

**PROTOTYPE APPLICATION DEVELOPMENT FOR MACHINING
OPTIMIZATION OF CUTTING PARAMETERS USING GENETIC
ALGORITHMS (GA) METHOD FOR TURNING MACHINE**

By

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11210090

A thesis submitted to the Faculty of
ENGINEERING & INFORMATION TECHNOLOGY

In partial fulfillment of the requirements

for the

BACHELOR'S DEGREE

in

INDUSTRIAL ENGINEERING



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AUGUST 2014

Revision after the Thesis Defense on 17th July 2014

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 primary purpose of this thesis project is to design and develop a prototype application to find the optimum combination of cutting parameters; cutting speed (v), feed (f), and depth of cut (d) in turning machine as a product development. In reality, setting the cutting parameters is not being considered as an optimization. The operators usually set the cutting parameters based on manual table which might not the most optimum parameters. The optimization is based on two objectives, which are minimizing production time and cost. The implementation of optimization in this application is based on Genetic Algorithms (GA) method and Taylor tool life formula will be used in calculating tool life time and cost. The prototype application has been tested and validated with a prospect will be very helpful tool for operators in terms of selecting the optimum cutting parameters. In this project, Genetic Algorithms (GA) is used only to find the optimum cutting parameters and in future, it can be used to find which machine and which cutting tools is the best option for the operation.

Keywords: Cutting Parameters, Turning Operation, Optimization, Prototype Application, Product Development.



DEDICATION

I dedicate this thesis to my family especially my beloved parents who have become role models for me and my brother and sisters who never give up inspiring. I would also like to dedicate this thesis to my amazing thesis advisor, who never stops encouraging and guiding me all the time.



ACKNOWLEDGMENTS

First of all, I would like to express my gratitude to Buddha for His blessings and guidance through all the time of my life. Without Him, I would not be able to become who I am now.

I would also like to thank you and express my appreciation to my incredible thesis advisors, Dr. Ir. Prianggada Indra Tanaya MME, Dr. Ir. Tutuko Prajogo, MSMfgE and Dr. Tanika D. Sofianti, who always has willingness to help and guide me during my research.

To Denny Adrianto, Iman M. Annas, Samuel Pratama, Obi Purwanto, Christian M. Reza and Taffy Yunico for the togetherness during our research process in Swiss German University, our beloved campus.

Lastly, I would like to congratulate all my Industrial Engineering batch 2010 classmates at Swiss German University. I will always remember our time during our study, all the funny moments we have done together, our craziness together, thank you.

TABLE OF CONTENTS

STATEMENT BY THE AUTHOR	2
ABSTRACT	3
DEDICATION	5
ACKNOWLEDGMENTS.....	6
TABLE OF CONTENTS	7
LIST OF FIGURES	10
LIST OF TABLES	12
CHAPTER 1 INTRODUCTION.....	13
1.1 Background.....	13
1.2 Thesis Description	14
1.3 Thesis Purpose	14
1.4 Problem Statement.....	15
1.5 Thesis Scope	15
1.6 Limitation	16
1.7 Significance of Study	16
1.8 Thesis Organization.....	17
CHAPTER 2 LITERATURE REVIEW.....	18
2.1 General Overview of Optimization	18
2.2 Genetic Algorithms Optimization	21
2.3 Optimization in Terms of Turning Operations	24
2.4 Product Development	28
2.5 Product Architecture.....	31
2.5.1 Integral Architecture	31
2.5.2 Modular Architecture	32
2.6 State of Art	33

CHAPTER 3 METHODOLOGY	35
3.1 Prototype Development Flowchart	36
3.2 Product Development Process for Prototype Application	38
3.3 Conceptual Design of Prototype Application	39
3.3.1 Java Programming for Prototype Application	41
3.3.2 Unified Modeling Language (UML) of Prototype Application	45
3.3.3 Structured Query Language (SQL) of Prototype Application	46
3.3.4 Entity Relationship Diagram (ERD) of Prototype Application	46
3.4 Prototype Application Architecture	46
3.4.1 Integral Architecture	46
3.4.2 Modular Architecture	47
3.5 Machining Theory	48
3.5.1 Turning Process	49
3.5.2 Cutting Process Parameters and Formulations	50
3.5.3 Process Planning within Prototype Application	54
3.6 Machining Process within Prototype Application	55
3.6.1 Facing	55
3.6.2 Roughing	55
3.6.3 Finishing	56
3.6.4 Boring	56
3.6.5 Drilling	57
3.7 Tool Path Formula of Prototype Application	57
3.8 Constraint Calculation in Machining Calculation; cutting power, rotational speed, and beam deflection as constraints	58
3.9 Genetic Algorithms Implementation in Prototype Application	61
3.10 Prototype Application Testing	64

3.11 Prototype Application Validation	64
CHAPTER 4 RESULT & DISCUSSION	65
4.1 Conceptual Design of Prototype Application	65
4.1.1 Conceptual Design for Modeling Application Programing	65
4.1.2 Conceptual Design for Modeling Database	67
4.2 Description of Prototype Application Specifications	68
4.3 Description of Prototype Final Concept	68
4.4 Testing of Prototype Application	69
4.5 Prototype Validation	78
CHAPTER 5 CONCLUSION & RECOMMENDATION	79
5.1 Conclusion	79
5.2 Recommendation	80
GLOSSARY	81
REFERENCE	82
APPENDIX A	85
A.1 OptiMath	86
A.2 CuttingParam	86
A.3 Formula	90
A.4 CreateParent	96
A.5 Fitness	97
A.6 FitnessList	98
A.7 RouletteWheel	99
A.8 RouletteWheelList	100
A.9 GeneticAlgorithm	100
CURRICULUM VITAE	105