

Shipment Retrieval Improvement in an Air Cargo

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Abstract

The purpose of this project is to examine and improve material handling at the import warehouse in Kuwait Air Cargo (KAC) to ensure efficiency and safety. KAC has been losing customers to a new competitor and one of the reasons is the delays in customer's retrieval of cargo from the import warehouse. To improve customer satisfaction, the efficiency of the system and the workers has to be improved. The safety and the comfort of the workers has to be considered while the efficiency is increased. By using AutoCAD and Tecnomatix, the layout of the warehouse is modified, number of forklifts changed and as a result the transportation time decreased by 54% on average. The total cargo retrieval system is simulated using Arena software. By employing multitasking workers in the delivery of shipments' counter, the waiting time of the full house customers decreased by 72.79% and the single customer decreased by 48.5%. As for the safety of the workers, the working of a worker is simulated in digital environment using the software JACK to decrease the ergonomic hazards on the workers. Offered solution is using shelves in the landside area which reduced the total cumulative compression on the lower back by 28.7% and the total cumulative moment by 37.7%.

Keywords

Cargo retrieval, Discrete Event Simulation, Supply Chain Management, Manual handling, Arena software

Biographies

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Mustafa Sendil has received his Ph.D. in Industrial Engineering from the Northwestern University. His research interests are in human factors and ergonomics, work and process analysis, supply chain management, sales force incentives, traffic management, and optimization of complex engineering problems. He worked in Bursa Technical University, the American University of Middle East as assistant professor and in DePaul University, Chicago as adjunct faculty. He has taught courses on Operations Management, Work Analysis and Design, Ergonomic Work Analysis, Cognitive Ergonomics, Quality Management, Production Planning, Management Information Systems, and Supply Chain Management.