

Review of: "Optimized Low-Powered Wide Area Network within Internet of Things"

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Potential competing interests: No potential competing interests to declare.

1. Abstract:

- Always mention the full form of the abbreviation when using it for the first time in the document. Eg: LPWANs, IOT, SF usage.
- The abstract could benefit from a concise concluding sentence that summarizes the overall impact or implications of the research findings. For example, how does the proposed optimization contribute to the broader field of IoT and LPWANs?
- There are a few minor grammatical issues in the abstract. For example, "the LoRa energy consumption is reduced by 60%" could be rephrased as "the optimization resulted in a 60% reduction in LoRa energy consumption." Proofreading for clarity and grammar is recommended.

2. Introduction:

- gateways (GWs), messages are routed between end devices (EDs) and the central network server (NS) , Bluetooth low energy (BLE), and narrowband IoT (NB-IoT)- Capitalize each word.
- The introduction mentions LoRaWAN but doesn't provide much detail about what it is. Briefly describe LoRaWAN as a LPWAN technology, its advantages, and why it is the focus of the work.
- **Research Gap:** You mention a research gap in the journal of [8], which is a good way to frame the problem. However, it would be beneficial to briefly explain the nature of this research gap. For instance, what specific aspect of spreading factor allocation is lacking or needs improvement?
- Consider reordering the objectives to follow a logical sequence. For example, it might make sense to first develop the framework, then simulate spreading factor allocation, and finally perform the evaluation.
- **Related work :** Condense the descriptions of each related work to focus on the key findings and contributions. Avoid overly detailed explanations of specific experiments or methodologies unless they are highly relevant to your study.
- **Connection to Research:** Explicitly highlight the relevance of each related work to your own research. Explain how the findings or methods from these studies relate to your study's objectives.

3. Methodology :

- The inclusion of a figure (Figure 3.1) is a good practice for illustrating the research framework. However, consider providing a brief description or caption for the figure to explain its components and how they relate to the methodology.

- The parameters were adopted from the journal - Mention them.
- IOT architecture: Add brief explanations or examples for each layer to help readers understand their roles and functionalities.
- What UUID is and how it plays a role in uniquely identifying IoT objects ?
- Check this sentence : giving a thing a distinct identification (UUID).
- Consider including units for power values (e.g., Watts or mW, J) to provide a better understanding of the energy calculations.
- The choice of a 30m x 20m area for the simulation is reasonable, but you could briefly explain why this specific size was chosen.

4. Results:

- Consider providing a brief explanation of the practical implications of your findings. For instance, how could these results benefit real-world IoT applications?
- It would be helpful to clarify any limitations or potential sources of error in your experiments to ensure transparency and validity.