

## **ABSTRACT**

*Every manufacture corporations need a good performance of integrated system procurement of raw material. One of the most important component from system procurement to stabilize the accuracy of procurement is the capability to distribute entities in system. XYZ, Inc. is an automotive industry company which using JIT as their system productions, and they need a high performance of raw materials/spare parts package distributions.*

*There is one problem in distribution system of spare parts package that affect performance, it is called container loading. Spare parts package forming into truck is the main focus of this research. XYZ, Inc's container loading have a high level of complexity, it is influenced by heterogeneous of packages size.*

*The purpose of this research is to use a metaheuristic calculations method to optimize container loading. The selected method in this research is genetic algorithm. The algorithm is used to achieve efficiency of container space usage as optimal as possible. Firstly, mathematic model will be used as constraints in algorithm process. The initial solution will be evolve through algorithm become optimal final solution. Optimization of efficiency of container space usage will affect number of packages for each delivery. The greater the value of efficiency can reduce the amount of the distribution process in terms of delivery cycle and vehicle transportation costs.*

**Key words :** *Container loading, spare part packages, metaheuristic, genetic algorithm, optimization, efficiency of container space usage*