

Design of an RFID-based Inventory Control and Management System: A Case Study

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ABSTRACT

This paper proposes an RFID-based Inventory Control and Management System (RICMS) for manufacturing enterprises. It aims to collect accurate real-time data relating to transactions of physical stock items for enhancing product life cycle management. In RICMS, the business logic for classifying transactions associated with specific product movements is encoded as a set of decision rules. These rules support the two-point mechanism embedded in the system to obtain accurate real-time data for updating inventory records. This approach improves the timeliness, visibility and integrity of goods transaction and location records. A case in the paper product industry is presented to illustrate the seven-stage framework for system implementation and the expected benefits after deployment of the proposed system. Results of this case study illustrate that RICMS can help to improve warehouse management in eliminating errors, speeding up operations and significantly reducing operation costs. Apart from reducing spoilage of products that have passed their expiry dates, the proposed system will also improve operation efficiency and increase profits through elimination of various forms of chronic wastes found in typical warehouse management operations.

Keywords: Radio Frequency Identification (RFID), Inventory Control, Warehousing