

## Mattress Mat Dev Kit



## Data Sheet

**MATTRESS MAT DEV KIT**

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**WHAT IS THE BEDDING MAT PLATFORM?**

The Bedding Platform is a branch based on the Sensing Mat Platform by Sensing Tex and developed for taking advantage of the collected pressure mapping on beds. The Bedding Mat Platform is an end-to-end solution to design smart connected products to collect data, recognize patterns and trigger actions based on the patented stretchable printed electronic based technology patented by Sensing Tex.

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## Data sheet

**Why choose our bedding solution?***A new way of meet customer expectations*

The market looks for new technologies applied for proximity, touch and force interaction to provide customized solutions in order to develop non-intrusive ways to monitor patterns and behaviors. Companies are aimed to innovate creating cost-effective solutions to increase sales, reduce costs and provide added value to the end customer.

*Customizable Dev Kits*

The Mattress Mat Dev Kit is a customizable solution to recognize patterns based on the pressure maps collected from the stretchable sensor mat in order to design and manufacture end-to-end bedding applications for healthcare and wellness.

The Mattress Mat Dev Kit allows you to test the potential of the Sensing Mat Platform and identify your suitable requirements to customize it to fulfill your final product expectations. The Dev Kit comes with all the elements (Sensing Mat, Electronic Module, Software and Accessories) needed to Plug and Play the kit and starts using it.

*Customer Support and Guidance*

At Sensing Tex we know the importance of understanding how powerful the Sensing Mat Platform can be to develop outstanding Smart Products and that is why we will guide you throughout the process of understanding how the Platform may provide a differential value to your final product. We include the basic support to let you know how the Dev Kit works as well as assist you in using it to identify the suitable requirements to highlight the essential requirements to customize the platform in order to build your desired product. This is part of our own methodology called Sensing Mat Adoption Guide.



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### Why is it useful to make data analytics in the bedding sector?



#### Pressure Mapping

With this technology, the customer is able to see their own pressure map in real-time, so it can be more likely to purchase the product and feel that it's worth paying, also the seller can make better advices for the customer and predict what mattress suits best.



#### Traffic Conversion

Evaluate the traceability of the product and how your marketing channel it's working in order to optimize it to detect problems, solve them and achieve more efficient goals.



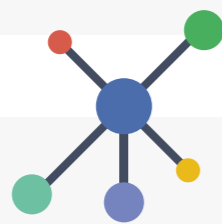
#### Data Collection

Track and report customer personal data information in order to make customized future developments for them.



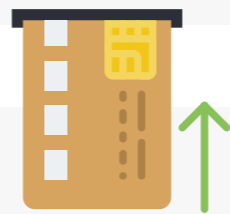
#### Trend Analysis

Analyse and quantize the retail improvement due to the conclusions made in the recommendations to costumers.



#### Data Integration & Visualization

We provide data exchange capability, so it is possible to provide quick decision support for the customer.



#### Return on Marketing Investment

A true ROI marketing channel due to the added value provided to the client at the point of sale.

