

**DESIGNING AND DEVELOPING AN ASSEMBLY FIXTURE
USING ERGONOMIC APPROACH
(CASE STUDY: CAR ENGINE ASSEMBLY)**

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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

DESIGNING AND DEVELOPING AN ASSEMBLY FIXTURE USING ERGONOMIC APPROACH (CASE STUDY: CAR ENGINE ASSEMBLY)

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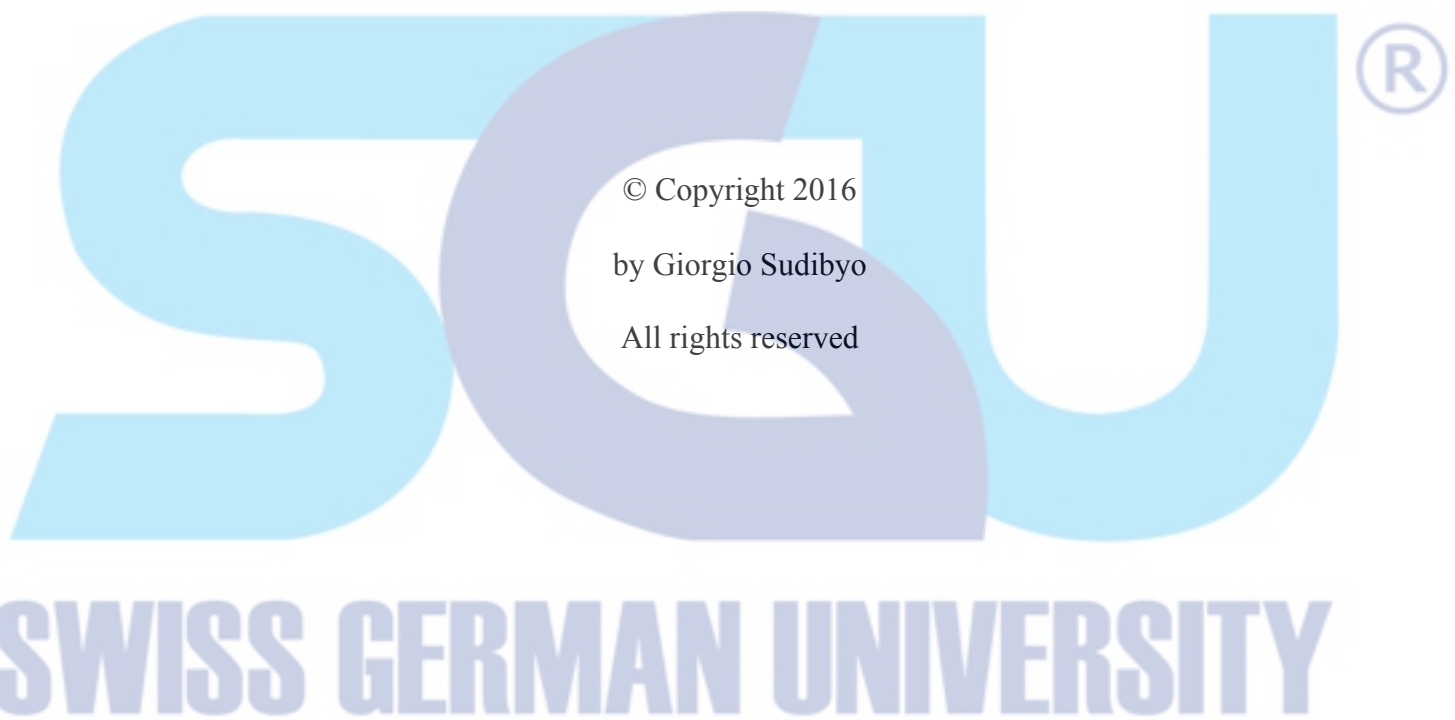
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Competition of manufacturers with the aim of fulfilling market demand shows that unique techniques and approach are being considered to optimize productivity. One of such method involves the implementation and development of assembly fixture. This specific assembly tool supports an assembly task by improving worker ergonomics and generates a consistent level of accuracy to the work. The objective of this thesis is to design and develop an assembly fixture. Subsequent to this, analyzing worker posture in a car engine assembly from an ergonomic point of view will represent the foundation of the objective. The process of developing the assembly fixture is constructed using spiral model methodology, supported by RULA and OWAS method to evaluate the ergonomic postures during car engine assembly process, specifically piston and timing belt assembly. Result of this thesis are built on an observation to a car engine assembly, where the elements associated with the assembly fixture are measured, followed by a documentation on tasks sequence analyzed. The outcome is that assembly fixture has proven to improve productivity by reducing posture stress on the worker. Due to the strong finding concluded, an assembly fixture design is proposed for a PC speaker assembly process to increase productivity.

