

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**MINIMIZATION OF TRAVELING TIME FOR COURIER
SERVICES USING FLOYD-WARSHALL ALGORITHM
(CASE STUDY IN SEREMBAN 3)**

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

The existence of online shopping increased the demand of courier services. Due to this demand, there may be a delay in delivering consignments to customers. Thus, distributors might take time to deliver the consignments to customers and will probably go beyond their own working hours. This problem leads to a lack of coherence in the delivery process where the distributor has difficulty determining an appropriate delivery route that is as short as possible. Furthermore, other problems may also contribute to the delay in the delivery process such as high traffic jams. Hence, this gives the motivation to this study in finding the minimum travel time from the courier office to the receivers. Next, to establish the shortest path based on the minimum travel time from the courier office to the receivers and finally, to compare the service between current practice by the courier service and the proposed method used in the study. The time distance and sequence matrices were built based on the data collected from Google Maps and interviews were conducted at the local courier office. This study focused on Floyd-Warshall algorithm in finding the shortest path to deliver the consignment with the least travel time. A Floyd-Warshall algorithm is implemented after both matrices have been completed. An algorithm was run in software called Toolkit for Oracle (TORA). As for the result, the shortest path for the courier was obtained. By using the proposed algorithm, courier services may find the shortest traveling time possible. In conclusion, the courier service can reduce up to 8.3%, 30%, and 21.25% of their travel time for each zone.