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Innovative molding process for greener tech

Creating injection-molded electronics in a way that gives developers real freedom in their designs and, even more urgently, is easier on the environment is a major challenge for the industry. The EU Horizon project MULTIMOLD has brought together researchers from Fraunhofer IZM and their international partners in the pursuit of a novel injection molding process that combines advanced electronic functionality with high environmental standards.

The contribution of Fraunhofer IZM to the project is focused on comprehensive lifecycle assessments to improve the sustainability of the manufacturing process. The researchers are analyzing the ecological impact of the choice of materials and the use of resources during production. Their aim is a manufacturing process that is not just more powerful, but also better for the environment.

Current technologies for creating in-mold electronics often struggle with maintaining the strict environmental requirements defined by modern standards. To address this, the MULTIMOLD project banks on innovative methods to make the resulting products easier to recycle and to reduce their ecological footprint. One key element of this is the development of new processes for separating and reusing the individual layers of the finished components. Molded parts are typically harder to recycle, because sensors embedded in the polymer are difficult to retrieve without damage. To make it easier to recoup and reuse such components when the product reaches the end of its working life, new and better technologies are needed for the bond between the layers, such as a special separation process developed at Fraunhofer IVV. Other manufacturing processes are being optimized to reduce emissions and energy needs and to comply with new EU guidelines for eco-design.

The proposed process is currently undergoing further development and optimization. The researchers are aiming for more sustainable production process that can live up to modern eco-efficiency standards without compromising on the performance of the electronics. Meaningful performance data is expected as work on the technology progresses.

The EU Horizon project 101138427 „Multi-functional In-Mold Electronics (MULTI-MOLD)“ is scheduled to run from 01 January 2024 to the end of 2027, with €5.76 million in funding support. The project is managed by Joanneum Research Forschungsgesellschaft mbH, with partners including R2M Solution SRL, the Interuniversitäir Micro-electronica Centrum, the Montanuniversitaet Leoben, Standex International SRL, Nanogate Central And Eastern Europe GmbH, Schneider Electric Industries SAS,

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Eologix Sensor Technology GmbH, SYXIS VSI, Fraunhofer IVV and Fraunhofer IZM and HTP High Tech Plastics GmbH.

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More about the project: <https://www.multimold.eu/>



A first demonstration for an automotive use case, showcasing recent advances in the development of sustainable and user-friendly human machine interfaces. © Nanogate Central and Eastern Europe GmbH | Print quality images: https://www.izm.fraunhofer.de/en/news_events/pics.html .

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