Review of: "IoT Noise And Air Quality Observation System"

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Potential competing interests: No potential competing interests to declare.

Dear Afiq Daniel Bin Azmi Faried and Samshul Munir,

Thank you for sharing your scientific paper with the title "IoT Noise and Air Quality Observation System." Based on my own analysis of the technical content disseminated, I believe that in order to increase the technical depth and the general impact of your scientific work, I can formulate some suggestions for improvement, which I hope you will find useful and constructive. By implementing these suggested changes, the coherence and interest of the paper for readers of prestigious scientific journals can be increased.

Thus, changes like the following would be useful to the following aspects/points in the present work:

Thus, changes like the following would be useful to the following aspects/points in the present work:

1. Extended introduction

Background and rationale:

- Clearly explain the importance of monitoring noise and air quality in different environments such as hospitals and factories.
- Detail how changes in air quality and noise levels directly and indirectly affect human health and safety.

2. Advanced methodology

Detection and identification of gases:

- Integrate advanced signal filtering algorithms to distinguish between different types of noise and gas.
- Deploy machine learning algorithms to train sensors to recognize specific patterns of hazardous gas leaks.

3. Detailed Experimental Section

Design comprehensive experiments:

- Detail protocols for data collection, including test conditions and equipment setup.

  Run multiple test cycles to gather a robust data set.

Data analysis:

- Use diagrams and tables to present experimental results.

  Analyze collected data to determine alarm thresholds and validate system accuracy.

4. Technical System Improvements

Sensor integration and calibration:

- Specify the methods used to calibrate gas and noise sensors.

Explain how you ensured the accuracy and consistency of the sensor readings.

Hardware Optimization:

- Provide detailed descriptions of the initial hardware implementation and how the issues were resolved.

  Present future improvement plans, such as using original components, as mentioned in the future plans section.

5. Case Study and Applicability

Case Study:

- Include a case study that demonstrates the practical use of your system in a specific environment, such as a hospital or factory.

  Document how the system helped prevent a potential incident or enabled continuous monitoring.

6. Reporting and Viewing Information

Monitoring and alerting:

- Develop details of how detected information is reported and used. Integrate real-time notifications and alarms.
- Enhance the Blynk interface to include various types of alerts and custom views for users.

Example to add value to this paper for **Gas filtration and identification** in **Python** :

```
# Example of using machine learning to identify toxic gases
import numpy as np
from sklearn.ensemble import RandomForestClassifier

# Synthetic training data
X_train = np.array([[300, 1], [400, 2], [1000, 3], [1100, 4]]) # [gas concentration, sensor value]
y_train = np.array([0, 0, 1, 1]) # 0: safe gas, 1: toxic gas

clf = RandomForestClassifier()
clf.fit(X_train, y_train)

# Testing
X_test = np.array([[350, 1.5], [1050, 3.5]])
predictions = clf.predict(X_test)
```

Data presentation:

reduction

Gas concentration (ppm)	Gas detected	Status
< 500	None	Sure
> 500	Gas leaks	Alert

Implementing these suggestions will help you enhance the robustness and appeal of your scientific paper, making it more

compelling for scientific review and publication.

Best regards,

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