Plastronics@Eurecat: technical development from design to industrial upscaling
We help companies discover new opportunities and participate in creating and improving products, services, processes and business models with an impact on their competitiveness and social wellbeing.
Integration of multiple technologies

1. Advanced materials (metallics, composites, polymers) and new manufacturing processes
2. Functional printing and embedded devices
3. Interactive and autonomous robotics
4. Functional textiles
5. Chemical Technology
6. Innovation and product development

Industry

1. Sensor systems and IoT
2. Artificial intelligence
3. Big Data & Data Science
4. E-Health
5. Cybersecurity
6. Multimedia technologies

Digital

1. Nutrition and health
2. Omic sciences

Biotechnology

1. Water
2. Air
3. Soil
4. Waste
5. Energy
6. Batteries
7. Environmental impact

Sustainability

Our differential value:

Our multi-technological capacities allow us to face complex challenges.

Enric Fontdecaba, PhD.
Director of the Polymeric Materials and Processes Unit
Eurecat
Together with companies, we create and/or improve products, services and processes, from coming up with an idea to industrializing it.

**Applied research and technological development**
- R&D&I units set up with the company
- R&D projects
- Minimum viable product

**Advanced technology services**
- Science and technology diagnostics
- Audits
- Trials and analyses
- Concept testing
- Certifications

**Technology Consultancy**
- Innovation strategy and management
- Technological monitoring
- Trend analysis and viability studies
- Project management and financing

**Specialized training**
- Masters and postgraduate courses
- Customized corporate training
- Ongoing training
- Job training

**Value building**
- Protection and transfer of industrial and intellectual property
- Evaluation and support in building value from technological assets
- Advice and participation in the creation of technology based companies
- Due diligence of technological assets

**Dissemination of knowledge**
- Promotion actions
- Dissemination and transfer of knowledge actions

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What is IME?
Advantages

- Hibridized Multilayer
- 3D complex pass through
- 3D simple
- Flat surfaces

Plastronics: New Generation of Design and Connectivity in Vehicles
Plastic - Electronics Integration Technologies

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IME
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Plastronic equipments

Cleanroom I

- Printed Electronics
- Hybridization

Cleanroom II

- Thermoforming
- Injection

Printing

- Pick & Place
- Thermoforming

- Plastic Moulding
- LSR Moulding

- Illig 100 ua
- Up to 800x800 wide film

- 160 Tn Clamping force
- 3 K materials
- 6 Axis robot available

- 50 Tn Clamping force
Why Plastronics?
Plastronics: New Generation of Design and Connectivity in Vehicles

Plastronic advantages

• Easy assembly processes.
• Integration of electronics into complex 3D shapes.
• Design products with new shapes and functionalities.
• Thickness reduction (up to 80%).
• Weight reduction in (up to 60% lighter).
• Complexity reduction.
• Increased functionality.
• More durable electronics (embedded/protected).
Plastronics: New Generation of Design and Connectivity in Vehicles

Plastronic advantages

- Lightweight Electronics
- Reduced Assembly Time
- Reduced Cost
- Designing Freedom

• 3 pieces + 1 pcb
• 0.28 cm
• 56 gr

• 25 pieces + 5 pcbs + 22 screws
• 3.7 cm
• 298 gr
What we do
Applications
Automotive

Plastronics: New Generation of Design and Connectivity in Vehicles

Plastronics Applications Developed

Printed heaters. Comfort zone

Lighting integration for signalling and ambient with touch switches

Multi-touch panel sensor

Curved display

Ambient sensor

Proximity sensors

Printed wires
Complete solution

**Design:**
- What is possible?
- In which materials?
- How tooling must be done?

**Screen Printing:**
- Tooling design
- Material selection
- Process optimization.

**Hybridization:**
- Electronic Component Selection
- Conductive Adhesives
- Process optimization

**Thermoforming:**
- Tooling Design
- Process optimization

**Moulding:**
- Tooling design
- Handling procedures
- Process optimization

**Electronic Control:**
- Electronic Design
- Prototypes manufacturing
- Programming
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Plastronics Applications Developed

Lighting

Electroluminiscent

Top Leds

Side Leds

RGB Leds
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Plastronics Applications Developed

**Sensors**

- Resistive Touch pad sensor
- Capacitive touch pad sensor
- Multitouch
- Slider sensor

Paul Lacharmoise, PhD.
Director of the Functional Printing and Embedded Devices Unit
Eurecat
Plastronics: New Generation of Design and Connectivity in Vehicles

Plastronics Materials

- PC
- PMMA
- ABS
- TPU
- PVC
- Silicone

Films & Resins

- Conductive
- Dielectric
- Barrier layers
- Decoration
- Adhesion primer

Inks

Electronic components

- LEDs
- Sensors
- Antennas
- Chips
- Connectors

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Challenges
**Plastrónica: Usos y aplicaciones para la industria**

**Thin-film processes**

**Printing**
- Ink stretching
- Adhesion
- Interlayer ink compatibility
- Resolution
- Register

**Flexible SMT**
- SMD geometry limitations
- Low T soldering
- Density of components
- Connectors

**Lack of design rules**
Adapting In Mold Decoration IML or Film Insert Molding FIM for IME

**IML**
- Ink - Resin interaction
- Handling of inserts
- Gate design
- Material Selection
- Injection parameters

**FIM**
- Limits of thermoforming
- Changes in conductivity
- Handling of inserts
- Gate design
- Injection parameters
Sustainability

80% of resin recovered
100% of silver recovered

Recycling

Original part

Mechanical separation

Chemical separation of metals
Thank you!

“innovating for business”