



# DevKit for Pressure Mapping Prototyping Platform by InnovationLab

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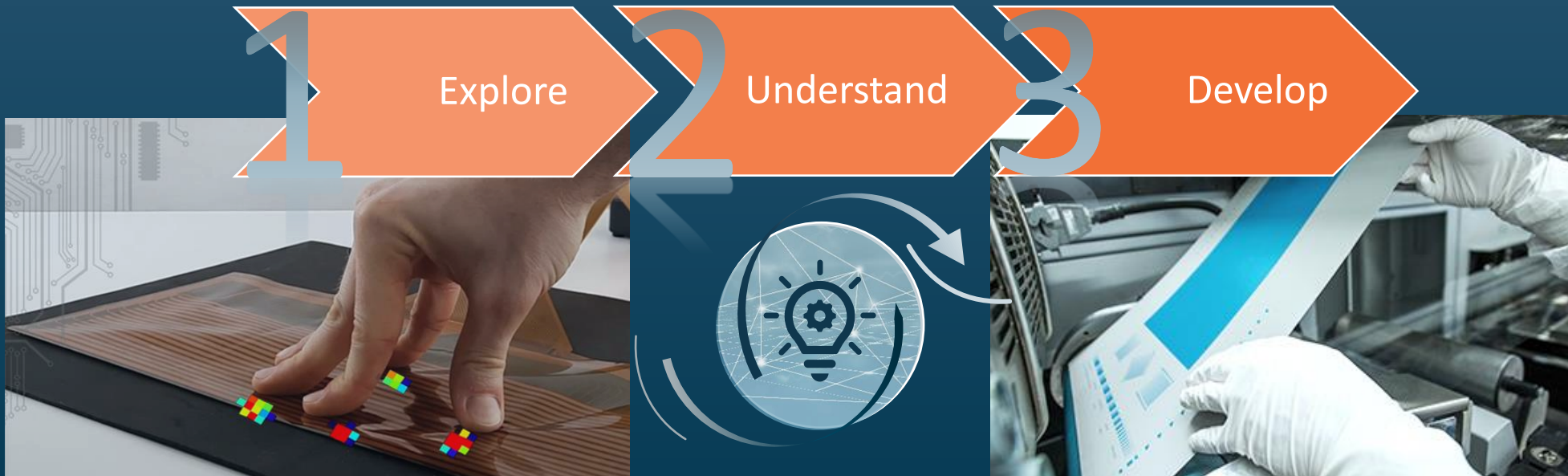


The ability to capture significant data with sensors is an important condition for progress, optimization and innovation.

But Innovation is a big word, so it can be a challenge where to begin.



This challenge can be solved with the Development Kit of InnovationLab. The prototyping platform lets you explore the possibilities of printed sensor foils and enables to understand the technology with capabilities. It grants low-barrier access to valuable data, lets you generate ideas and transform them into specifications for customized innovations to generate novel products or improve existing ones.



# The Prototyping Platform by InnovationLab

The perfect entry-level solution

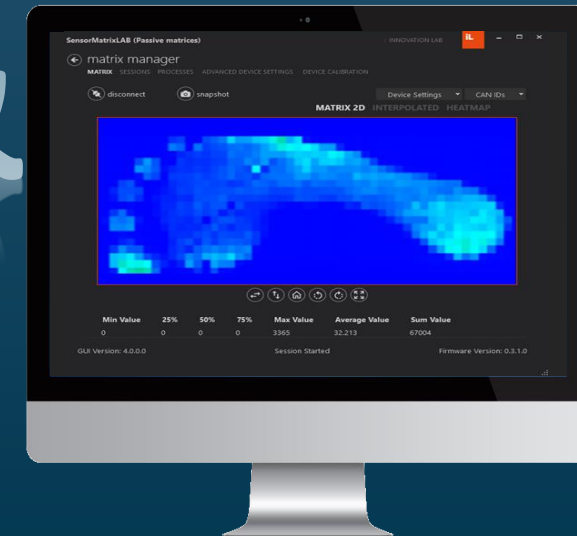
InnovationLab's DevKit for force-sensitive matrices is the perfect entry-level solution for capturing and visualizing detailed data from printed pressure sensor matrices.

It provides you with everything you need to

- perform your own experiments
- and evaluate different sensor architectures, resolutions, sensitivities and materials with respect to your application.



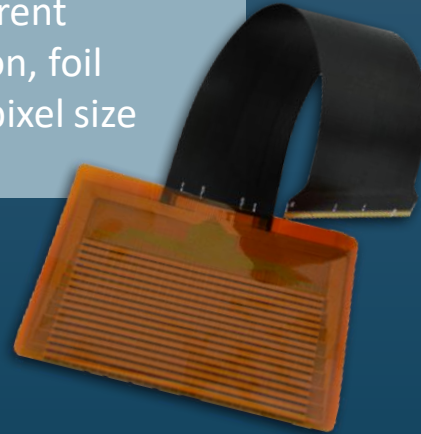
It is based on a **high-performing analog module**, which is the same as in other high-tech electronics by InnovationLab. This enables a **state-of-the-art readout precision** without distorting interference of leakage currents (**no crosstalk**). The DevKit comes with a **dedicated software** for reading, displaying, storing, and analyzing the data from the foil sensor. Moreover, a simple **Arduino-based programming interface** allows the usage of existing software and to tailor the data processing to the individual requirements.