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### Features



Accuracy and Reliability



Cost effective



Customizable



Development kit



High Resolution



Large Area



Patented Technology

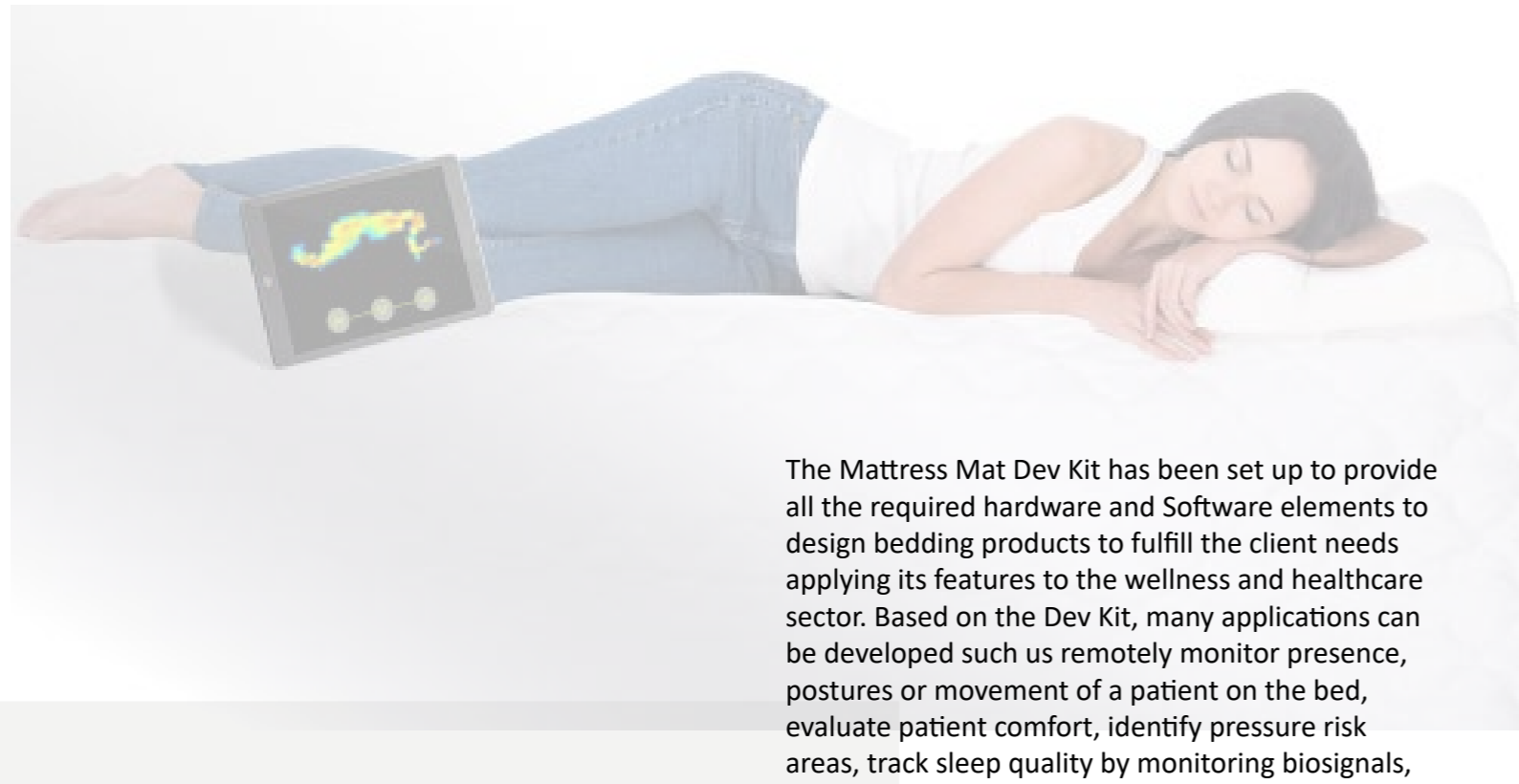


Stretchable

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## About the Mattress Mat Dev kit

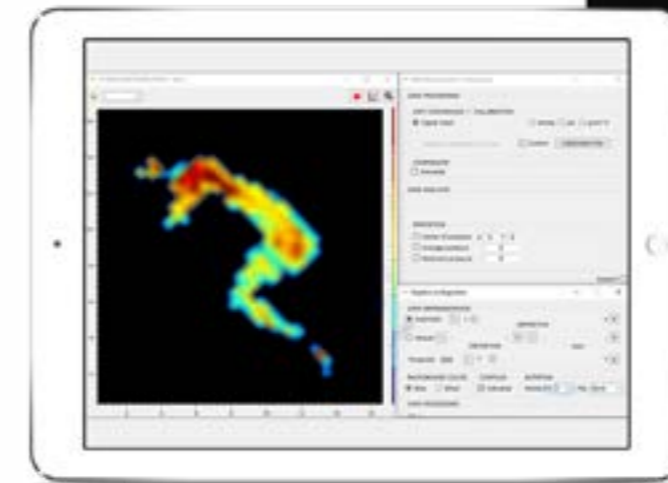
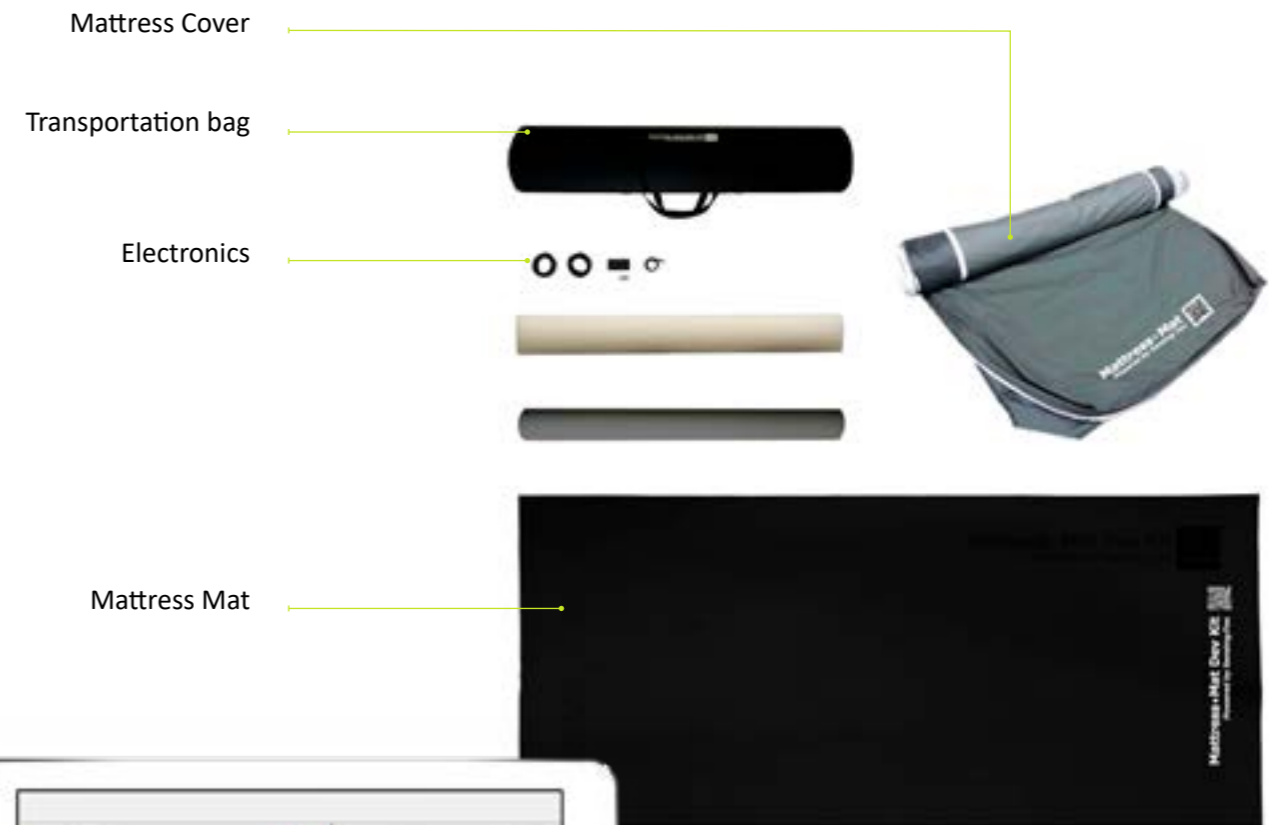


