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REVIEWER'S REPORT

Manuscript No.: **IJAR-55058**

Title: Towards smart agriculture in the Thiès region.

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

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

Dr Thirunahari Ugandhar
Reviewer Name:

Detailed Reviewer's Report

Review Comments

General Evaluation

The manuscript addresses an important and emerging topic: the integration of IoT, LoRaWAN communication, and AI for smart agriculture in the Thiès region of Senegal. The work is relevant, timely, and suitable for publication after substantial revision. The authors clearly describe their experimental setup, sensor validation, communication architecture, and the proposal for an integrated private LoRa network. The article is rich in technical details and offers strong practical value for African agricultural digitalisation.

However, the manuscript is **overly long**, contains **repetitions**, lacks **critical analysis**, and requires **major reorganisation, language polishing, and clearer presentation of results**. Some sections resemble a technical report rather than a scientific article.

Major Comments

1. Structure and Coherence

- The manuscript mixes *introduction, literature review, method, results, and discussion* in a way that affects clarity.
- The "Materials and Methods" section contains extended literature review paragraphs and lengthy explanations of IoT concepts that should be summarized or moved.

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Recommendation:

Reorganise the manuscript into:

1. Introduction
2. Related Work
3. Materials and Methods
4. Results
5. Discussion
6. Conclusion and Future Work

2. Overlong Descriptive Sections

- Sections describing sensors (NPK, EC, DHT22) and IoT modules are too verbose and read like user manuals.
- Figures are referenced but not scientifically analyzed.

Recommendation: Condense descriptions and focus on **scientific relevance**, **performance metrics**, and **justification for sensor choice**.

3. Insufficient Quantitative Results

The manuscript frequently mentions that tests were "successful" or "stable" but provides **no numerical data**, such as: Communication range, Packet loss rate, RSSI / SNR values, Sensor accuracy comparisons Calibration results, Data throughput under load

Recommendation: Provide quantitative performance tables and graphs to support conclusions.

4. Figures Require Captions, Numbering, and Explanation

Many figures (drone images, sensors, architecture) are presented without:

Scientific interpretation, Discussion of relevance, Proper caption format

Recommendation: Ensure each figure is described, numbered sequentially, and its contribution to the study is explained.

5. References Formatting and Accuracy

- Multiple citations are incorrectly formatted (e.g., "(5).(6)").
- Reference list is missing.
- Ensure all citations follow the journal's style (APA/Vancouver/Harvard).

Recommendation: Provide a complete reference list and correct all in-text citation formats.

6. LoRaWAN Architecture Justification The justification for three gateways is detailed but lacks:

Comparison with alternative configurations, Simulation or field measurement, Cost-benefit analysis

Recommendation: Add a subsection comparing expected vs. measured coverage, or provide a simple propagation model.

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7. AI Integration Needs Clarification

Although AI is mentioned throughout, there is: No detailed AI model, No dataset description, No preliminary AI results, no pipeline for predictive modelling

Recommendation: Add a clear subsection explaining how AI models will be trained, validated, and integrated into the system.

Minor Comments

Writing and Language: Several grammatical errors, unnecessary repetitions, and informal phrasing appear throughout the text. Ensure uniform terminology (e.g., "LoRa modules", "LoRaWAN gateways", "nodes").

Recommendation: Use professional editing to improve readability and consistency.