

**DEVELOPMENT OF VISION SYSTEM
ON DOBOT MAGICIAN FOR MATERIAL HANDLING**

By

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BACHELOR'S DEGREE
in

INDUSTRIAL ENGINEERING
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY



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January 2024

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 Dobot Magician is the first educational robot that effectively integrates industry and professions. Dobot Magician takes a lengthy time to pick and place objects since its color sensor makes errors while detecting colors. A vision system called Dobot Magician is being developed by the Department of Industrial Engineering at SGU to separate things according to their appropriateness and move them to designated areas. Robot vision is expected to reduce movement and time waster for the Dobot pick and place process. Experiment module is needed for this. Experiment module useful for other users to use Dobot Magician. The waterfall phase applied to this research has 4 phases, requirements phase, design phase, implementation phase and deployment phase. Vision test and Dobot program test are the performance tests. Arduino used as the communication interface. The process of development of robot vision can be said to have been successful at this time. The Pixy2 cam is superior to the color sensor when detecting color differences. Objects will be automatically detected by the Pixy2 camera and taken by Dobot. The robot vision reduced the waste of motion by 36.4% and reduced time waste 15.4%.

Keywords: Robot Vision, Dobot Magician, Pixy2 Camera, Material Handling, Waterfall

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DEDICATION

I dedicate everything to God, who always strengthens me and give blessings for me to complete everything.

I dedicate this to Monang Simamora, Sutan Tulus Raja. Without giving up, he managed to finish this thesis.

I dedicate all the hard work and effort in completing my thesis to my parents, my sister Lidya and my brother Sahang because they have been supportive all this time.

I dedicate my hard work and effort in completing my thesis to Ribka Inestya Simanungkalit as my girlfriend who has supported and helped me in working on this thesis.

I am also grateful to Ko Ivan, Niklas, Jeho, Mike, Tere, Nasya dan Ryan who were supporting me during my thesis work.

Thanks to Yose, Ruben and Surya, who were my friends at Batam that always support me.

To all my friends and families who cannot be mentioned who have contributed to the work on this thesis, I am very grateful to all of them.

A bit of quotes that supported me during my thesis work: “Dreams are not what you see in your sleep, dreams are things which do not let you sleep.” – CR7

ACKNOWLEDGEMENTS

I would like to thank God because thanks to his grace I have been able to walk through everything up to now.

With a very grateful heart, I would like to thank my family who have been so great and have provided endless support all this time.

To Dr. Aditya Tirta Pratama as my Advisor and my parent at campus, I would like to thank you for guiding me with great patience in carrying out my research in the Laboratory and really cares about the development of my thesis.

I would like to thank Assoc. Prof. Dr. Tanika Dewi Sofianti was my Co-Advisor and my parent at campus, who gave me full support and trust in the development of my thesis and research.

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