

## REVIEWER'S REPORT

Manuscript No.: IJAR-52823

Date: 17-07-2025

**Title: INTRODUCING A SIMULATED GATEWAY FOR VALIDATION OF INDUSTRIAL COMMUNICATION IN PLC SYSTEMS**

### Recommendation:

**Accept as it is .....YES.....**

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality			✓	
Clarity			✓	
Significance		✓		

Reviewer Name: Mr Bilal Mir

### Reviewer's Comment for Publication.

#### Abstract Evaluation:

The abstract effectively introduces the motivation behind the study—namely, the growing importance of simulation in the development and validation of industrial automation technologies and communication protocols. It outlines a specific gap in current methodologies: the limited availability of unit testing tools for PLC (Programmable Logic Controller) systems. This problem is contextualized within industrial settings, where failures due to insufficient validation can be highly disruptive.

The abstract provides a clear description of the solution proposed by the study—a simulated application-layer gateway. It emphasizes that this simulated gateway supports the development and validation of proprietary protocols for PLCs. The articulation of its performance and its comparability to a physical industrial gateway is a significant point, affirming the practical value of the solution.

The abstract also frames the work within broader academic goals, noting its contribution to ongoing research into unit testing applications in industrial systems. The language is precise, and the content is focused on the core contributions and implications of the research.

#### Introduction Evaluation:

The introduction begins with a historical and conceptual overview of Industry 4.0, establishing the relevance of the research topic. The reference to the 2011 Hannover Messe introduction is appropriate and helps anchor the reader in the technological evolution of industrial automation.

The identification of the nine enabling technologies of Industry 4.0 provides a structured understanding of the ecosystem within which this study operates. By referencing the progression from Industry 4.0 to Industry 5.0, the introduction reflects a forward-looking orientation and situates the study within ongoing industrial transformation.

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The link between non-adoption of these technologies and competitive disadvantage is clearly established. The emphasis on productivity, flexibility, and autonomy of production processes underlines the stakes involved in adopting advanced industrial technologies like simulation and protocol validation.

The tone and structure of the introduction are academically appropriate, logically organized, and relevant to the subject matter. It provides a strong foundation for the rest of the article by combining contextual background with justification for the study's objectives.

### **Conclusion:**

The abstract and introduction together present a coherent, well-motivated research focus. The study is contextualized within both technological advancement and practical industrial necessity. The emphasis on simulation and validation in PLC environments aligns well with current industrial challenges and offers relevance for both practitioners and researchers. The clarity and alignment between the abstract and introduction contribute to a strong and credible research presentation.