IMPLEMENTATION OF GOOGLE MAPS NAVIGATION FOR SELF-DRIVING CAR WITH ELECTRICAL POWER STEERING

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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

IMPLEMENTATION OF GOOGLE MAPS NAVIGATION FOR
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Nowadays, automated system is needed to handle some of human repetitive works, and one of it is driving. Autonomous car or so called self-driving car will not only helping human, but it believed will increase energy efficiency and human convenience. However one of the major challenges on developing a self-driving car is the navigation system. The purpose of this thesis is to build a prototype of a self-driving car that can navigate to the destination coordinate with the navigation that given by Google Maps. A system consist of several subsystem will be made to request the Google Maps Navigation, then get the waypoint coordinate, then this coordinate will be followed with a path tracking system based on pure pursuit algorithm. Other subsystems also built are a subsystem that control the vehicle steering by controlling an electric power steering, and a subsystem that communicate with the RTK GNSS server using TCP/IP communication. Each subsystem will be tested, and if they could do their task well, they will be connected with ROS and run in sync with each other. This thesis has successfully built a self-driving car that could go to the desired coordinate with the help of Google Maps navigation.

Keywords: Google Maps Navigation, Self-Driving Car, Path Tracking Algorithm, ROS, Pure Pursuit Algorithm

DEDICATION

I dedicate this works for the future of the country I loved: Indonesia

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