

“The home appliance market is extremely competitive. These innovative low cost, low power gas sensors could enable new features of strong value to the customer, which would differentiate us from other manufacturers, whilst remaining cost competitive and energy efficient.”

Natasha Conway,
R&D Manager, Beko
R&D Centre



The Organic Materials Innovation Centre (OMIC; www.omic.org.uk) at the University of Manchester has made very significant progress in the research and development of a low power, low cost gas sensor technology platform based on printable thin film transistor arrays. The team lead by Professors Michael Turner and Krishna Persaud have demonstrated that the printable gas sensor arrays can be used to detect and measure a wide range of molecules in the gas phase, often with limits of detection less than 10ppm.

Beko are collaborating with OMIC to explore how the novel gas sensor platform can be used in a range of home appliances to deliver smart innovative functionality.

Beko is one of Europe's leading home appliance brands and the best-selling large home appliance brand in the UK. Beko plc has an

Industry Interaction Case Study

iPESS

active research and development program that utilises the company's know-how and expertise together with major collaborations with UK companies and Research Institutions to develop innovative new products and differentiating features which respect the environment and provide strong customer value.

The team at OMIC have been working closely with Beko R&D to define the measurement challenge to be addressed and the collaborative research and development project to address this challenge in order to explore the best opportunities for developing the gas sensor technology to deliver innovation and benefit in home appliances. Significant progress has been made to demonstrate that the gas sensor technology can detect the molecules of interest under the relevant conditions. The project is now focused on fabricating a device that can be tested and developed within a Beko home appliance.

The collaboration has provided the OMIC team with a valuable insight into the hurdles that need to be overcome to translate a technology from the research laboratory into the application and development environment.

Through working with OMIC/UoM Beko have been able to rapidly evaluate the potential of their low power, low cost gas sensor platform, optimised for Beko's specific use case within home appliances.



With our industrial partner FlexEnable Ltd. we work on flexible complementary circuit integration.

Dr. Mike Banach, Technical Director of FlexEnable Ltd., said: "The iPESS project is addressing the key challenges to creating a commercially viable flexible CMOS technology. FlexEnable has been delighted to participate in the project."



With Eight 19 Ltd. we work on photovoltaic energy harvesting for smart sensor systems.

Dr. Christoph Sele, Production Manager at Eight 19 Ltd. commented: "Eight19 develops flexible organic photovoltaic (OPV) module products for a range of applications in indoor and outdoor environments. We are thrilled to be partnering with the iPESS project, showcasing the integration of organic and inorganic electronic components on a plastic film. Eight19's flexible OPV modules are ideally suited for providing autonomous power to applications where flexibility and robustness are key."