

ABSTRACT

PT . XYZ is a company engaged in logistics , this company provides warehouse as a storage and transportation services to distribute the product . Products handled by PT . XYZ are the products of Fast Moving Consumer Goods (FMCG) . The problems that occur in the PT . This company XYZ is unable to distribute their products on consumers due to some shipping delays due to congestion on the roads as a factor. Factors that congestion occurs only at certain times , so there is a speed difference occurs every time .

In this study by taking into account congestion , the design solution search vehicles by dividing the time into three days delivery time zone are the time zone of morning traffic jam , smooth zones and time zone jammed afternoon . At each time zone has a different speed for each vehicle . This study discusses the basic VRP with the fleet size and mix of the characteristics , time windows , multi trip , time dependent and multiple products with the goal of minimizing the total number of delays and transportation costs . VRP get into problems with the characteristics of the hard - combinatorial NP - hard to be solved by a method generally VRP metaheuristics such as Tabu Search algorithm was also used in this study . The algorithm starts with the generation of the initial population by using the nearest neighbor algorithm is then optimized using Tabu Search algorithm .

The results of this algorithm can optimize mileage , number of visits , eliminate delays , as well as minimizing the total cost of transportation up to 3,13 % .

Keywords : Transportation , Distribution , Vehicle Design Route , Tabu Search Algorithm , nearest neighbor algorithm , Fleet Size and Mix , Time Window , Multiple Product , Multi Trip, Time Dependent .