured lane only.

Keywords: Lane Tracking System, Vision, Robot Operating System, PS3 Eye Camera, OpenCV, Nvidia Jetson Tegra K1 mini PC, Arduino.

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DEDICATION

I dedicate this work for God Jesus Christ, myself, father, mother, Pak Rusman and Family, Aulia Syamil, Victor Nugraha Putera, and all of my friends and lecturers who contribute in helping me finish this final project.

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