

**BIPEDAL ROBOT CONSTRUCTION AND BEHAVIOR SIMULATION
USING V-REP SIMULATOR**

By

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ABSTRACT

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The purpose of this thesis work is to construct the new bipedal robot and design a framework for analyzing bipedal robot behaviour. In this work, the last generation of bipedal robot that has 12 DoF is used. The bipedal robot has ability to walking straight, rotating, and turning left/right. Several strategies of walking gait have been derived and analysed. Based on this derivation, software source code are developed and executed on an Arduino Board. The software code produced are the basic composition of joints and links, that composing the bipedal robot's limbs.

The framework developed uses V-REP simulation software to observe the behaviour of the robots. The system configuration, task and environment of the robot are the main factors affecting its behaviour. The simulation gives a more idealistic behaviour execution rather than realistic. Adjustments can be made to the simulation parameters to provide more realistic performance. Experiment is conducted on bipedal robot by adjusting their dynamic properties and/or surrounding environment. Validation is carried out by comparing the result of simulation and the real robots execution.

Keywords: Bipedal robot, walking gait, robot behaviour, maneuver, framework, modelling, simulation.



DEDICATION

I dedicate this work to Almighty God,
My family, who always support me mental and spiritually,
Myself as automotive enthusiast,
And all of my friends in all over the world whose has been my inspiration and support
me to finish this research.



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TABLE OF CONTENTS

ABSTRACT	3
DEDICATION	5
ACKNOWLEDGEMENTS	6
TABLE OF CONTENTS.....	7
LIST OF TABLES	10
LIST OF FIGURES	11
LIST OF PROGRAMMING CODE	13
CHAPTER 1 – INTRODUCTION.....	14
1.1 Background	14
1.2 Research Purpose.....	14
1.3 Research Problem	15
1.4 Work Scope	15
1.5 Work Limitation	15
1.6 Short Methodology	16
1.7 Thesis Organization	17
CHAPTER 2 - LITERATURE REVIEW.....	19
2.1 Introduction	19
2.2 Advanced Humanoid Robot.....	19
2.3 Static and Dynamic Walking.....	22
2.4 Virtual Robot Experimentation Platform (V-REP)	24
2.5 Lua Programming Language	26
2.6 Robot Behaviour Analysis	27
2.7 Concluding Remarks.....	28
CHAPTER 3 - RESEARCH METHODS.....	29
3.1 Introduction	29
3.2 System Structure of Bipedal Robot	30
3.3 Mechanical Design	33
3.3.1 Bipedal Design.....	33
3.3.2 Bipedal Robot III	33
3.3.3 Bipedal Robot IV [16].....	34
3.4 Electrical Parts.....	36
3.4.1 Microcontroller	36
3.4.2 Wireless Module	37
3.4.3 Tri-State Buffer	39
3.4.4 Actuator	40

3.4.5 Power Supply	41
3.5 Software Development	42
3.6 V-Rep Simulation	44
3.6.1 Step System for Simulation	44
3.6.2 Mathematical Kinematic Model [16]	45
3.7 V-REP Features	54
3.7.1 Mechanical Design	54
3.7.2 Joint Types and Operations	55
3.7.3 Scene Hierarchy	56
3.7.4 Displaying Graph	58
3.7.5 Coding	58
CHAPTER 4 - RESULTS AND DISCUSSIONS.....	59
4.1 Introduction	59
4.2 Trajectory Accuracy Test in Rotating Movement of Bipedal Robot.....	59
4.3 Trajectory Accuracy Test in Straight Movement of Bipedal Robot.....	68
4.4 Trajectory Accuracy Test in Curve Movement of Bipedal Robot.....	75
4.5 Checking One Step Leg Movement with Mathematical Kinematic Model.....	87
4.6 Checking Combine Movement with Mathematical Kinematic Model.....	92
4.7 Checking Movement using Inverse Kinematic from Simulator.....	97
4.8 Checking Movement using Inverse Kinematic Combine with Path.....	100
4.9 Validation Process	101
CHAPTER 5 - CONCLUSION.....	105
5.1 Conclusion.....	105
5.2 Recommendation.....	106
GLOSSARY.....	107
REFERENCE.....	109
APPENDICES.....	111
APPENDIX A – Technical Drawing	111
A.1 Assembly of Old Bipedal Robot and New Bipedal Robot.....	111
A.2 Body Plate	112
A.3 U Bracket – Hip	113
A.4 U Bracket – Thigh and Shank	114
A.5 U Bracket – Knee.....	115
A.6 U Bracket – Ankle	116
A.7 Connector Bracket 1	117
A.8 Connector Bracket 2	118
A.9 Connector Bracket 3	119

A.10 Connector Bracket 4.....	120
A.11 Foot Pad.....	121
A.12 Pure Shape of Bipedal Robot in V-REP simulator	122
APPENDIX B – Electrical Schematic	123
APPENDIX C – Datasheet	124
C.1 Arduino Mega 2560	124
C.2 ATmega 2560	130
C.3 Dynamixel AX-12.....	132
C.4 IC SN74LS241.....	140
APPENDIX D - Programming Code.....	147
D.1 Arduino Source Code.....	147
D.2 Lua Source Code.....	154
D.2.1 Programming Code for leg movement test with push button and using mathematical kinematic model.....	154
D.2.2 Programming Code for movement test using inverse kinematic from simulator.....	164
APPENDIX E – Bill of Material.....	167
CURRICULUM VITAE.....	168



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