REACT-IME

Research and Development of an Advanced Electronic Armrest with Touch Capability and Lighting through In-Mold Electronics

AEI-010500-2025-165

Pieza convencional

Despiece de electrónica y componentes de pieza de consola de iluminación de techo de vehículo

Currently, electronic interfaces in the automotive sector (button panels, control modules, lighting units, etc.) are composed of multiple mechanical components, rigid circuit boards, and extensive wiring, all installed behind decorative plastic parts.

This traditional approach presents limitations in terms of space, weight, cost, design, energy consumption, and sustainability.

Pieza IME

Planteamiento de pieza IME con electrónica embebida para consola de iluminación en cabina.

In parallel, In-Mold Electronics (IME) has emerged as a promising solution that enables the integration of printed electronic circuits and components into plastic parts through functional printing, thermoforming, and injection processes.

Consorcio:

Project supported by the Ministry of Industry and Tourism through the 2025 program for Innovative Business Groups, aimed at improving the competitiveness of small and medium-sized enterprises.

REACT-IME

Specific objectives:

- **Develop new components** using IME technology, achieving substantial improvements in technical functionalities such as controlling the movement of interior and exterior vehicle elements, regulating heating and audio, providing haptic feedback, or integrating lighting.
- **Reduce the weight of mechanical components** associated with button panels or mechanical systems by up to 70%, and eliminate post-processing operations by integrating them directly into the current automated injection process combined with IME technology.
- **Achieve highly complex 3D structures with integrated electronics, without mechanical limitations,** enabling a modern and sustainable user experience while reducing conceptual design complexity.
- **Reduce wiring volumes** through the use of conductive inks.
- **Optimize IME process parameters** and automate the mechanisms for integrating flexible electronics into the injection mold using a robotic arm.
- Transfer IME technologies and processes to the automotive sector in Spain. Currently, international research on In-Mold Electronics is ongoing; it is an emerging technology in its early stages, with no production parts yet available.

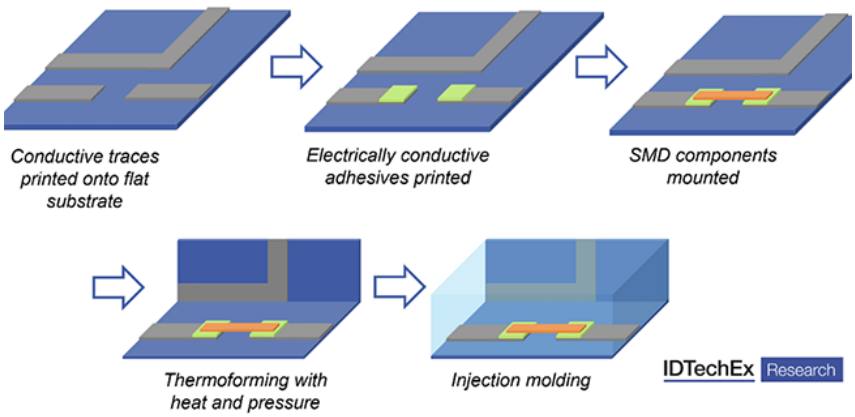

Imagen - Esquema proceso IME (Fuente: IDTECHEX)

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