

## Vapor Measurement System of Essential Oil Based on MOS Gas Sensors Driven with Advanced Temperature Modulation Technique

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| <b>First Author</b> | Sudarmaji, A.; Margiwiyatno, A.; Ediati, R.; Mustofa, A.;  |
| <b>Last Author</b>  |  |
| <b>Authors</b>      | Sudarmaji, A; Margiwiyatno, A; Ediati, R; Mustofa, A;  |
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| <b>Abstract</b>     | <p>The aroma/vapor of essential oils is complex compound which depends on the content of the gases and volatiles generated from essential oil. This paper describes a design of quick, simple, and low-cost static measurement system to acquire vapor profile of essential oil. The gases and volatiles are captured in a chamber by means of 9 MOS gas sensors which driven with advance temperature modulation technique. A PSoC CY8C28445-24PVXI based-interface unit is built to generate the modulation signal and acquire all sensor output into computer wirelessly via radio frequency serial communication using Digi International Inc., XBee (IEEE 802.15.4) through developed software under Visual. Net. The system was tested to measure 2 kinds of essential oil (Patchouli and Clove Oils) in 4 temperature modulations (without, 0.25 Hz, 1 Hz, and 4 Hz). A cycle measurement consists of reference and sample measurement sequentially which is set during 2 minutes in every 1 second respectively. It is found that the suitable modulation is 0,25Hz; 75%, and the results of Principle Component Analysis show that the system is able to distinguish clearly between Patchouli Oil and Clove Oil.</p> |
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| <b>Author</b>       | ARIEF SUDARMAJI  |