A Study on Smart Energy Saving Sonic (SESS) Disinfection Filtration Technology

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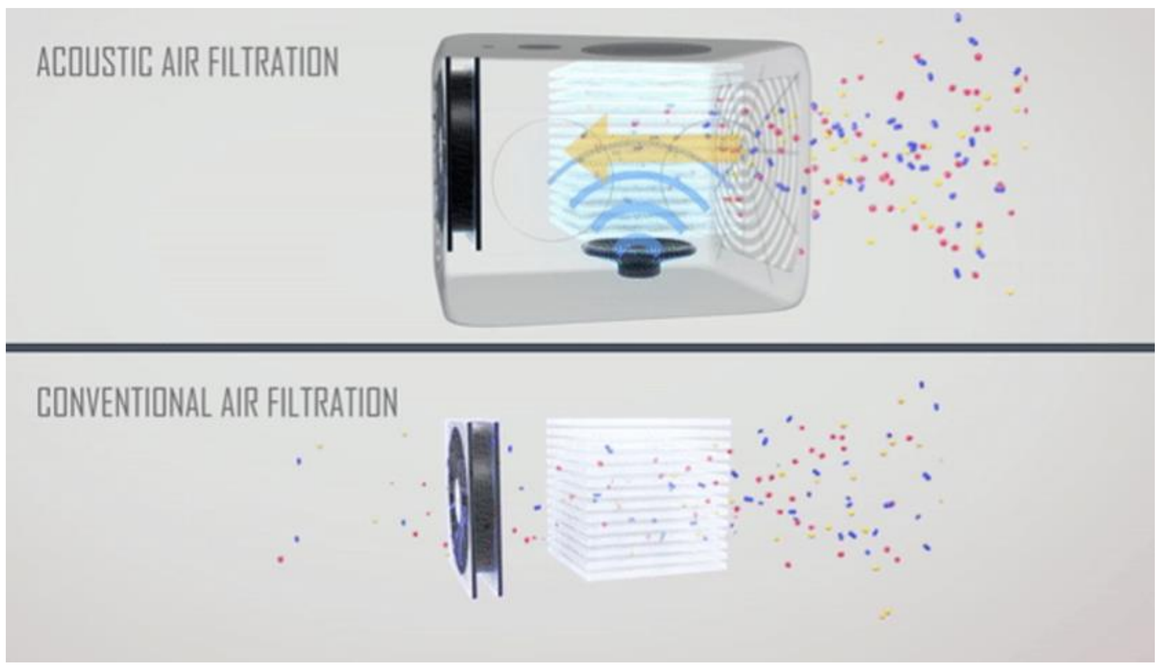
Background information

As cities grow, energy demand also rises. Martin Freer, the director of the Energy Research Accelerator (ERA), estimated world energy consumption to increase by nearly 50% by 2040 due to the air conditioning need. It can be seen that air-conditioning also accounts for a lot of energy consumption.



Methodology

In this project, the data of frequency, average power, and average flow speed will be recorded to compare the 3 methods, which is the existing pre-filter & bag filter, installed SESS technology, and off-sonic. Moreover, adjusting the power to maintain the same power to measure the airflow, and adjusting the airflow to maintain the same airflow to measure the power will be appropriate.

Conclusion

While sonic filters have a higher initial cost compared to traditional AHU filters, the potential energy savings and extended lifespan of the filter can make them a cost-effective choice in the long term. As energy efficiency and sustainability continue to be important considerations for building owners and operators, the trend towards the use of sonic filters is likely to continue.

Objectives

The objective of the research is to investigate the energy consumption implication and filtration performance of this SESS technology using the case study of a commercial building in Hong Kong. Lastly, the improvement of this innovative technology will be also suggested.

Findings

After comparing the power and airflow, the flow rate-power graph showed the performance of the SESS technology is higher than the traditional air filter. Using less energy can increase airflow, which can decrease the building energy consumption.