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

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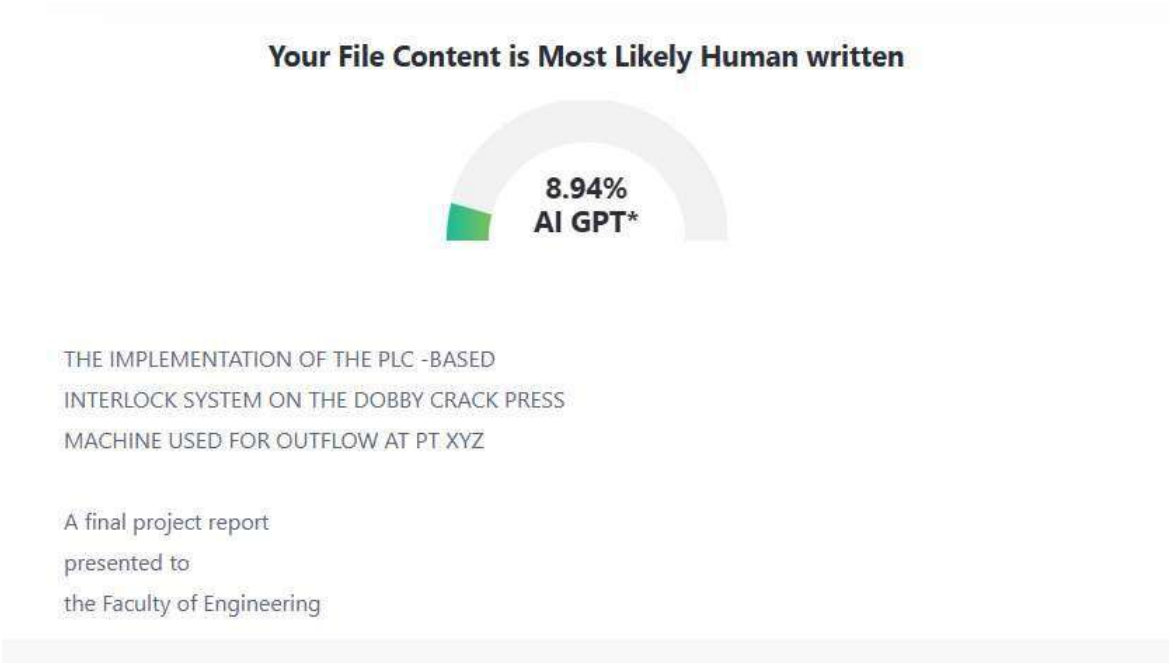

ABSTRACT

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

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