



## **As air quality becomes a global issue, the ESAIRQ project innovates new chip-based technologies for low-cost sensitive air quality sensors**

### ***A project within the EUREKA PENTA programme***

Paris, Thursday 12 September 2019 -With growing global awareness of air quality and its impact on human health, ESAIRQ (Environmental Sensors for Air Quality) is developing essential technologies for gas sensing. ESAIRQ is a project within the EUREKA PENTA Cluster, managed by Industry Association AENEAS, aimed at delivering selective, sensitive and reliable sensors at affordable cost for mass markets. New platforms for gas and fine-particle sensing have the potential for significant societal impact through a reduction in mortality rates and health-care costs in polluted environments. This is reflected in expansion of the market for environmental MEMS sensors. Reported to be worth USD 28 million in 2015, this market is expected to reach a value of USD 155 million by 2021, at a compound annual growth rate (CAGR) of 39%.<sup>1</sup>

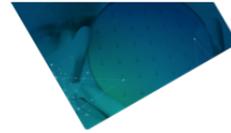
A better understanding of the health implications of air quality is also leading to stricter measurement and regulation. Buildings are particularly coming under the spotlight as improved insulation and limited air exchange with outside air can lead to build-ups of emissions of harmful volatile organic compounds (VOC) such as formaldehyde from furniture and interiors. ESAIRQ is developing miniaturised sensor technologies that will be key to sensor systems or sensor networks that monitor air quality and composition in such applications. The sensors could be embedded in basic infrastructure or in mobile devices, including as connected solutions. In addition, these technologies could be applied in other domains, for instance, medical environments and food safety to detect and identify air-borne pathogens.

Specifically, ESAIRQ is seeking to increase the selectivity of sensors to particle matter and to enhance detection of polluting organic and inorganic matter within gas mixtures. Research will focus strongly on miniaturisation and functional integration of components at chip-level to lower costs and energy consumption, while allowing for capabilities such as fine particle / fire detection and pathogen detection. The project will also apply semiconductor process technologies normally used for high volume, low cost manufacturing to deliver further cost and quality advantages.

The ESAIRQ consortium consists of twenty-six businesses and academic research organizations from six different EU countries. Their combined know-how will allow Europe to gain a strong position in the market for gas, fine-particle and pathogen-sensing technologies with potential to bring positive benefits for health, society and the environment. Several industry and SME partners have the approach to manufacture in Europe. Infineon targets the market of highly miniaturized sensors and will manufacture miniaturised sensors or components for sensor systems. Umweltsensortechnik GmbH is a successful medium sized enterprise with a development and production of ceramic sensor technology.

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<sup>1</sup> Yole development 2016- MEMS industry 2016



*UM sensor node  
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*About the PENTA programme (managed by the AENEAS Industrial Association)*

PENTA is a EUREKA cluster whose purpose is to catalyse research, development and innovation in areas of micro and nanoelectronics enabled systems and applications - where there is shared national and industrial interest. Based on the Electronic Components & Systems (ECS) Strategic Research Agenda (SRA) key areas and essential capabilities, PENTA programme contributes to the development of electronic solutions with the opportunity for rapid competitive exploitation and a strong impact on European societal challenges. The PENTA project team is supporting SMEs, large corporations, research organisations and universities by facilitating access to funding, fostering collaborative work and creating consortia.

PENTA is managed by AENEAS.

More on PENTA: <http://www.penta-eureka.eu>

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*About ESAIRQ*



ESAIRQ is a RD&I project consortium involving 26 partners from 6 countries. The project partners are: Infineon (project Leader), Afore Oy, AlphaSIP Aragón, Aryballe Technologies SA, Asygn SAS, CEA, EC-Sense GmbH, eesy-innovation GmbH, Fraunhofer ENAS, Gasera Ltd, Institut Mikroelektronických Aplikací S.R.O, InfraTec GmbH, mirSense SAS, Philips Electronics Nederland BV, Pegasor Oy, Philips Consumer Lifestyle B.V., Qmicro BV, Soitec, Stichting IMEC Nederland, Technische, Umweltsensortechnik GmbH, Universiteit Eindhoven, University of Regensburg, University of Malta, University of Twente, Vaisala Oy, VTT Technical Research Centre of Finland Ltd.

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More on ESAIRQ: <https://www.project-esairq.com/>