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Performance evaluation of portable air quality measurement system using raspberry Pi for remote monitoring (Article) [\(Open Access\)](#)

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Abstract

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United Nations' Sustainable Development Goals focuses on good health and well-being for all. Air pollution becomes a huge threat to delivering on the vision of a better world and related at least to Goal 3, 7, 11, and 13. In Malaysia, air pollution index were monitored on 68 locations. The Department of Environment monitors air quality using costly continuous air quality monitoring stations (CAQMs) installed at fixed locations of highly populated and industrial areas. The objective of this paper is to develop a portable air quality measurement system which can measure particulate matters (PM) smaller than 10 and 2.5 microns, and four hazardous gasses, including carbon monoxide, sulphur dioxide, ground level ozone and nitrogen dioxide, as well as humidity and temperature. Six sensors were used and validated using several rigorous experiments. The functionality of the system was evaluated by measuring sub-API readings in areas with low and high traffic volumes. Experimental results showed that the proposed system was highly responsive and able to detect the types and concentrations of air pollutants instantly. Furthermore, equipped with the mobile internet, geo-tagged GPS location and web server on Raspberry Pi, the developed portable system could be accessed remotely. Copyright © 2020 Institute of Advanced Engineering and Science. All rights reserved.

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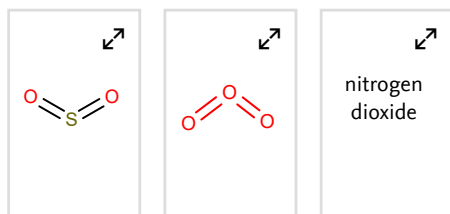
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- ☐ 1 Akhtar, R., Palagiano, C.
Climate Change and Air Pollution: An Introduction
(2018) *Springer Climate*, pp. 3-8. Cited 2 times.
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doi: 10.1007/978-3-319-61346-8_1
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- ☐ 2 Brunekreef, B., Holgate, S.T.
Air pollution and health
(2002) *Lancet*, 360 (9341), pp. 1233-1242. Cited 2307 times.
<http://www.journals.elsevier.com/the-lancet/>
doi: 10.1016/S0140-6736(02)11274-8
[View at Publisher](#)

- ☐ 3 Rohde, R.A., Muller, R.A.
Air pollution in China: Mapping of concentrations and sources [\(Open Access\)](#)
(2015) *PLoS ONE*, 10 (8), art. no. 0135749. Cited 302 times.
<http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0135749&representation=PDF>
doi: 10.1371/journal.pone.0135749
[View at Publisher](#)

- ☐ 4 Seinfeld, J.H., Pandis, S.N.
(2016) *Atmospheric Chemistry and Physics: From Air Pollution to Climate Change*. Cited 13048 times.
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