



Peer-Review Report Form

Manuscript Title:	Smart Poultry Systems: A Systematic Review on IoT, Artificial Intelligence, and Multimodal Technologies for Precision Poultry Farming
Type of Article:	Review Article

FIRST ROUND

Editor

<u>General Comments and Recommendations</u>
The reviewers acknowledge the significance of your manuscript and recommend several revisions to further improve its clarity, coherence, organization, and overall scholarly quality. In addition, you are advised to thoroughly review and validate all references included in the manuscript. Please ensure that all cited sources are accurate, accessible, and retrievable through Google Scholar to uphold the credibility and reliability of the study. Additionally, make sure to include the DOI or website link for every reference whenever available to facilitate verification and accessibility of sources. Furthermore, only sources that are cited within the manuscript should appear in the References section, and all entries listed in the References section must also be cited in the text. For example, if 20 unique sources are cited in the manuscript, then only those 20 sources should be included in the References section. Please also note that repeated citations of the same source within the text are counted as a single reference entry; therefore, the total number of references may be lower than the total number of in-text citations.

Reviewer 1

<u>General Comments and Recommendations</u>
The manuscript addresses a timely and relevant topic because smart poultry farming is becoming important for productivity, disease control, and animal welfare. The paper has useful coverage of different technologies, but its main weakness is that the systematic review method and quality appraisal are not yet strong enough to fully support the broad conclusions made in the manuscript.

<u>Specific Comments and Recommendations</u>
The search and selection process needs to be more transparent. The manuscript states that PRISMA was followed, but the exact search strings, Boolean operators, screening procedure, and reasons for excluding full-text articles are not sufficiently detailed. This is important because readers need to judge whether the 39 included studies were selected in a systematic and reproducible way.
The eligibility criteria should be applied more consistently. The manuscript says that only peer-reviewed journal articles were included, but some references appear to be preprints, datasets,



conference papers, or non-journal sources. This affects the reliability of the review and may weaken the claim that the evidence came from peer-reviewed studies only.
The review needs a clearer quality or risk-of-bias assessment. The manuscript reports high accuracy values from many technologies, but it does not clearly evaluate the methodological strength of each study. Without this, prototype studies, laboratory tests, and long-term field validations may appear to have the same level of evidence.
The results section sometimes becomes too interpretive. Some parts already discuss implications, limitations, and future directions, which are better placed in the discussion. Separating the factual findings from interpretation would make the results section more focused and easier to follow.
The comparison of accuracy across technologies should be treated more carefully. The studies used different datasets, settings, poultry types, outcome measures, and validation methods, so the reported accuracy values are not always directly comparable. The manuscript should explain this more clearly to avoid overestimating the performance of smart poultry systems.
The discussion should be more critical about commercial readiness. The paper states that some technologies are mature or commercial-ready, but it also acknowledges limited long-term field validation and weak smallholder inclusion. These points should be reconciled so the conclusions do not sound stronger than the evidence.
The manuscript would benefit from a stronger synthesis table showing each included study, country, technology type, study design, sample or dataset, validation setting, main outcome, and evidence level. This would make the review more useful and would help readers see which technologies are truly field-tested and which remain experimental.

Please indicate your recommendation by checking the appropriate box below.

<u>Decision</u>	
☐	Accept the manuscript for publication.
☐	Reconsider the manuscript after the authors have satisfactorily addressed and complied with the reviewers' comments and recommendations.
☐	Reject the manuscript, as it is not suitable for publication.

Reviewer 2

<u>General Comments and Recommendations</u>
To begin with, I want to thank the authors for submitting this interesting manuscript. Overall, the paper is addressing a very hot and necessary topic. The poultry industry is really needing these technological upgrades to handle large-scale demands and animal welfare. The paper is having a good logical flow, and I really appreciate that it tries to connect these technologies to the United Nations Sustainable Development Goals (SDGs). Also, the categorization of the technologies into five clear domains makes the review very easy to read and understand. The writing is mostly clear, and the authors make a very strong point about the "equity gap" for smallholder farmers, which is something many technical papers forget to mention. However, before this can be accepted, I have a major concern regarding the systematic review methodology. The initial search yield is creating a big doubt for me, and this must be addressed because the core validity of a systematic review relies on its search strategy. There are also



some missing details in the results tables that need clarification. I suggest the authors make major revisions based on the specific points below.

Specific Comments and Recommendations

Abstract

The abstract provides a very nice summary of the accuracies achieved by different technologies, like IoT environmental monitoring reaching over 99% and acoustic systems hitting 96.03%. However, I am suggesting to briefly mention the geographical bias found in the study (that most studies come from Asia) right in the abstract, as this is a key finding about the current state of the technology.

Methodology

The authors state they used major databases like Google Scholar, Elsevier ScienceDirect, and IEEE Xplore. They searched for literature published over a six-year period, from January 2020 to April 2026. Despite this long timeframe and using broad databases, the PRISMA flow diagram and the text indicate that only 67 records were identified in the initial search. This number is unbelievably low. Normally, searching terms like "Internet of Things" and "machine learning" with "poultry" on Google Scholar alone will return hundreds or thousands of hits. I highly suspect the search string was too restrictive. For example, did the authors use "AND" between every single keyword instead of "OR"? The authors must provide the exact boolean search string used. If the search strategy was flawed, the literature search might need to be re-run to ensure this is a true systematic review.

Results and Tables

1. In Table 1, the authors summarize the five domains very well. But in the "Estimated Cost Range" column, the values are listed as "Low-Moderate", "Moderate", and "High". There is no definition in the text of what these cost labels mean. What is considered "High" cost? Is it 1,000 USD or 50,000 USD? I suggest adding a footnote to Table 1 to explain the baseline for these cost estimates.

2. The transition toward edge computing architectures from 2023 onward is a very good observation. The authors correctly point out this helps with unstable internet connectivity. For the computer vision section, the authors mention that occlusion is a major limitation. This is highly accurate for real farm environments. However, when discussing the BBRs system that achieved 97.84% accuracy, they rightly note it was tested at a low density of 7-8 birds/m². It would be great to briefly state what a standard commercial stocking density is to give the reader better context.

Discussion and Conclusion

The discussion on the "equity gap" is excellent. Pointing out that most advanced technologies are built for large-scale operations and ignore smallholder systems is a very mature observation. The authors state that only three studies reported field implementations lasting more than one single production cycle. This highlights a massive research gap beautifully. In the Conclusion, the recommendations for future research are solid, especially the call for open and standardized datasets.

Figures

Figure 2 is showing the geographic distribution, noting that 69% of the studies (20 out of 29 mapped) come from Asia, specifically China and India. The map is visually helpful, but please ensure the color gradient legend matches the data perfectly. Also, the text notes that 10 studies were non-country-specific reviews, which explains the math (29 mapped + 10 global = 39 total). This is well documented.



Please indicate your recommendation by checking the appropriate box below.

<u>Decision</u>	
	Accept the manuscript for publication.
/	Reconsider the manuscript after the authors have satisfactorily addressed and complied with the reviewers' comments and recommendations.
	Reject the manuscript, as it is not suitable for publication.

SECOND ROUND

<u>Decision</u>	<u>Editor</u>	<u>Reviewer 1</u>	<u>Reviewer 2</u>
Accept the manuscript for publication.	/	/	/
Reconsider the manuscript after the authors have satisfactorily addressed and complied with the reviewers' comments and recommendations.			
Reject the manuscript, as it is not suitable for publication.			