

**Review Form 1.7**

Journal Name:	<b>Journal of Engineering Research and Reports</b>
Manuscript Number:	<b>Original Manuscript_JERR_117969</b>
Title of the Manuscript:	<b>Research and prospect of intelligent workshop AGV path planning algorithm</b>
Type of the Article	<b>Original Manuscript</b>

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**PART 1: Review Comments**

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p><b>Compulsory</b> REVISION comments</p> <ol style="list-style-type: none"> <li>1. <b>Is the manuscript important for scientific community?</b> (Please write few sentences on this manuscript)</li> <li>2. <b>Is the title of the article suitable?</b> (If not please suggest an alternative title)</li> <li>3. <b>Is the abstract of the article comprehensive?</b></li> <li>4. <b>Are subsections and structure of the manuscript appropriate?</b></li> <li>5. <b>Do you think the manuscript is scientifically correct?</b></li> <li>6. <b>Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.</b></li> </ol> <p><b><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></b></p>	<ol style="list-style-type: none"> <li>1. <b>The manuscript is very important for the scientific community as it addresses a crucial topic in intelligent manufacturing and automation. AGV path planning is a core problem that needs to be solved to successfully implement autonomous material handling systems in smart workshops and factories.</b></li> <li>2. <b>The title of the manuscript is suitable and accurately reflects the content of the research work.</b></li> <li>3. <b>The abstract provides a comprehensive overview of the research, including the background, objectives, methodology, and key findings. However, it could be improved by including more specific details on the future research directions based on the current work.</b></li> <li>4. <b>The overall structure and subsections of the manuscript are appropriate and logically organized. The progression from environment modeling to path planning algorithms is well-structured.</b></li> <li>5. <b>The manuscript is scientifically correct,, and the authors have thoroughly analyzed the various path-planning algorithms and their relative advantages and limitations.</b></li> <li>6. <b>The references provided are sufficient and recent, covering the relevant literature on AGV path planning. However, the authors may consider including references from more recent publications to strengthen the literature review further.</b></li> </ol>	
<p><b>Minor</b> REVISION comments</p> <ol style="list-style-type: none"> <li>1. <b>Is language/English quality of the article suitable for scholarly communications?</b></li> </ol>	<p>The quality of the English language in the manuscript is suitable for scholarly communication, although a few minor grammatical and linguistic errors should be addressed.</p>	
<p><b>Optional/General</b> comments</p>	<p><b>Abstract</b></p> <ol style="list-style-type: none"> <li>1. The Abstract should also highlight specific future research directions based on the current findings. This could include potential improvements in algorithm efficiency, real-time adaptability, or integration with emerging technologies like IoT and AI.</li> <li>2. "Therefore, starting from algorithm improvement, it has become the focus of research to realize AGV operation efficiency and efficient obstacle avoidance by integrating intelligent algorithm with traditional algorithm" could be rephrased for clarity.</li> <li>3. "The analysis found that in the face of complex workshop environment, multi-factor influence and complex obstacles, relying only on the traditional algorithm can not achieve the work effect." Specify what "work effect" means in this context.</li> <li>4. Keywords need to revise the commas and more</li> </ol>	

