

**IMPROVING THE MANEUVERABILITY AND MAPPING SYSTEM OF
AUTONOMOUS GUIDED VEHICLE**

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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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Autonomous Guided Vehicles (AGVs) study and development have been performed at SGU. The mechanical, electrical and software platform has been studied and explored. One of AGV developed is the 'Midori'. This AGV was analyzed to have a problem on maneuverability. Therefore, for mapping tasks, the result was not satisfying. The presumption was in motor gear transmission type. Replacing and re-designing the motor configuration and support, may solve the problem encountered and improve the mapping tasks. The improvement on the software that may improve the mapping task covers the ROS configuration, PID Tuning, and gmapping parameter setup. To proof the improvement, following test plan are performed. They are maneuverability test, torque calculation, and motor electrical power analysis, and mapping accuracy test under a certain environment.

Keywords: Robot Operating System, Autonomous Guided Vehicle, Maneuverability, SLAM, Differential Drives, Simulation.



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DEDICATION

I dedicate this work for my beloved family.



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