Abstract

Delivery is a process that included on Supply Chain Management (SCM) which determines the final price. If smaller the expenditure incurred for delivery, then the final price can be suppressed. This case is an example of Capacitated Vehicle Routing Problem with Time Windows (CVRPTW) in real life. On this final project, Artifical Bee Colony will be implemented to solve the CVRPTW problem in case delivery according to Solomon dataset format [13]. The form of solution is to get the routing scheduled for every vehicle to existing node with the mileage cost optimization. ABC Algorithm is an algorithm that inspired by honeybee's group behavior. This behavior of these bees will be applied to obtain the solution of delivery problem.

Testing was done by brenchmarking The Best Known Solution of Solomon dataset format [15], analyzing the effect of each input parameter to the output, calculate the total output cost distance accuracy, node penalties, and issued the schedule of each vehicles. The Results obtained accuracy was 97% close to the optimal results with average processing time less than 5 minutes for a total 25 nodes.

Keywords : Capacitated Vehicle Routing Problem with Time Windows (CVRPTW), Artificial Bee Colony Algorithm (ABC), Solomon, route searching.