ENHANCING NEST SEALING BLISTER UTILIZATION IN THE PACK-OUT PROCESS THROUGH BUSINESS PROCESS IMPROVEMENT AND LEAN MANUFACTURING IN A TOY COMPANY

UNDERGRADUATE FINAL PROJECT

Submitted as one of the requirements to obtain
Sarjana Teknik (S.T.)

By
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FACULTY OF ENGINEERING

INDUSTRIAL ENGINEERING STUDY PROGRAM

CIKARANG
SEPTEMBER, 2023

PANEL OF EXAMINER APPROVAL

The Panel of Examiners declare that the undergraduate thesis entitled "**Enhancing Nest Sealing Blister Utilization in The Pack-Out Process Through Business Process Improvement and Lean Manufacturing in A Toy Company**" that was submitted by Annisa Rahmat, majoring in Industrial Engineering from the Faculty of Engineering was assessed and approved to have passed the Oral Examination on 25th September 2023.

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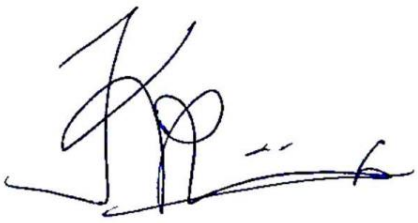

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This thesis entitled **"Enhancing Nest Sealing Blister Utilization in The Pack-Out Process Through Business Process Improvement and Lean Manufacturing in A Toy Company"** prepared and submitted by Annisa Rahmat in partial fulfillment of the requirements for the degree of Bachelor Degree in the Faculty of Engineering, has been reviewed and found to have satisfied the requirements for a thesis fit to be examined. I therefore recommend this thesis for Oral Defense.

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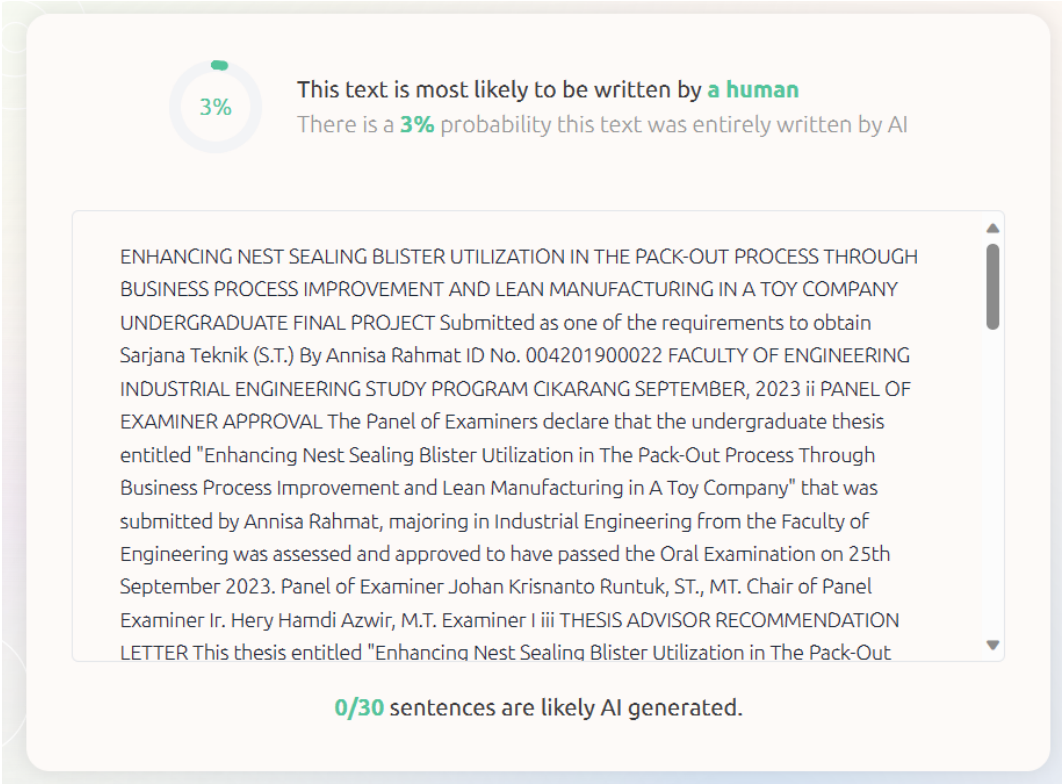

ABSTRACT

This research aims to implement business process improvement to evaluate the utilization of nest-sealing blister tools in a Toy Manufacturing Company pack-out process. The improvement is developed through implementing lean manufacturing to eliminate non-value added (NVA) activities and reduce lead time. The current process identifies a lead time and NVA time of 28,834 minutes and 21 minutes, respectively. To achieve the research objective, value stream mapping (VSM) is chosen as the tool to visualize the process waste to initiate an improvement plan. The improvement process is initiated by developing the current state mapping and evaluating the future state mapping. The improvement plans consist of identifying and sorting existing tools, developing a database system as a repository of the existing tools, and storage organization through labeling. The implementation of improvement plans results in the elimination of the buy-off process and reduction of the overall cycle time and lead time by 31.34% or 89 minutes, and 99.84% or 28,789 minutes respectively. Furthermore, there was a 51.4% reduction in the box purchases in 2022 resulting in a major cost saving. Therefore, the research findings are considered significant and valuable for the Toy Manufacturing Company by increasing the efficiency of tools utilization in the pack-out process.

Keywords: Business Process Improvement, Lean Manufacturing, Value Stream Mapping, Pack-out Process, Tools Utilization.

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Sincerely,

Annisa Rahmat

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Data Flow Diagram	:	A diagram to describe the data flow of the system.
Data Dictionary	:	Parent ID is an identification of nest sealing blisters that have been grouped based on several criteria.
EOT	:	EOT (End of Toy) is a status that indicates that a product has reached the end of its production cycle and will no longer be produced.
Nest sealing blister	:	A tool used in the blister sealing process to ensure that the position of the blister and insert is correct.
Parent ID	:	Parent ID is an identification of nest sealing blisters that have been grouped based on several criteria.
PRF	:	Document used in the procurement and purchase of goods or services in an organization or company.