



**THE IMPLEMENTATION OF THE PLC-BASED
INTERLOCK SYSTEM ON THE DOBBY CRACK PRESS
MACHINE USED FOR OUTFLOW AT PT XYZ**

UNDERGRADUATE THESIS

Submitted as one of the requirements to obtain

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FACULTY OF ENGINEERING

ELECTRICAL ENGINEERING

CIKARANG

APRIL 2025

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THE IMPLEMENTATION OF THE PLC -BASED
INTERLOCK SYSTEM ON THE DOBBY CRACK PRESS
MACHINE USED FOR OUTFLOW AT PT. XYZ

A final project report
presented to
the Faculty of Engineering

ABSTRACT

In the manufacturing sector, the reliability of control systems is crucial to improving product quality as well as reducing the number of items that do not meet standards. This final project outlines the implementation of an Interlock System program utilizing a Programmable Logic Controller (PLC) as a replacement for the conventional relay system. The main objective of this research is to improve product quality and analyze the various types of defects that often appear in the production process. The method applied includes implementing and testing a PLC-based Interlock System on the production line. To support the analysis of the causes of product defects, this research also applies the Fishbone Diagram approach combined with the 5 Whys method. The Fishbone Diagram serves to identify and categorize various factors that can cause products to fail, such as human factors, machines, methods, and materials. This approach is expected to provide a deeper insight into the causes of defects. The results showed that the use of this system succeeded in reducing the rate of failed products by 13%, resulting in a significant improvement in product quality. In addition, from the results of defect data analysis, the types of defects that most frequently cause product failure were found, which can be the basis for further improvements in the production process. With these achievements, this research proves that the use of PLC in Interlock systems can replace conventional relay systems more efficiently, increase productivity, and provide deeper insight into the main causes of product defects through a structured analysis approach using Fishbone Diagram and 5 Whys.

Keywords: Interlock System, PLC, conventional relay, product quality, product failure defects

ACKNOWLEDGEMENT

All praise and gratitude to Allah SWT for all His mercy and grace. So, I can complete this thesis as one of the requirements in obtaining a Bachelor's degree in the Electrical Engineering Study Program, Faculty of Engineering, President University. The preparation of this thesis cannot be separated from the support, assistance, and guidance from various parties. Furthermore, the author would like to express her deep gratitude and appreciation to:

1. My beloved parents, Umar Alamsyah and Dyah Ismawati. I would like to express my deepest gratitude for the prayers that have always flowed, sincere love, and endless sacrifices from the beginning until now. The support, both moral and material, that my father and mother have provided has been the main source of strength for the author in going through education and completing this thesis. There are no words that can describe the greatness of this gratitude.
2. My brother and sister-in-law, Yudha Yuliansyah and Asih Palupi, and my beloved nephews. Your presence and support at every stage of my life are invaluable and priceless to me.
3. My final project advisor, Mr. Drs. Antonius Suhartomo, M.Eng.Sc.,M.M.,Ph.D. for the continuous support and guidance during the process of writing this thesis.
4. Mr. Dr-Ing. Erwin Parasian Sitompul, S.T.,M.Sc as academic supervisor and all Lecturers, I would like to thank you for your patience in providing guidance, and sincerity in providing inspiration. Every material, advice, and motivation given is a valuable asset in shaping the character, mindset, and learning spirit of the author until now.
5. All friends in Electrical Engineering batch 2021, thank you for all the support, togetherness, enthusiasm, and laughter that have been shared during college.

Cikarang, May 2025

Dhestyana Oemar

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