DESIGNING AND CONSTRUCTING AUTOMATED GUIDED VEHICLE BASED ON PATH PLANNING SYSTEM AND VISION

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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The objective of this thesis work isto design Automated Guided Vehicle (AGV) and to develop its path planning algorithm. Mobile Robot Programming Toolkit (MRPT) library is implemented in this project. From this MRPT, the path planning system is implemented with occupancy grid map. The grid map that is used as a map in the path planning system is an image taken from camera.The captured image has shadow because of lighting thus it has to be processed to make itlooks like a map with only black and white color. The path planning system is using Markov decision process for searching the shortest path and avoiding obstacles. The input for this program is the origin point, the target point and the radius of the AGV. Some experiment is conducted in several maps to know how the path planning system works. The result of the simulation is that the algorithm can find the path in several maps.

Keywords: AGV, Path planning, Vision, Grid Map, MRPT, Image Processing, Accessing Pixel.

DEDICATION

I dedicate this work for God, my family, my colleagues and my future.

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Always try to do the best and work harder.

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