DETERMINATION OF DISTRIBUTION ROUTES AND COMPARISON OF TRUCK AND PICKUP FLEET NEEDS USING GENETIC ALGORITHM METHODS IN LINTAS SAMUDRA JAYA COMPANIES

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ABSTRACT

Because companies provide logistic service growth rapidly, companies are supposed to upgrade their service. Company Lintas Samudra Jaya (LSJ) is a logistics service company that always strives to make improvements in logistics services. LSJ company is often delayed in delivery and pickup of items so the fleet often arrives when the warehouse or dept is closed. This problem is commonly called Vehicle Routing Problem Pick-Up and Delivery with Time Windows (VRPPDTW). The distribution process in one day at the LSJ company has more than 30 points, but the LSJ company only has 2 pick up fleets for distribution and the rest uses a rental system. In this study, there are two alternative fleets for rent, namely alternative pick-up and truck fleets. To get the optimal route and number of fleets, this research uses the Genetic Algorithm method for the solution. And the results obtained in this study are to produce optimal routes for the distribution of pickup and delivery packages, the routes generated every day are 6 to 8 routes for alternative pick up fleets and 5 to 7 routes for alternative truck fleets, as well as the total vehicles produced according to number of routes generated. From the number of fleets obtained every day on alternative pick-up and truck fleets, the calculation of the minimum rental results is the pick-up fleet with a fairly large difference of 78%.

Keywords: *Distribution. Genetic Algorithm Method, VRPPDTW.*