

Study and Design of Inventory Scheduling Processed in Warehouse Control System

Yen Jen Chen¹, I Jung Wu, *

Ming Chi University of Technology / Department of Electronic Engineering

ABSTRACT

Inventory scheduling processes are vital to warehouse controlling system management. If the inventory or storage is not received, logged, delivered, or reported correctly during the inbound, outbound, or shipping processes, it is inconceivable to maintain an accurate inventory system or storage. In the study, the warehouse is a contact lens packaging Distribution Center, providing packed containers to its customers of wholesalers, individual retailers or regional distributors. The current Warehouse Control System (WCS) of the Center has its main conveyor belt, constructed in a U-flow layout. Having multiple inbound, outbound deliveries coinciding, it induces congestion points that delay and queue containers routing. The goal of the study is to design and explore an expedited Internet of Things (IoT) management system to enhance the throughputs of containers movement in real-time. The approaches have been developed by automated inbound, outbound flow controls with sensors, such as, Barcode Readers, location sensors, scanners, as well as Programmable Logic Controllers (PLC). Through the attached tags on container, the developed system can monitor, allocate, and assign the movements of container for loading, unloading, and pick-up. The detailed methodologies of inbound, outbound, and shipping processes are presented in the study. The outcomes of the developed system have been evaluated. The system has increased the warehouse distribution performance dramatically with limited budgets.

Keywords: warehouse control system; warehouse process; PLC;