Abstract

Multi-Depot Vehicle Routing Problem with Time Window (MDVRPTW) is a problem of finding an optimal route for a supplier. The supplier needs to deliver goods to a number of customers using the vehicles located in a number of depots. Each delivery must be done within the service time specified by each customer The vehicles used have a maximum limit on the amount of goods that can be loaded and the maximum time the vehicle may be used. MDVRPTW is one of the variations of Vehicle Routing Problem (VRP). There are various algorithms that have been used to solve VRP problems. Some of them are Genetic Algorithm (GA), Tabu Search, and Adaptive GA with Artificial Bee Colony. GA can solve the problem within a shorter time, but it is vulnerable to get trapped in a local optimum. A strategy to reduce the probability of it is to make the GA adaptive. In this final task, MDVRPTW is solved with GA. To reduce the probability of getting trapped in a local optimum, the GA parameters are made adaptive using Fuzzy Logic Controller (FLC). Based on the results of this research, using FLC on GA causes the average of the solution to be better than the solution produced using GA without FLC.

Keywords: Multi-Depot Vehicle Routing Problem, Time Window, Genetic Algorithm, Fuzzy Logic Controller, optimal route.