# CREATING MAPS OF VOC ODORS IN URBAN AREAS BY CYCLING WITH A PORTABLE E-NOSE

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This poster describes an application for monitoring volatile organic compounds (VOCs) in urban areas, likely coming from residential waste or the public sewage system. The objective is to obtain a spatial and temporal representation of such odors by means of a gas distribution map, from which valuable information such as the location, or the time-intervals of maximum strength of the nuisance odors can be inferred. The necessary data: chemical, temporal and spatial; is provided by a GPS and a specific e-nose[1] accommodating eight metal oxide (MOX) gas sensors, both mounted on a bicycle.

The results of a monitoring campaign carried out in a town in southern Spain are presented. The campaign comprises nine measurement runs distributed along three consecutive days, with a total path of more than 90Km. Fig.1 shows an illustrative example of the data collected during this process, and the generated geo-referenced gas distribution maps. As can be appreciated, the chemical, temporal and spatial data are successfully merged to obtain representative information about the presence of VOCs in the urban area. A deeper analysis comprising the study of the areas showing the higher VOCs concentration, as well as the temporal variability among the different days and hours within the day are also provided.
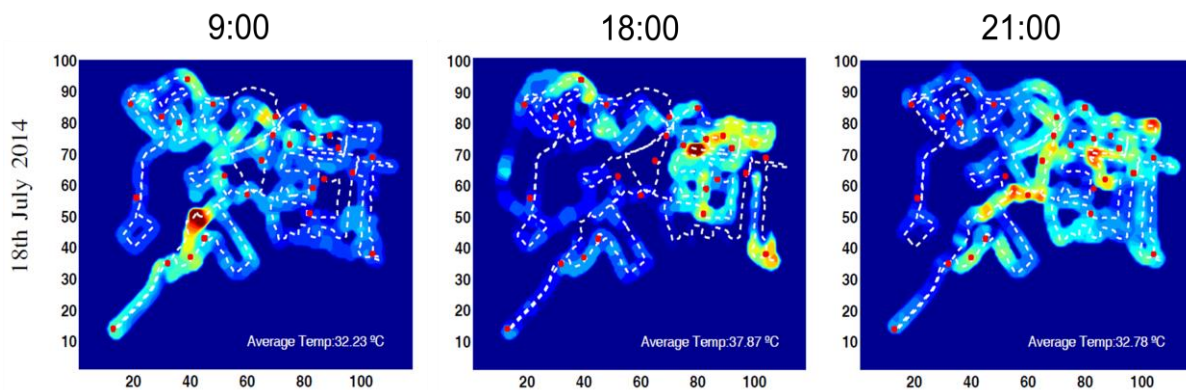


**Fig. 1:** Gas distribution maps of the VOCs measured at three different hours of the first monitored day. The white dashed line depicts the path followed with the bicycle (10 km.); red points represent the location of waste containers, while a jet color scale is used to represent the VOCs concentration.

[1][1]C. Sanchez-Garrido, J.G. Monroy, J. Gonzalez-Jimenez, *A Configurable Smart E-Nose For Spatio-Temporal Olfactory Analysis,* IEEE Sensors, 2014.