Industrial Cases

SWAROVSKI

Smart, Interactive, Decorative Surfaces that Respond to the User and Environment

Features:

- Environmental sensing
- Touch sensing
- Wireless communication
- Flexible backlighting

Functional Automotive Dashboard for a Sleek, Smart User Experience

MAIER

Features:

- Touch sensing
- Inlayed lighting
- Compatible with current construction methods
- Compatible with curved surfaces

grafietic identificación y sistemas

Intelligent Labels for Product Tracking and Quality Assurance

Features:

- Temperature & humidity sensing
- Anti-counterfeiting
- Wireless communication

Structural Monitoring of a Production Line Under Extreme Conditions

acciona Construction

Features:

- Temperature and vibration sensing
- Wireless communications
- Long lifetime under harsh conditions
- Seamless integration into existing processes

Partners

DANISH TECHNOLOGICAL INSTITUTE

cpi

RESEARCH CENTER ITENE

RISE

TNO

TU/e

Fraunhofer

cea

AXIA INNOVATION

VSparticle

tpu

Sustainable INNOVATIONS

SD Partners

We are looking for industrial stakeholders to join our community and be among the first to exploit the LEE-BED concept.

Let us help you connect to the future.

www.lee-bed.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 814485

LEE BED

Open Innovation Test Bed for development and production of nanomaterials for lightweight embedded electronics

Bring your ideas and concepts to market using lightweight, flexible, printed electronics, leveraging expertise from European research and technology organizations (RTOs) and industry partners.

Join the LEE-BED community today

www.lee-bed.eu

lee-bed@teknologisk.dk

About LEE-BED

LEE-BED lowers the barrier for developing or integrating products with lightweight flexible electronic components. We help bring products to market with business consulting and technical services provided by leaders across Europe. With LEE-BED you don't need to be an expert in printing or electronics to bring your ideas to life.

Enter the process through our website (www.lee-bed.eu) if you need business or technical development assistance with:
Developing a new product with electronic components Integrating electronic components, sensors or wireless communication into an existing product.

Why Printed Electronics?

Printed electronics differ from traditional electronics because they:

- *Are lighter*
- *Can be put on flexible substrates allowing for seamless integration into a product*
- *Require less material*
- *Have a decreased production cost*
- *Have a lower environmental impact*
- *Can be designed and produced locally in Europe*

Industrialization through Three Iterative Phases

Phase 1
Technological and Economic Modeling

- *Technical Assessment*
- *Safety and Regulatory Assessment*
- *Economic Assessment*
- *Life Cycle Assessment*
- *Patent Mapping*
- *Financial Support for Pilot Projects*

Phase 2
Pilot Project

- *Nanomaterial Pilot lines*
- *Formulation Pilot lines*
- *Printing and Assembly Pilot lines*

Phase 3
Knowledge Transfer Towards Operational Scale

- *IPR & Patent Services*
- *Standardisation and Safety Services*
- *Business Planning Services*
- *Investor Capital Services*

LEE-BED Technical Capabilities

For each printed electronic product, technical development needs to be done on the conductive tracks (nanomaterials), inks (formulation) and printed components (antennas to enable communication, sensors, etc.).

Nanomaterial Pilot lines

- *High throughput development*
- *Gas phase material screening*
- *Batch and flow pilot lines*

Formulations and adhesives will change for every material we print on and each printing method we use. Components will need to be attached using nanoadhesives, which work like solder on flexible substrates that can't tolerate high temperature.

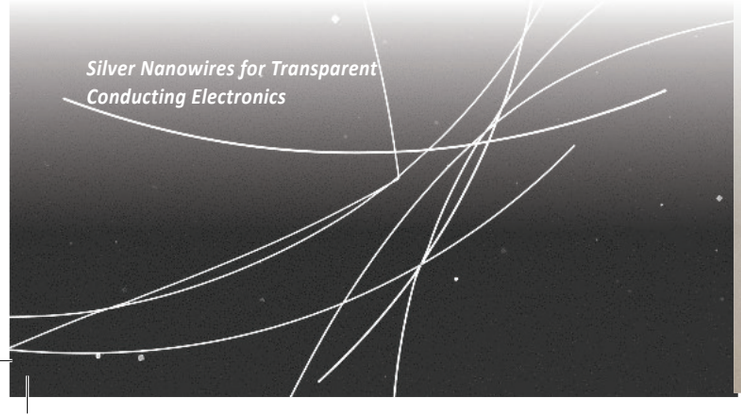
Formulation Pilot lines

- *High throughput screening*
- *Nano ink, adhesive and composite pilot lines*

LEE-BED's printing and assembly pilot lines enable large scale production with Roll-2-Roll printing and mechanical surface mounting of components (chips, LEDs, sensors, etc.). LEE-BED also has pilot lines for electronics embedded in a product with multi material 3D-printing.

Printing and Assembly Pilot lines

- *Roll-2-Roll digital ink-jet printing pilot lines*
- *3D multi-material printing pilot line*
- *Roll-2-Roll surface mount device pilot line*
- *Smart packaging pilot lines*



Silver Nanowires for Transparent Conducting Electronics

Copper Nanoparticle Ink

Near Field Communication Antenna on a Flexible Substrate