

## A compact and low cost electronic nose for aroma detection (2013)

Título: A Compact and Low Cost Electronic Nose for Aroma Detection Autores: Miguel Macías, J. Enrique Agudo, Antonio García-Manso, Carlos J. García-Orellana, Horacio M. González-Velasco and Ramón Gallardo-Caballero Revista: Sensors Vol./Pag.: 13(5), 5528-5541 Ed./Año: MDPI, 2013 DOI: 10.3390/s130505528 ISSN: 1424-8220 Abstract:

This article explains the development of a prototype of a portable and a very low-cost electronic nose based on an mbed microcontroller. Mbeds are a series of ARM microcontroller development boards designed for fast, flexible and rapid prototyping. The electronic nose is comprised of an mbed, an LCD display, two small pumps, two electro-valves and a sensor chamber with four TGS Figaro gas sensors. The performance of the electronic nose has been tested by measuring the ethanol content of wine synthetic matrices and special attention has been paid to the reproducibility and repeatability of the measurements taken on different days. Results show that the electronic nose with a neural network classifier is able to discriminate wine samples with 10, 12 and 14% V/V alcohol content with a classification error of less than 1%.

Keywords: electronic nose; microcontroller; neural network