DEVELOPMENT OF LOW COST LIDAR FOR ROS BASED ROBOTS

By

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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

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For a robot to be able to sense its surroundings and attempt to do path planning, the current popular methodology is by using LIDAR. However, LIDAR is known to be expensive and non-cost-effective. Thus, this thesis' plan is to tackle that problem by creating a solution to create a DIY low cost LIDAR system. The LIDAR system is designed to be compatible for ROS based robots. The system aims to give LaserScan data as an output in which ROS can use to visualize and map the surroundings. The product utilized Arduino as a controller for the LIDAR's rotational drive and as the processor for the LIDAR's raw data. The Arduino will then connect to the ROS by utilizing rosserial. For this project, the ROS will run on Linux Ubuntu with laptop. The data from the LIDAR's scan will then be processed to attempt mapping and then path planning.

Keywords: ROS, LIDAR, Low Cost System, rosserial, Robots, Laser Scan.

DEDICATION

I dedicate this work for God, Papi, Mami, Pak Rusman, Pak Erikson, Mas Freddy, Yoshua, Derrin, Sharla, Petrus, Ivan, Jonathan, Wira, and all of my friends who helped and supported me to finish this thesis.

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