DESIGNING AND CONSTRUCTING SWARM ROBOT SYSTEM
CASE : COMPUTER VISION SUBSYSTEM

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 purpose of this thesis project is to develop computer vision subsystem to swarm robot system that consists of mobile robots for corridor detection, robot recognition, and distance detection. This computer vision subsystem for guiding the mobile robots swarm robot system must be implemented in indoor environment. The corridor detection algorithm produce vanishing point that become guidance point for the member who own this algorithm by using line detection as the main process. In order to detect other member, the implementation of object detection is a must. The main process of the object detection is color detection that detecting two color red and green as the indicators of members in swarm robot system. The distance detection is done by calculating the relation of the gap of the indicators and distance between correspond robots. By implementing all of these algorithms the swarm robot system could make a formation in a corridor.

Keywords: Swarm robot, vision, corridor detection, distance detection, color detection

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DEDICATION

I dedicate this thesis to God, my mother, my father, my sister, and Francisca Lesmana.

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The author gives praise to God for all of His blessings throughout the entire thesis work from the beginning up until the submission of this thesis.

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