# DEVELOPMENT OF HUMANOID ROBOT SIMULATION USING GAZEBO SIMULATOR

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

DEVELOPMENT OF HUMANOID ROBOT SIMULATION
USING GAZEBO SIMULATOR

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The purpose of this thesis is to simulate and study the behavior of humanoid robot including the gait algorithm. The robot has the ability to walk straight, move to the left/right and turn to left/right. Furthermore, the navigation system will be implemented to the robot. The navigation system will be divided into two sections, which are an autonomous navigation to avoid obstacle and navigation based on a map. To be able to success in implementing the navigation, the robot has to have the correct odometry data, a map, and a sensor data. That is why there will be a modification to the robot, in terms of the robot model and the sensor. All of these will be done by using the combination of ROS and Gazebo features because both are open-source software and provide a flexible framework for writing robot software. Several adjustments can be made to the simulation parameters to provide more realistic performance. Some comparison between the simulation and the real robot will be analyzed.

*Keywords: Simulation, Gazebo, ROS, Humanoid Robot, Navigation.*

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## DEDICATION

I dedicate this work to God, my family, and my country, Indonesia.

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# TABLE OF CONTENTS

Page

STATEMENT BY THE AUTHOR ..... 2
ABSTRACT ..... 3
DEDICATION ..... 5
ACKNOWLEDGEMENTS ..... 6
TABLE OF CONTENTS ..... 7
LIST OF FIGURES ..... 11
LIST OF TABLES ..... 15
CHAPTER 1 - INTRODUCTION ..... 16
1.1 Background ..... 16
1.2 Thesis Objectives ..... 17
1.3 Thesis Problems ..... 17
1.4 Thesis Scope ..... 17
1.5 Thesis Limitation ..... 17
1.6 Thesis Outline ..... 18
CHAPTER 2 - LITERATURE REVIEW ..... 19
2.1 Introduction ..... 19
2.2 Overview of Modelling and Simulation ..... 19
2.3 Robot Modelling Simulators ..... 20
2.3.1 Webots ..... 20
2.3.2 Virtual Robot Experimentation Platform (V-REP) ..... 22
2.3.3 Microsoft Robotics Developer Studio ..... 23
2.3.4 Gazebo ..... 24
2.4 ROS ..... 26
2.5 Humanoid Robot ..... 30
2.5.1 ASIMO ..... 31
2.5.2 NAO ..... 32
2.5.3 DARWIN-OP ..... 33
2.5.4 ROBOTIS Bioloid ..... 33
2.6 Robot's Walking ..... 34

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2.6.1 Static Walking ..... 34
2.6.2 Dynamic Walking ..... 35
2.6.3 Zero Momentum Point (ZMP) ..... 35
2.6.4 Central Pattern Generators (CPG) ..... 36
2.7 Robot Navigation ..... 37
2.8 Concluding Remark ..... 38
CHAPTER 3 – METHODOLOGY ..... 39
3.1 Introduction ..... 39
3.2 Overview of Humanoid Robot ..... 39
3.3 General Methodology ..... 40
3.4 ROS Installation and Setup ..... 41
3.4.1 Configure Ubuntu Repositories ..... 41
3.4.2 Setup Sources List ..... 42
3.4.3 Setup Keys ..... 42
3.4.4 Installation ..... 42
3.4.5 Initialize rosdep ..... 43
3.4.6 Environment Setup ..... 43
3.4.7 Get rosinstall ..... 44
3.5 DARWIN-OP Installation ..... 44
3.6 ROS Packages ..... 46
3.6.1 DARWIN-OP Package ..... 47
3.6.2 Gmapping Package ..... 52
3.6.3 Darwin_navigation Package ..... 54
3.6.4 Navigation Package ..... 56
3.7 Sensor Sources ..... 56
3.7.1 IMU Plugin ..... 57
3.7.2 Camera Plugin ..... 57
3.7.3 P3D Plugin ..... 58
3.8 Walking Sequence Algorithm ..... 58
3.9 Concluding Remark ..... 69
CHAPTER 4 – RESULT AND DISCUSSION ..... 70
4.1 Introduction ..... 70
4.2 Driver Test ..... 70
4.2.1 Gazebo ..... 70
4.2.2 rviz ..... 72
4.2.3 URDF ..... 75
SWISS GERMAN UNIVERSITY

4.2.4 Keyboard_teleop ..... 76
4.3 Sensor Test ..... 78
4.3.1 Camera Plugin ..... 78
4.3.2 Convert Depth Image to Laser Scan ..... 84
4.3.3 Position Sensor ..... 86
4.3.3.1 Without Odometry ..... 86
4.3.3.2 Adding Odometry Code from ROS Tutorial ..... 88
4.3.3.3 P3D Plugin ..... 90
4.4 SLAM ..... 95
4.4.1 Mapping Results ..... 104
4.4.2 Mapping Discussions ..... 110
4.5 Navigation ..... 111
4.5.1 Walk Until Result ..... 111
4.5.2 Obstacle Avoidance ..... 115
4.5.3 Navigation from Map ..... 119
4.6 Walking Sequence Analysis ..... 125
4.6.1 Moving Forward ..... 128
4.6.2 Moving to the Left or Right ..... 130
4.6.3 Turning to the Left or Right ..... 133
4.7 Validation Process ..... 134
CHAPTER 5 – CONCLUSION AND RECOMMENDATION ..... 138
5.1 Conclusions ..... 138
5.2 Recommendations ..... 139
GLOSSARY ..... 140
REFERENCES ..... 142
APPENDIX A – URDF FILES ..... 146
A.1 darwin_modification.urdf ..... 146
APPENDIX B – LAUNCH FILES ..... 147
B.1 darwin_gazebo.launch ..... 147
B.2 gmapping.launch ..... 148
B.3 amcl.launch ..... 149
B.4 obstacle_avoidance.launch ..... 150
B.5 darwin_teleop.launch ..... 150
APPENDIX C – PROGRAM CODE ..... 151
C.1 walker.py ..... 151
C.2 darwin.py ..... 151

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C.3 walk_until.py ..... 151
C.4 obstacle_avoidance.cpp ..... 151
C.5 message_to_tf.cpp ..... 151
C.6 teleop_twist_keyboard.py ..... 151
APPENDIX D – YAML FILES ..... 152
D.1 darwin_control.yaml ..... 152
D.2 move_base_params.yaml ..... 154
D.3 costmap_common_params.yaml ..... 154
D.4 local_costmap_params.yaml ..... 155
D.5 global_costmap_params.yaml ..... 155
D.6 dwa_local_planner_params.yaml ..... 155
D.7 global_planner_params.yaml ..... 156
CURRICULUM VITAE ..... 157

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