

**LINE BALANCING APPROACH TO REDUCE BOTTLENECK AND IDLE
TIME IN FOOTWEAR AUTOMATED ASSEMBLY LINE
(A CASE STUDY IN PT PANARUB INDUSTRY)**

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 neither 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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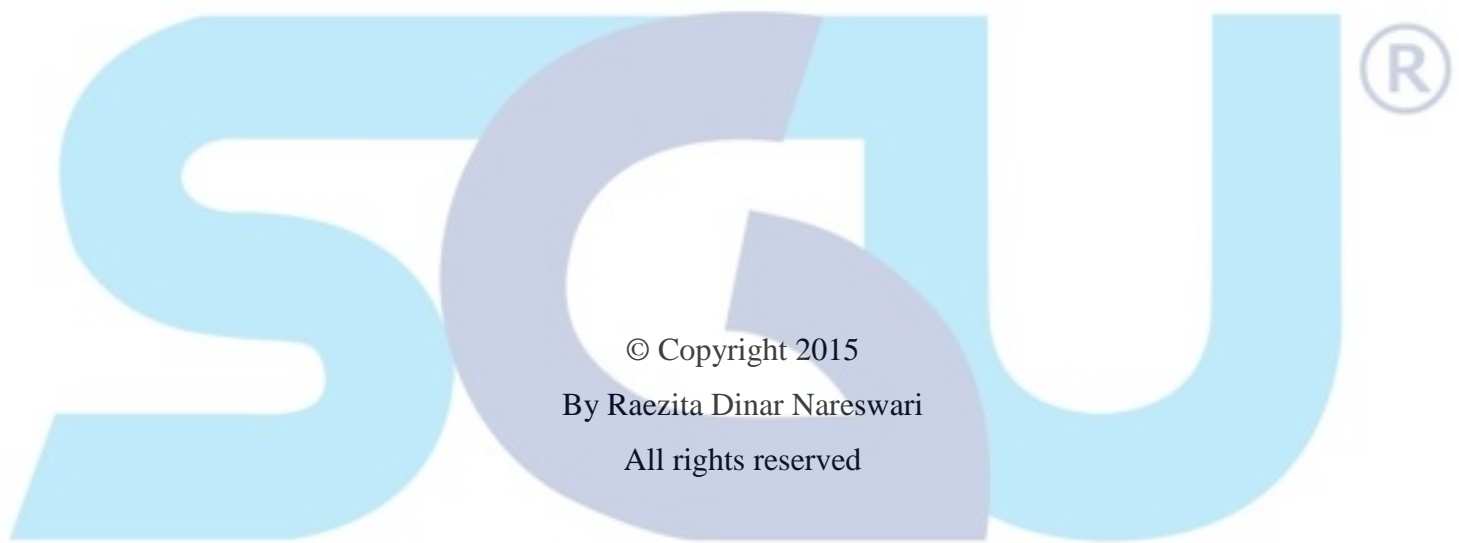
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This research based on the case study in PT Panarub Industry, especially in ALPA (Assembly Line Project Automation), is addressed how to optimize the partial automated assembly line by rebalancing the line in order to reduce bottleneck and idle time and to increase line efficiency, so that ALPA team can reach its production target and PT Panarub Industry can fulfil the customer's demand. Based on daily report, the company cannot always meet production target and overtime is always executed. Based on observation, the flow process didn't run smoothly and it caused unbalanced line and the accumulation of Work In Process (WIP). Therefore, in this research line balancing problem is solved using heuristic approaches to find the best solution by reallocating work element or tasks of workstation so that the number of workstation or operator can be optimized. The methods are Kilbridge and Wester Method, Helgesson Birnie Method (Rank Positional Weight Method) and Moodie Young Method and the analysis of those methods are compared then translated to system modelling simulation using Tecnomatix Plant Simulation as the result of this research.

Keywords: Line Balancing, Assembly Line, Idle Time, Bottleneck, Helgesson Birnie, Moodie Young, Killbridge and Wester, Tecnomatix Plant Simulation



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DEDICATION

I dedicate this thesis for myself and my beloved parents:

Anharudin and Naning Mardiniah.



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I owe my gratitude to all those people who have made this thesis possible and because of whom my graduate experience has been one that I will cherish forever.

Firstly and foremost I would like to thank Allah SWT that has given me strength and infinite blessings during working of this thesis.

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