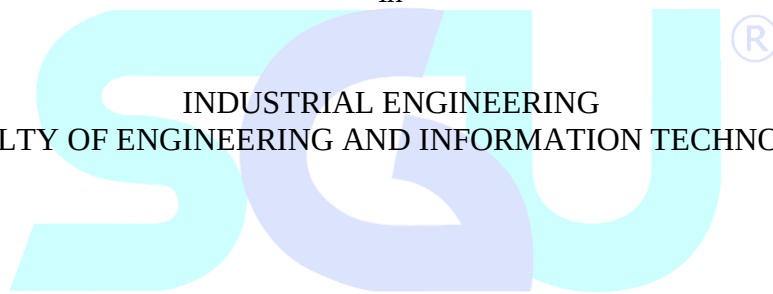


**IMPROVING WAREHOUSE PERFORMANCE OF A SEAWEED SNACK
MANUFACTURING AND PACKAGING COMPANY USING SYSTEMATIC
LAYOUT PLANNING (SLP)**

By

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BACHELOR'S DEGREE
in
INDUSTRIAL ENGINEERING
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

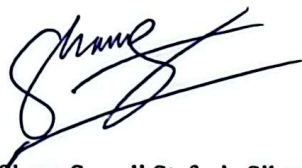


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STATEMENT BY THE AUTHOR

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

IMPROVING WAREHOUSE PERFORMANCE OF A SEAWEED SNACK MANUFACTURING AND PACKAGING COMPANY USING SYSTEMATIC LAYOUT PLANNING (SLP)

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This research focuses on PT. XYZ, a seaweed snack manufacturing company, that has an issue of a limited finished goods warehouse capacity. By utilizing a general workflow of DMAIC (Define, Measure, Analyze, Improve, Control), followed by a thorough analysis using Systematic Layout Planning (SLP), the warehouse capacity is increased and layout alternatives were developed for both the Main and Partial Finished Goods Warehouses. The layouts were evaluated based on warehouse static capacity (WSC), storage utilization, and cost-benefit analysis. Discrete-event simulations in AnyLogic were used to model and test each alternative's operational efficiency. Results show that the usage 3-level racks significantly increase capacity, with the Partial FG Warehouse achieving the highest WSC of 88,200 cartons. However, considering implementation costs and practicality, Alternative Layout 1 is recommended for the Main FG Warehouse in the short term and Alternative Layout 2 for Partial FG Warehouse. This research provides a replicable methodology for small to medium enterprises to improve warehouse capacity without major infrastructure changes.

Keywords: Systematic Layout Planning, Warehouse Performance, Warehouse Static Capacity, AnyLogic Simulation, Cost-Benefit Analysis



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DEDICATION

I dedicate this work to my thesis company and all the local enterprises out there that are competing to be the best in their game.



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I would like to thank God for blessing me with all the resources that I received throughout my life. I would like to express my gratitude to all my friends (from university, high school, and IISMA Western 2023) and my family for being there for me when I needed them the most. I would also like to thank my advisor, co-advisor, other lecturers, and my persistent teaching assistant whose support and guidance has fueled me to finally complete this thesis to the very end.

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