ABSTRACT

The high rate of accidents demands rapid emergency response to save victims. This study aims to compare the performance of the Dijkstra and Tabu Search algorithms in determining the shortest ambulance route from the accident location to the nearest hospital. Location data, distances, and road conditions were collected and processed into a graph as the basis for algorithm implementation. Both algorithms were evaluated based on three main parameters: execution time (running time), time complexity, and memory usage. The results show that the Dijkstra algorithm outperforms the Tabu Search algorithm in all three parameters, although both produce routes with similar travel distances. This study is expected to serve as a reference for selecting efficient pathfinding algorithms in emergency situations, especially in medical response scenarios that require speed and route accuracy.

Keywords: *Accident, Ambulance, Dijkstra, Tabu Search, Shortest Route.*