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

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a. General comments:

1. A lot of grammatical errors. Please use a grammar checking software.

2. A lack of citations makes it difficult to verify a lot of claims the authors are making. Please do a bit more literature search about noise and air quality sensors in hospitals and add those citations.

3. The paper has too much redundancy. The same things (such as the role of the buzzer, etc.) are said multiple times in various sections. Please reduce the redundancy.

4. There is no real results section. The results are basically the conditions defined by the authors. Please test your device beyond the simulation and have a results section.

5. There are many big claims in the paper (such as "detect any leak gas"). It is not very scientific to make claims like that.

6. I am not sure if sound and gas leaks make a hospital dangerous. Please remove/replace with something more appropriate. Are you focusing on any specific gases? Think about the limitations of your current hardware.

7. Avoid using words like I, us, we, etc., in the paper. Please use sentences like "the project is focused on."

8. Are noise and air pollution even problems in a hospital setting? Please cite some works to back it.

b. Specific comments:

1. "It will send the information on the Blink application". It is too narrow for the abstract. A reader doesn't know what the Blink application is. Please use a bit more generalized term such as "smartphone application".

2. "It is essential to use it in dangerous places like hospitals". I am not sure if sound and gas leaks make a hospital dangerous. Please remove/replace with something more appropriate. More generally, I am still not convinced that a hospital has high air pollution when compared with many other conditions such as construction or manufacturing. Are there any other IOT devices that are proposed for a hospital setting? A quick google search gives me these:

https://www.mdpi.com/2224-2708/8/1/2

https://ieeexplore.ieee.org/document/9765098

https://iopscience.iop.org/article/10.1088/1757-899X/881/1/012113/meta

3. Please add your major findings in the abstract to make it easier for a reader to figure out if this is the paper they should be reading in detail.

4. "The sound sensor will pick up the sound and determine whether to go beyond its limit rate or not". A sensor can't make this decision. As the name suggests, it can sense a specific thing it is designed for. More generally, you have mentioned

the same thing many times. Please correct it in the entire paper.

5. "When the gas sensor detects more gas than it can handle, a buzzer will instantly turn on". This is wrong. It is not like a far where fluid is filled. When you detect ppm above a certain threshold then you can perform an action. This is defined by the Arduino and not by your sensor. By definition, the sensor only senses.

6. "The buzzer and smartphone help the security on that hospital to be more alert with any condition that happens in the hospital". A very big claim. Your device only helps with 2 situations. Please make narrower claims.

7. "It is because in the hospital there are different types of gas that are used". What different types of gases are used? How effective is your sensor in detecting these specific types of gases.

8. "The objectives of IoT Noise & Air Quality Observation are to analyze the level of noise in dangerous areas and large corporations". No experiments were done for dangerous areas or corporations, so this is not covered in the paper. Please remove it.

9. "To construct this project, precise and accurate coding is necessary so that the expected result can be produced". If code is not accurate, then how is it even useful? Statements like this are redundant. Please remove it.

10. "Theoretical Background". The title is wrong. This section talks about the components you used and not about the theoretical background.

11. Citations for all the components you used are missing. Please refer to their original white paper or technical reports so that readers can easily access info about these components.

12. "The hardware involved is discussed as follows:" but you are mentioning Tinkercad, which is a software. Please correct it.

13. Give the full form of acronyms which are not typically used in everyday life before mentioning those (such as GPIO).

14. "understand the coding, and produce the expected output. A buzzer that will sound when any gas is detected and shows that information on Blynk". The picture above shows none of it. Please remove this text.

15. "The gas sensor has been set if the gas sensor detects any leak gas more than 500ppm it will send the data to the Arduino". This line gives a false illusion that the gas sensor can be tuned for PPMs other than 500. I don't know what device you used before; there is no citation. It is hard to give any feedback without a proper citation.

16. "So, it will generate the buzzer to make a sound and display the information on Blynk". The gas sensor doesn't generate the buzzer or display the info; it only senses and sends a signal.

17. "The LCD will display "NOISE" when the sound sensor detects sound that exceeds the maximum sound rate". What is a sound rate? Do you mean the amplitude or frequency of the sound? Please clarify.

18. "The buzzer is a device that produces sound by converting audio signals into sound signals". Wrong: the buzzer converts electricity to sounds. Please correct it.

19. "Furthermore, this IoT noise and air quality observation system can detect the sound sensor". It can't detect the sound sensor. It can detect sound.

20. "This is to ensure that to ensure that areas such as hospitals are not disturbed by noise disturbances by visitors present". Are you isolating visitors' noise from all other noise sources in the hospital? If not, this claim is not correct.

21. "The smartphone in this project also aids in displaying all of the local weather conditions". How is it relevant for the

current project?

22. "This is because the Arduino UNO R3 is used to process all project development, which requires analyzing every programming to ensure the intended output is produced. This IoT noise and air quality observation system produces a buzzer sound and displays the condition of a room on a smartphone that can help the security guard to act quickly if there is any problem in that room. In this project, a sound sensor is used to pick up noise, and a gas sensor is utilized to pick up any gas leaks". Redundant.

23. "For instance, if the sound sensor detects any noise sound, the smartphone or in the simulation LCD will display "GAS DETECT" when the gas sensor detects any leak gas.
Otherwise, it also will display "NOISE" when detects any noisy sound. Other than that, the buzzer in this project to warn people in the area when detect any leaks gas so that they can act early". Redundant.

24. "For the simulation of this project, an ultrasonic distance sensor was used to replace the sound sensor. The ultrasonic distance sensor has been set to 60 cm as the maximum distance. When the area detected by the ultrasonic distance sensor is less than 60 cm, it will show the area is noisy. The LCD will then show "NOISE" after the sound sensor has sent a signal to the Arduino UNO R3. When the distance is more than 60cm (slow sound), it's shown that the area is not in noise sound. The LCD will display "QUIET". Moreover, this IoT noise and air quality observation system an able to detect leaks gas by using the gas sensor. When the gas sensor detects any leaked gas that has exceeded the maximum rate of gas, which is 500 ppm, a buzzer will automatically turn on. After that, the LCD will display
"GAS DETECTED". When the gas sensor is not able to detect any gas, a buzzer will turn off, while the LCD will not display anything, but it will display the original word which is "QUIET". The function of the buzzer is to inform them, for example, security guards, that the area is not in a safety situation. Otherwise, it also will inform the security guard that the area is in noisy". Spelling mistakes and redundant.

25. "Problem Encountered and Solutions". A research paper is not about the experience of the user. Either remove this section or explain what technical challenges arose when you used your device in the hospital.

26. "Figure 4.3 shows the complete circuit of the IoT Noise and Air Quality Observation System. Tinkercad was the software used for the simulation test results because it makes the circuit easier to comprehend and modify by putting coding inside the project. Otherwise, it is free and enables you to design a circuit online without having to download any software. As shown in figure 4.3, the LCD will display "NOISE" if the sound distance is less than 60 cm. The LCD will show "QUIET" if the sound distance is greater than 60 cm, as shown in figure 4.4. Additionally, as shown in figure 4.5, the LCD displays "GAS DETECTED" along with the buzzer activates when the gas sensor detects any leaks of gas in the region that are greater than 500ppm." Redundant.

27. Table 4.1 and Table 4.2 are not the results but the thresholds defined by the authors.

28. I don't see any value in adding figures 2.1 to 2.8. These are simply pictures of some products and can be easily found with a Google search. Alternatively, please cite the resources properly.

29. The citations are too few and in a bad format. Please follow some defined guidelines such as APA for the citations.