IMPLEMENTING ROS FOR AUTONOMOUS MOBILE ROBOT BASED ON LIDAR NAVIGATION

By

Aulia Syamil
11301006

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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Revision after Thesis Defence 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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ABSTRACT

IMPLEMENTING ROS FOR AUTONOMOUS MOBILE ROBOT BASED ON LIDAR NAVIGATION

By

Aulia Syamil

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

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The purpose of this thesis is to implement ROS framework to establish an autonomous mobile robot based on radio controlled car platform. The navigation system in this work will be designed for corridor environment, using a wall follower technique. A Laser Range Finder (LRF) as primary sensor will be used to determine angle and range of detected wall or object. To compute and process the data, Mini PC will be used and mounted onto the platform. Lastly, Arduino Microcontroller controls the steering movement, and motor speed through Electronic Speed Controller (ESC) by sending PWM signals. LRF and Microcontroller, will be connected into Jetson TK1 through USB interface.

Keywords: Laser Range Finder, Wall Follower, Mini PC, Robot Operating System, Arduino, Radio Controlled Car, Autonomous Mobile Robot, RPLIDAR

DEDICATION

I dedicate this work for Allah SWT, Ayah, Mama, Abang, Kakak, Pak Rusman, and all of my friends who supports me to finish this thesis.

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