

ABSTRACT

PT. XYZ is a Third Party Logistic company which handles the finished goods of PT. ABC. PT. XYZ divides the warehouse into two categories, i.e. non-food and food. In the activities of put away and picking, there is a significant delay. The highest contribution of delay of put away takes place in put away searching activities. While the longest delay of picking is in picking searching activities. The objectives of this research are: to mi

nimize the delay time at the two warehouse activities, (1) by classification of stored products based on the characteristics and number, (2) by applying the rooting method to gain the fastest put away and picking time. This system development is then packed into the Warehouse Management System (WMS) which integrated with pick to light system.

The research is initiated by mapping all information flow and warehouse activities by using Value Stream Mapping (VSM) and Process Activity Mapping (PAM). The highest non value added is then identified in the searching, at put away and picking activities. The long delay time is resulted from the absence of storage allocation. The speed of characteristic-based allocation is analyzed by FSN, to make slotting process based on four variables of horizontal travel time, vertical travel time, picking time, and doubled handling time. The last step of product allocation is application of zonification based on ZABRILS (Zone, Aisle, Bay, Row, Level, Slot), which converted into barcode which is integrated to WMS. The next step is identifying routing method which is started by deciding the sample picking point using Monte Carlo simulation system. From the picking point, route optimization is calculated by Genetic Algorithmic to find shortest travelling time.

The result of the research shows that there is a significant time-saving activity at the storage (put away) and picking as shown in future state mapping, which changes processing time to 401.8 with value added time of 312.81 seconds (77.59%).

Key words: Storage Allocation, FSN Analysis, Warehouse Slotting, Genetic Algorithm, Warehouse Management System, Pick to Light System