DEVELOPING SMALL SCALE TRANSFORMER ROBOT

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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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This work focuses on the development of a small scale transformer robot. The term transfomer robot was introduced by 'project T-bot', made by The Florida Institute for Human and Machine Cognition. T-bot is a robot which capable to transform from two-wheeled robot into four-wheeled robot and vice versa. The small scale version of the robot is made to see the beahaviour of such system. A PID controller is implemented to attack the problem which uses an accelerometer is used as the sensor for the tilting angle. In two-wheel mode the robot acts like an inverted pendulum system with self-balancing, while in four-wheel mode the robot acts like a car. Two DC motors is used to give the compensating action in balancing and transforming process.

Keywords: PID controller, Inverted Pendulum, transformer, Self-balancing, two-wheeled robot, four-wheeled robot.

DEDICATION

I dedicate this work for my God, Jesus Christ, my loving family, my girlfriend and all my colleagues.

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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 10
LIST OF TABLES 14
CHAPTER 1 - INTRODUCTION 15
1.1. Background 15
1.2. Thesis Purpose 16
1.3. Thesis Problem 16
1.4. Thesis Scope 16
1.5. Thesis Limitations 17
1.6. Thesis Organization 17
CHAPTER 2 - LITERATURE REVIEW 18
2.1. Introduction 18
2.2. Principle of Inverted Pendulum on Moving Cart [2] 18
2.3. Existing Works Outside Swiss German University 21
2.3.1. Balancing a Two-Wheeled Autonomous Robot 21
2.3.2. Autonomous Dual Wheel Self Balancing Robot Based on Microcontroller 29
2.3.3. T-Bot by IHMC (Florida Institute for Human and Machine Cognition) ... 33
2.3.4. Segway Personal Transporter 34
2.4. Existing Work by Swiss German University's Students 35
2.4.1. Design and Implementation of a Pid-Based Controller for Balancing a Two-Wheeled Inverted Pendulum Robot as Part of a Transformer Robot 35
2.4.2. Controlling an Inverted Pendulum Using a Microcontroller 39
2.5. Concluding Remarks 42
CHAPTER 3 - RESEARCH METHODS 43
3.1. Introduction 43
3.2. Studying Previous Works 44

3.3. Mechanical Design and Actuators Specification 44
3.3.1. Mechanical Design 44
3.3.2. Actuator Specification 53
3.4. Mathematical Model Overview 54
3.5. Electrical Design and Sensor Overview 65
3.5.1. Electrical Design Overview 66
3.5.2. Sensor Overview 70
3.6. Algorithm Overview 71
3.6.1. Communication Algorithm 72
3.6.2. Android Application 72
3.6.3. Arduino Code 76
3.6.4. Balancing Algorithm 78
3.6.5. Transforming Mode 81
3.7. Testing Methodology 82
3.8. Concluding Remarks 83
CHAPTER 4 - RESULTS AND DISCUSSIONS 84
4.1. Introduction 84
4.2. Individual Component Testing 84
4.2.1. Pololu DC Geared Motor Testing 84
4.2.2. TowerPro MG996r Servo Testing 89
4.3. Development of Prototype 1 92
4.3.1. Mechanical Result 92
4.3.2. Mechanical Analysis 93
4.3.3. Balancing Testing 96
4.4. Simulation Result 97
4.5. Development of Prototype 2 106
4.5.1. Mechanical Result 106
4.5.2. Sensor Troubleshooting Process 108
4.5.3. Balancing and Transformation Process 110
4.6. Communication and Switch Case Algorithm Testing 111
4.7. Concluding Remarks 115
CHAPTER 5 - CONCLUSIONS AND RECOMMENDATIONS 117
5.1 Conclusions 117
5.2 Recommendations and Further Development 117
GLOSSARY 119
REFERENCES 120

APPENDICES 122
APPENDIX A – Mechanical Design 122
APPENDIX B – Electrical Schematic 137
APPENDIX C – Arduino Code 138
APPENDIX D – Data Sheet 153
D.1. Arduino Mega 2560 153
D.2. TowerPro MG996R 156
D.3. MPU-6050 158
D.4. JY-MCU HC-06 166
D.5. Driver Motor DC 15A MOSFET Dual H-Bridge 171
APPENDIX E – Bill of Material 173
CURRICULUM VITAE 174