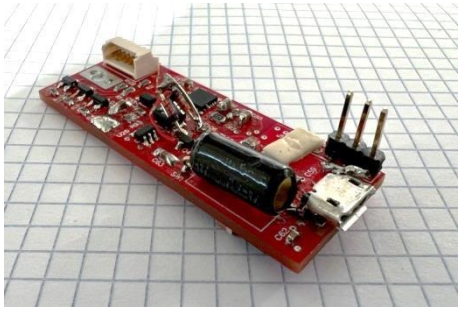
New project on sensors SensAeroGraph

News

A new project named SensAeroGraph is going on in ENVINT. In collaboration with the University of Tor Vergata and within the initiative of Lazio Region on the Regional Program POR, ENVINT is developing a new sensor intended for the measurements of air pollution in aerospace environment. The new sensor is based upon the use of membranes prepared with Graphene and Porphyrines which are specifically functionalised to detect pollutant species through electrochemical interactions. The sensor is filling an important gap in air pollution monitoring as it is very suitable for applications in IoT (Internet of Things) and in popular monitoring.

A new project on sensors (SensAeroGraph)

This project is specifically addressed to the development of a new sensor for the monitoring of atmospheric pollution by using sensing membrane based on Graphene functionalised according to the species to be monitored. The aim of the project is the use of these sensors in aerospace environment. The sensor is going to be patented, so more information will be provided after the patent procedure. At the moment, the sensor has been fully developed and measurements for its characterisation is going on.



Layout of the electronic circuit of the new sensor

This project is carried out within the Operative Regional Project of Lazio Region, it is then financed by European Community and promoted by LazioInnova. The main feature of the sensor consists on its flexibility since it can be adapted to several pollutants. The sensor is also ready for the implementation in the IoT (Internet of Things) applications for monitoring networks where information from several sources are sought. In addition, it may be adapted to the new trend in pollution monitoring named “popular monitoring”, in which individual people are able to measure exposure to air pollution by simple and low cost personal devices. At the present the sensor is aimed to the measurement of Nitrogen Dioxide, an important atmospheric pollutants which is affecting several urban locations in Italy where the standard and limits set by the European Community are often exceeded. In addition, the sensor is expected to be fully used for the protection of cultural heritage in museums, monuments and historical buildings where air pollution is responsible of serious and irreversible damages.

The project is carried out in cooperation with the Department of Chemistry at University of Tor Vergata in Rome and in collaboration with specialised companies for the development of electronic part of the sensor, including the transmission of data via Internet, and for its commercial development.