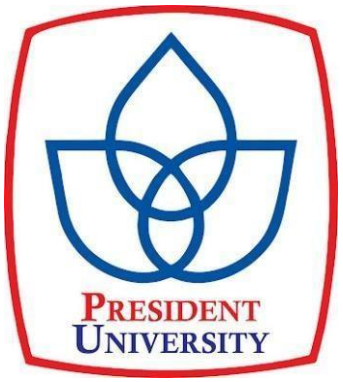


ENHANCING PRODUCTION AND AUTO PLANNING SCHEDULING THROUGH INTEGRATED SYSTEM DESIGN TO INCREASE OPERATIONAL EFFICIENCY

by:

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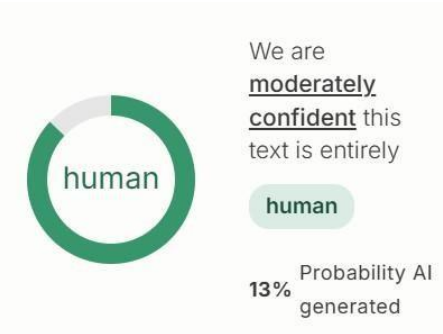
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ABSTRACT

With a particular focus on the automation process in the Barbie Breakthrough Decoration (BBD) field, PT KRM, a firm that specializes in the development of children's toys, is aggressively enhancing its operations by incorporating Industry 4.0 principles. In the past, customer task orders were processed by hand, frequently without taking important production conditions into account. Due to the many schedule modifications made by planners, task orders were distributed unevenly, and many BBD parts remained unscheduled. Over 150 BBD part numbers were to be assigned to machines between January and September 2024, however manual scheduling resulted in delays and inefficiencies that affected the production schedule. PT KRM used automated planning in Excel with VBA macro support to create an integrated system for production planning and scheduling in order to address this difficulty. By automating the entire scheduling process, this method ensures that daily production schedules are generated more quickly and accurately. By automating these processes, the business greatly increased operational efficiency by lowering human error and manual intervention. According to the timetable, the new system reduced cycle time from 45.24 minutes to 14.4 minutes, guaranteeing that all BBD parts are promptly and precisely assigned to machines. In addition to solving the issue of unplanned components, this streamlined procedure increased worker productivity by streamlining workflow and facilitating a more equitable division of labor.

Keywords: *Integrated Production Planning, Business Process Improvement, Auto Planning 4.0, Weekly Production Schedule, Visual Basic for Application(VBA)*

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LIST OF TERMINOLOGIES

Daily Schedule Adherence (DSA)	:	Language used by the company to classify and evaluate how well production outputs follow to the daily schedules that have been set in advance.
Beginning on Hand (BOH)	:	BOH is crucial for production planning, as it allows companies to know their starting point for inventory levels and helps in forecasting future production needs.
BBD	:	An area dedicated to painting the heads of toys that are supplied from the rooted head area.
VBA	:	A programming language developed by Microsoft, primarily used within Microsoft Excel and other Office applications. VBA allows the development of custom macros and functions that automate tasks