(Keywords: Assembly Fixture, Ergonomics, Posture Assessment, RULA, OWAS, Car Engine Assembly, PC Speaker, Piston, and Timing Belt.)



DEDICATION

I dedicate this thesis for my family, lecturers, loved ones,

and the future of 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.....	13
CHAPTER 1 - INTRODUCTION	14
1.1 Background.....	14
1.2 Problem Statement.....	16
1.3 Objectives	16
1.4 Hypothesis	16
1.5 Thesis Scope	17
1.6 Thesis Limitation	17
1.7 Significance of Study.....	17
1.8 Thesis Structure	18
CHAPTER 2 - LITERATURE REVIEW	20

2.1	Assembly Fixture.....	20
2.1.1	Types of Fixture.....	22
2.1.2	Assembly Fixture Components.....	23
2.2	Ergonomics.....	25
2.3	Material Handling.....	26
2.4	Human-Machine Interaction.....	28
2.5	Productivity.....	28
2.5.1	Human Productivity.....	30
2.5.2	Using Material Handling to Improve Productivity.....	30
2.6	Car Engine Assembly.....	31
CHAPTER 3 - RESEARCH METHODOLOGY.....		34
3.1	Introduction.....	34
3.2	Research Framework.....	34
3.3	Methodology.....	36
3.4	Exploratory Research.....	38
3.4.1	Literature Review.....	38
3.5	Planning.....	39
3.5.1	Direct Observation.....	39
3.5.2	Defining Assembly Fixture Components and Capabilities.....	40
3.5.3	Assembly Fixture Design Illustration.....	41

3.5.4	Car Engine Assembly Process Analysis	41
3.6	Risk Analysis.....	42
3.6.1	Rapid Upper Limb Assessment (RULA)	44
3.6.2	Ovako Working Posture Assessment System (OWAS).....	46
3.7	Engineering.....	48
3.8	Related Software Used	49
3.8.1	Solidworks.....	49
3.8.2	Human Jack Simulation	50
3.8.3	Redmine	50
CHAPTER 4 – RESULTS AND DISCUSSIONS		52
4.1	Introduction	52
4.2	Exploratory Research	53
4.2.1	Literature Review.....	53
4.3	Planning.....	55
4.3.1	Direct Observation	55
4.3.2	Defining Assembly Fixture Components and Capabilities.....	57
4.3.3	Assembly Fixture Design Illustration	58
4.3.4	Car Engine Assembly Process Analysis	61
4.4	Risk Analysis.....	62
4.4.1	Jack Simulation Environment Formulation	62

4.4.2	Task Simulation Procedure	64
4.4.3	Ergonomic Evaluation Posture Analysis.....	65
4.5	Engineering.....	69
4.5.1	Observe Product Components For Assembly Fixture Alternative.....	70
4.5.2	Assembly Sequence Generation.....	71
4.5.3	Assembly Fixture Design For Alternative Product.....	72
CHAPTER 5 - CONCLUSIONS AND RECCOMENDATIONS		74
5.1	Conclusion	74
5.2	Recommendation for Further Studies.....	75
GLOSSARY		77
REFERENCES		78
APPENDICES		81
CURRICULUM VITAE.....		183



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