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	<p><b>Introduction</b></p> <ol style="list-style-type: none"><li>1. The introduction should provide a clear context for the research, explaining why AGV path planning is important and how it fits into the broader intelligent manufacturing field.</li><li>2. Clearly state the research gap that this paper aims to fill. What specific problems or limitations in current AGV path planning algorithms does this research address?</li><li>3. Ensure the historical context is accurate and relevant. For example, the statement "The first AGV was born in 1953" should be supported by a credible source.</li><li>4. "Many jobs with high risk factors are also replaced by intelligent machines, which greatly protects the personal safety of workers" could be rephrased for clarity.</li><li>5. Clarify vague sentences such as "With the introduction of intelligent machines in various fields, their work efficiency is greatly improved compared with human labor." Specify what "various fields" refer to and provide examples.</li><li>6. When mentioning "Internet and big data technology," explain how these technologies are integrated with AGVs and their impact on performance.</li><li>7. Include a brief literature review to provide context for the research. Discuss previous studies on AGV path planning and highlight their findings and limitations.</li><li>8. The Fig 1 image must be moved to the supporting files.</li></ol> <p><b>2. Path planning algorithm based on environment modeling</b></p> <ol style="list-style-type: none"><li>1. The phrase "which was first proposed by W.E. Howden in 1968" should be corrected to "which was first proposed by W.E. Bowden in 1968."</li><li>2. The sentence "the storage cost will increase, and the interference signal will increase, the planning speed will be correspondingly reduced, and the real-time performance can not be guaranteed" should be revised for clarity. Consider "the storage cost and interference signal will increase, reducing the planning speed and compromising real-time performance."</li><li>3. The phrase "the viewable must be reconstructed" should be corrected to "the viewable method must be reconstructed."</li><li>4. The term "viewable" should be consistently capitalized as "Viewable" throughout the text.</li><li>5. The sentence "A reasonable modeling method is helpful to reduce the calculation amount of path planning, thus speeding up the calculation speed" could be made clearer by specifying what constitutes a "reasonable modeling method."</li></ol>	
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6. The term "interference signal" is vague. Clarify what type of interference is being referred to and how it impacts the path-planning process.
7. The phrase "the planning speed will be correspondingly reduced" is somewhat unclear. Specify what factors contribute to the reduction in planning speed.
8. The comparison table (Table 1) is useful, but it should include more specific examples of applications to provide better context for the reader.

### **3. Path Planning Algorithm Based on Path Search**

1. The explanation of the "adaptive search distance mechanism" in the A\* algorithm section could be clearer. Can the author provide more detailed explanations or examples to clarify these points?
2. When first used, terms like "local minima" and "global optimality" should be defined.
3. It should also mention the issue of oscillations in the presence of obstacles or narrow passages, as highlighted in the literature.
4. Table 2 should clarify that Dijkstra's algorithm fails with negative edge weights, a critical limitation. Additionally, it should be emphasized that the algorithm is optimal for graphs with non-negative weights. The manuscript should specify that the performance of the A\* algorithm heavily depends on the accuracy of the heuristic function used. It should also be mentioned that A\* is optimal and complete if the heuristic is admissible and consistent.
5. Table 3: Research Comparison of Intelligent Algorithms. should include the fact that PSO is insensitive to the scaling of design variables and is derivative-free, which are significant advantages. It should also be mentioned that PSO can be parallelized for concurrent processing, enhancing its efficiency. The manuscript should highlight that ACO benefits from positive feedback, which accounts for the rapid discovery of good solutions. It should also be mentioned that ACO is particularly efficient in solving problems like the Traveling Salesman problem.
6. The manuscript should address the issue of parameter tuning, which is crucial for the performance of the Genetic Algorithm (G.A.). It should also be mentioned that G.A.s do not guarantee finding the global optimum due to their probabilistic nature.
7. Ensure that appropriate references support all claims. Cite the most relevant and recent studies to back up the statements made in the manuscript.

### **Conclusion and Prospect**

1. The conclusion should concisely summarize the key findings and implications of the research rather than introducing new information. The conclusion could be strengthened by

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	<p>highlighting the work's specific contributions and novel aspects rather than just stating general progress in the field.</p> <ol style="list-style-type: none"><li>2. The last paragraph discusses the focus of the path planning field as "the research of new and efficient path planning algorithm and fusion algorithm." It would be helpful to provide more specifics on the types of algorithms, or fusion approaches that the authors consider promising for future development.</li><li>3. The statement about "fundamentally solving the local optimal problem of AGV path planning algorithm" could be expanded to explain the underlying issue and how the proposed solutions address it.</li></ol> <p><b>References</b></p> <ol style="list-style-type: none"><li>1. The reference list should have a consistent format for all references, including the order of elements (author names, article title, journal name, volume, issue, pages, etc.).</li><li>2. Several references, such as article titles or page numbers, are missing important information. Please ensure that all references are complete and include all necessary details.</li></ol>	
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**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<b>Are there ethical issues in this manuscript?</b>	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

**Reviewer Details:**

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