The Mattress Mat Dev Kit has been set up to provide all the required hardware and Software elements to design bedding products to fulfill the client needs applying its features to the wellness and healthcare sector. Based on the Dev Kit, many applications can be developed such as remotely monitor presence, postures or movement of a patient on the bed, evaluate patient comfort, identify pressure risk areas, track sleep quality by monitoring biosignals, postures or movement or recommend, in a point of sales, the most suitable of a mattress to fulfill customer sleeping needs.

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Data sheet

## Elements included:



## Demo Software

We provide a demo software for testing the product. This software can be fully customizable for you in order to reach your specific needs. It is also available engineering service support to define your final product.

- Real-time data visualization
- Human pattern recognition
- Engineering service support



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### Main features

## 1. Sensor and Mat features

### – Size and Topology Features

Mattress Cover Size [cm]	90 x 200
Sensing Area [cm]	90 x 180
Number of Sensor Points	1152
Topology	48x24
Horizontal & Vertical Resolution [cm]	3.75
Sensor Shape and Size [cm]	Round 2.26 diameter
#Sensor Set	06

### – Pressure Sensing Features

Linearity	Yes Conductance vs Pressure (2 curves)
Hysteresis	12%
Repeatability	<8%
Raising Time	<5%
Precision	8%
Drift	<12% Model for Correction
Pressure Range	5-350 mmHg

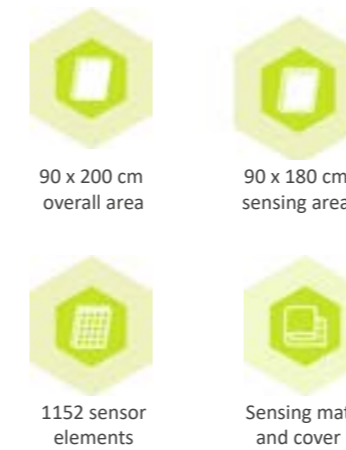
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### Main features

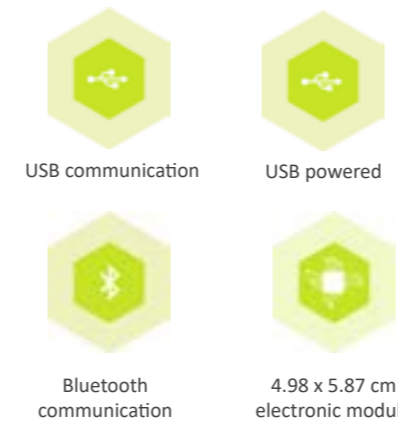
## 2. Electronic Module Features

Individual control unit for the Sensor Module



Element	Value
Microcontroller	MK20DX256VLH7
Voltage [V]	5 or 3.3
Flash Memory [Kb]	256
SRAM Memory[Kb]	64
EEPROM [Kb]	2
Clock Speed [MHz]	96
Communication between Electronic Modules	i2c

## 3. Electronic hardware system



- Bluetooth connectivity: Yes.
- Windows and Android compatible
- 12 bits resolution.
- Scanning frequency: 4/6 Hz.
- A/C circuit with module multiplexing for Cross-talk reduction and fast processing.
- Built-in rechargeable battery.

## 4. Software & Firmware system



- Demo software to see pressure mapping in real-time.
- CSV exportation data.
- Real-time pressure maps recording and display
- Easy-to-use software.
- Software gives independent pressures value for each sensor pixel, without cross-talk affectation.
- Software for Windows.

## Main features

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### 5. Sensor Mat diagram

Matrix: 24 x 48

Distance between sensors centres: 37,5 mm

Single sensor diameter: 22,6 mm

