

Dear Dr. Sándor Szénási,

I hope this Email finds you well. The manuscript has been reviewed, and the topic and whether it is suitable for publication in this journal. After the major review, I am recommending **accepting the manuscript with minor revision**.

Best regard,

Review of the manuscript entitled “Research on path planning of mobile robot based on improved A* algorithm”

Dear Authors,

This review aims to provide constructive feedback to enhance the clarity, accuracy, and completeness of the manuscript. Addressing these points will contribute to the overall quality and comprehensibility of the work.

- To make the manuscript title more suitable, I suggest changing it to "Research on path planning of mobile robots based on improved A* algorithms".
- The sixteen-neighborhood search, introduced as a compromise between the eight-neighborhood and twenty-four-neighborhood searches, represents a novel concept. However, the paper does not address the computational complexity introduced by the additional mechanisms. A discussion on whether the computational cost is negligible in comparison to the benefits would enhance the credibility of the claims.
- In lines 42-44, the authors define the primary goal of path planning as "the primary goal of path planning is to swiftly and accurately find an optimal collision-free path from a starting position to a target position in an unknown environment," where the path planning is used in both an unknown environment and a known environment (as the used environment in this manuscript).
- In lines 45-51, the authors classify the path planning into traditional and intelligent algorithms, but the distinction between global, local, and intelligent algorithms could need further clarification. For example, while intelligent algorithms can be used for global path planning, they are often not as commonly implemented in real-time scenarios compared to algorithms like A* or DWA. Also, RRT is primarily a

global planner but may require fine tuning to be optimal, especially in dynamic environments. Please use Reference [1] for more information. Also, the reference 14 is not focused on the paper topics; please check that.

- In Section 3.2, Node Optimization, invalid nodes are eliminated based on alpha angle constraints as outlined in Tables 1 and 2. Should the remaining nodes after this filtering process all represent obstacles, the mobile robot must employ alternative pathfinding strategies. Also, to clarify the node elimination process, a visual representation of Table 1 is provided in a figure. Nodes are numbered as indicated in the table, allowing for a more intuitive understanding of the alpha angle-based filtering criteria.
- The most significant results should be included in the abstract.
- An appropriate reference is necessary for all equations. Please mention the reference number for each equation.

Best regard,

References

[1] A. Israr, Z. A. Ali, E. H. Alkhamash, and J. J. Jussila, "Optimization Methods Applied to Motion Planning of Unmanned Aerial Vehicles: A Review," *Drones*, vol. 6, no. 5, 2022.