

REVIEWER'S REPORT

Manuscript No.: IJAR-55849

Title: AI-Based Programmed Digital Maintenance Framework of Port Cranes.

Recommendation:

Accept as it is
 Accept after minor revision.....
Accept after major revision
 Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality				Y
Techn. Quality				Y
Clarity				Y
Significance				y

Reviewer Name : Dr. Shaweta Sachdeva

Detailed Reviewer's Report

1. The manuscript does not present any experimental validation, simulation results, or real-world deployment, making it impossible to assess the feasibility or effectiveness of the proposed framework.
2. The work is purely conceptual and primarily integrates well-known technologies (AI, digital twin, CMMS, ERP) without demonstrating substantive technical novelty or methodological innovation.
3. The AI component is insufficiently defined; no algorithms, model architectures, training processes, datasets, or performance evaluation metrics are described.
4. The proposed digital twin framework lacks implementation depth, with no explanation of model fidelity, synchronization mechanisms, or lifecycle management.
5. The Related Work section is inadequate, providing a descriptive overview rather than a critical comparison, and failing to clearly position the contribution against state-of-the-art solutions.
6. The paper does not include quantitative comparisons with existing reactive, preventive, or predictive maintenance approaches, which significantly weakens the scientific contribution.
7. Claims made in the Results and Discussion section are speculative, as they are not supported by empirical evidence or analytical justification.
8. Critical issues such as data quality, sensor reliability, noise handling, and model robustness are not addressed, despite being central to AI-driven maintenance systems.
9. The manuscript overlooks system integration challenges, including interoperability, latency, scalability, and fault tolerance in industrial environments.
10. Cybersecurity, data governance, and privacy concerns are only superficially mentioned and lack any structured risk analysis or mitigation strategy.
11. The reference list is limited and generic, lacking recent, high-impact, peer-reviewed literature relevant to AI-based predictive maintenance and digital twins.
12. Overall, the paper does not meet the minimum standards of a research contribution, as it reads more like a conceptual overview or project proposal rather than a rigorously validated scientific study.