

**Abstract**

*Fires are disasters that can occur anytime and anywhere, so a quick and efficient response from firefighters is essential in tackling emergency situations. However, firefighters often face challenges in reaching fire locations quickly due to the limitations of existing navigation systems. This study aims to develop an A\* algorithm-based shortest path recommendation system for firefighters in the West Sidoarjo area, in order to improve response time. The A\* algorithm was chosen because of its ability to find shortest paths heuristically and its efficiency in processing time. Geographical data of West Sidoarjo area is used to calculate the route with A\*, where the heuristic value is obtained from the distance between the fire station (starting point) and the fire location (destination point). Test results show that the A\* algorithm consistently reduces travel distance and time compared to other commonly used navigation methods. The system is expected to improve the effectiveness and efficiency of firefighting operations in emergency situations. Limitations of the system and potential for further development are also discussed.*

**Keywords:** *Mobile devices, A\*, Shortest path, Firefighters, Route planning.*

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