

ABSTRACT

PT. XYZ is the current leading automotive company, the supplier that is part of its subsidiary company provides services in form of supply and distribution of raw material. Based on data collected from January till March, the problem appears is the compartment fleet utilization that is far from the maximum capacity. According to the plan production control department, the desired average loading utilization is 16 ton per delivery, while the average loading utilization is 42% or 6,8 ton per delivery. In addition, there are also some deliveries exceeding maximum capacity allowed. Therefore in this research, the most suitable loading pattern is needed to improve utilization of fleet compartment with heterogeneous fleet and heterogeneous material dimension. Loading pattern is also needed as supporting tools for the department by considering weight limit, physical dimension of material and compartment fleet dimension, so that overloaded and unburdened deliveries can be avoided. The research is conducted in plan production control department to gain more information about the fleet, production demand, and raw material properties. Genetic algorithm is used as method for solving the problem and visualize the loading pattern by using Matlab. The calculation is conducted toward loading and space utilization of compartment fleet. From the research, the utilization of space can be improved to 6% and loading utilization can be improved up to 50%.

Keywords: Container Loading Problem, Genetic Algorithm, JIT Manufacture