## The package

### 1. Sensor Foils

- Three passive matrices of printed force-sensitive resistors (FSR)
- The foils cover a broad range of different parameters like form factor, resolution, foil material, sensor characteristics and pixel size



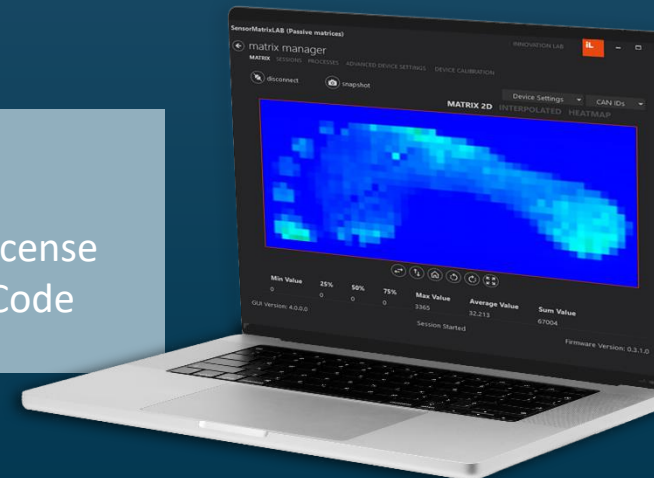
### 2. Hardware

- Read-out electronics: Main board with
- a state-of-the-art analog module
  - and an Arduino Nano BLE



### 3. Software

- Proprietary SensorMatrixLAB software - basic license
- Open-source Unix console client with Arduino Code



## 1. Our DevKit FSR-sensor foils

	TM29x17	TM20x12	SM32x10
			
<b>Measurement Mode</b>	Thru	Thru	Shunt
<b>Resolution (# of pixels)</b>	29 x 17	20 x 12	32 x 10
<b>Active area (cm<sup>2</sup>)</b>	15 x 9	38 x 22	32 x 10
<b>Pixel size (cm<sup>2</sup>)</b>	0.32 x 0.32	1.1 x 1.1	0.62 x 0.57
<b>Foil material</b>	PI 50 μm	PI 25 μm	PEN 120 μm
<b>Operating temperature</b>	-20°C – 100°C	-20°C – 100°C	-20°C – 100°C
<b>Suitability for</b>			
• low pressure	+	++	++
• high pressure	++	+	-
<b>TDS</b>	<a href="#">TDS FSR-Matrix TM29x17</a>	<a href="#">TDS FSR-Matrix TM20x12</a>	<a href="#">TDS FSR-Matrix SM33x10</a>

## 2. Our DevKit read-out electronics

The DevKit electronics is specifically designed for the read-out of pressure sensor matrices but can be applied for diverse passive resistive matrices in general. Please find the tech specs of the DevKit electronics in our [product brief](#).

- Implementation as extension board for Arduino NanoBLE<sup>®</sup>

- State-of-the-art read-out electronics without cross-talk

- 12-bit ADC resolution

- Supports matrices with up to 32x32 pixels

- Scan frequency (for 32x32 matrix): 8 Hz

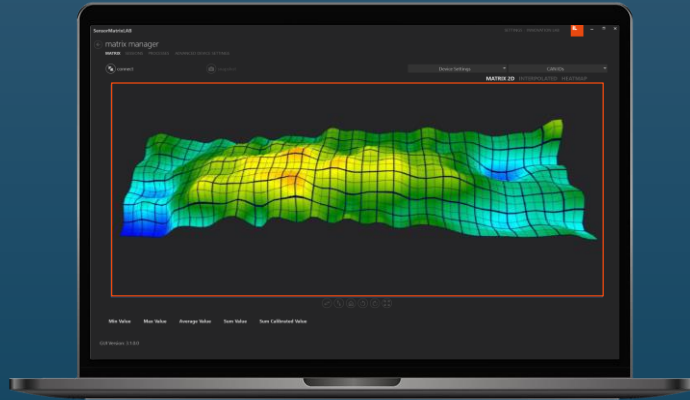
- Data readout and powering via USB



## 3. Software

### A. Proprietary software: SensorMatrixLAB

We specifically developed our SensorMatrixLAB software for the visualization and the processing of the collected data from our pressure sensor matrices. It offers many sophisticated features:



Advanced signal processing & data visualization



API sensor data access



Communication via USB Serial



High-speed data recording and replaying



Configuration of read-out electronics



Dedicated for iL read-out electronics: provides access to full functionality of proprietary protocol

Visit us at our [homepage](#) or check our [software manual](#) for more information.

### B. Open-source:

At the same time, both the Arduino and the data interface can be customized by open-source code.

- Open-source Unix console client with Arduino Code ([github](#))
- Open-source Arduino Code ([github](#))

# Who we are

## InnovationLab – The One-Stop Shop for Printed and Organic Electronics

- Highly-skilled engineers and scientists
- Unique R&D, upscaling and production infrastructure
- Connected to internationally acclaimed Universities, research institutes and material provider
- Innovation partner of world-leading companies in Automotive, Healthcare, Logistics and Retail industries

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