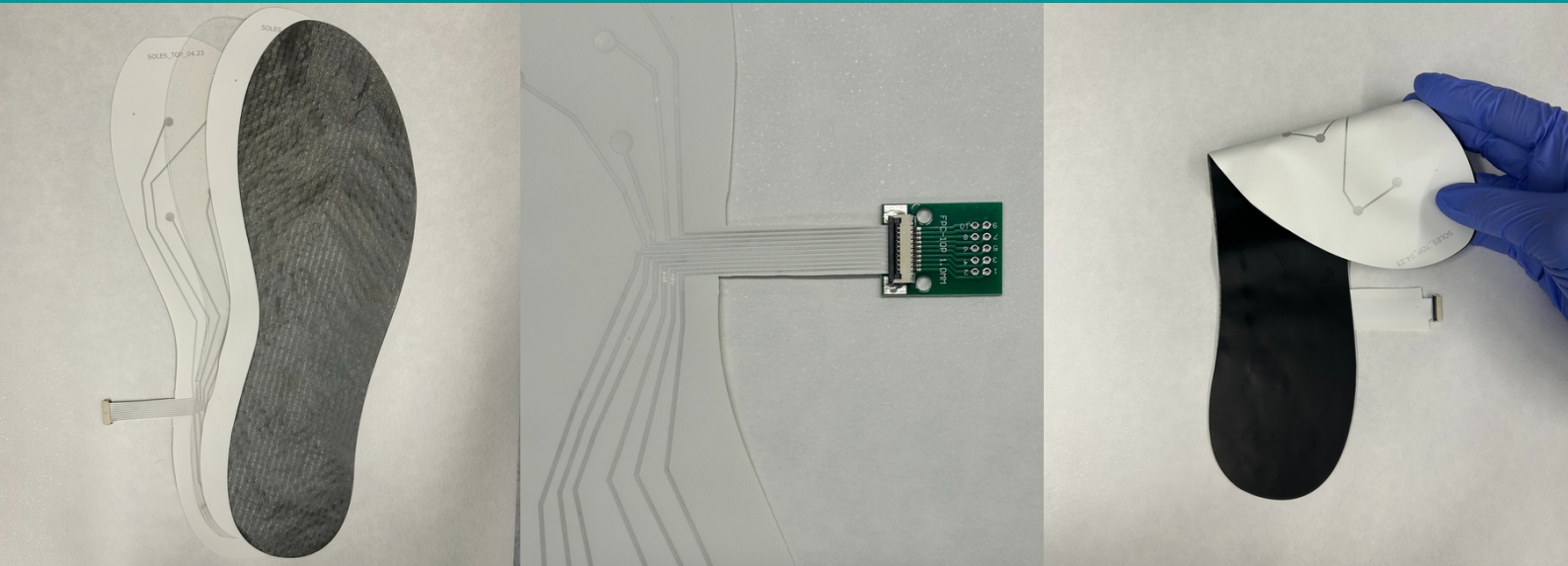




SOLES: A new era of electronics at your feet

The revolution in flexible, printed smart sole sensors for pressure monitoring

The innovative SOLE sensor (SOLES) array is designed for pressure monitoring in personalized healthcare and rehabilitation. These sensors can be produced in any shape or size, over large areas and together with interconnections, providing great design-flexibility. This allows for seamless integration into different products from medical wearables to large-scale industrial machinery.

Our inlays are manufactured using **additive manufacturing technologies**, which allow direct printing onto substrates. These sensors can be integrated with other printed electronic elements (e.g. circuits and antennas) to create more complex sensor systems within a single, streamlined unit.

This technology, embedded in smart footwear or specialized insoles, is pivotal for various medical applications. It helps diagnose and treat mobility issues by providing data on foot placement, weight distribution, stride length and walking symmetry, which is valuable data for physical therapists, orthopedists and sports medicine professionals.

Benefits at a glance

- **Custom force sensing solutions** – whether you are looking for small runs for prototyping purposes or large-scale production. A wide range of specifications, size, shape and accuracy are possible.
- **More sustainable** – additive manufacturing, with lowest waste generation possible. Wide range of materials and functional inks lead to low ecological footprint.
- **Easily embedded in your product** – Designed for compatibility, our sensors integrate smoothly with a variety of systems, making them ideal for a wide range of applications and accelerating product development cycles.

Market potential

Our flexible force sensing sensors are aimed to provide reliable measurements while ensuring comfort and durability. Designed with scalability in mind, our technology is suitable for mass manufacturing and can be seamlessly integrated into different applications.

The printed sensors market will continue to grow in the next years. Particularly piezoresistive sensors hold a predominant market share, which are the key element of our flexible and printed force sensors.

Key market segments

Health Care & Wearables:

- Smart insoles, rehabilitation devices, and gait analysis systems require comfortable, flexible force sensors.
- Especially beneficial for patients with polyneuropathy or people with foot prostheses

Sports & Biomechanics:

- Gait analysis, posture correction, and performance tracking
- Smart footwear and wearable patches integrating force sensors

SOLES was awarded with the **Carinthian Innovation and Research Award 2024**, which is the highest award given on behalf of the province of Carinthia in the field of innovation and research.



ABOUT SAL

Silicon Austria Labs (SAL) is a top European research center for Electronics and Software Based Systems (ESBS). The application-oriented center offers cooperative research & services at three locations – Graz, Linz and Villach – in the pioneering research areas of Sensor Systems, Microsystems, Intelligent Wireless Systems, Power Electronics and Embedded Systems.

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