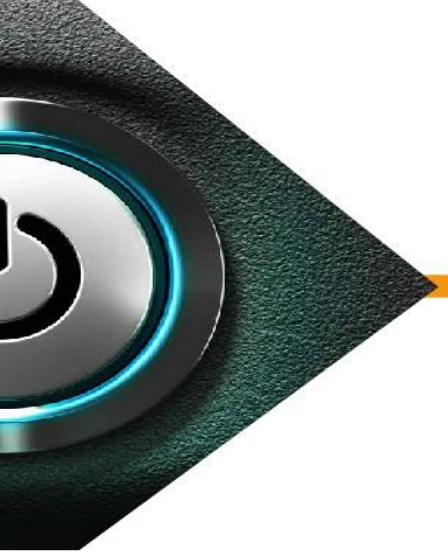
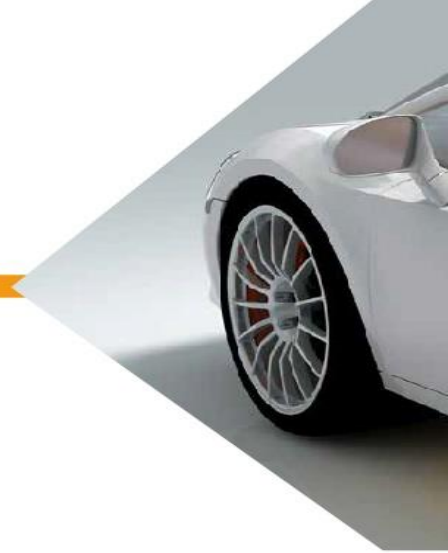


SINTEX NP GROUP

ACTIVE THINKING



IN MOLD ELECTRONICS

Why you should use it

SINTEX

O. Dassonville – October 2018

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THERMOSET COMPRESSION & INJECTION MOLDING

ELECTRONICS

THERMOPLASTIC INJECTION

MACHINING

SPRINGS WIRE WORKING

METAL STAMPING

COMPOSITE STAMPING

HARNESS

ADDITIVE MANUFACTURING

2017 figures : Employees : 2600 | Turnover : 266 M€

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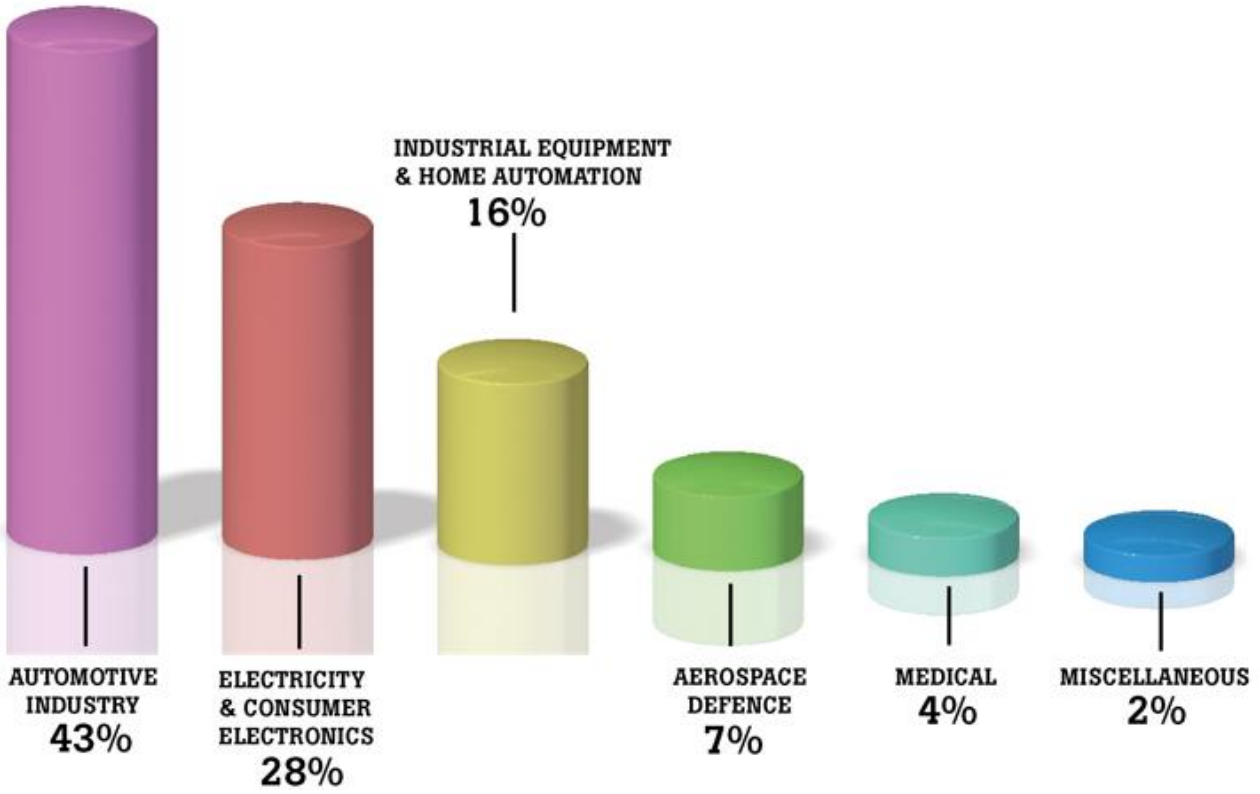

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IN MOLD ELECTRONICS

EMBED SENSORS, LIGHTING, RF, AND SIGNAL PROCESSING INSIDE A 3D SHAPED PLASTIC PART

Old fashion

PCBs AND BENDABLE FLEX CIRCUITS ARE NOT 3D FRIENDLY

Compromise is a no way

- Free design
- Miniaturization
- Less harnesses
- Easier assembly
- Weight reduction
- Unpuzzled circuit
- Best sensors location

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IME ANSWERS STANDARD ELECTRONICS ISSUES

Electronic devices are drown in the plastic part

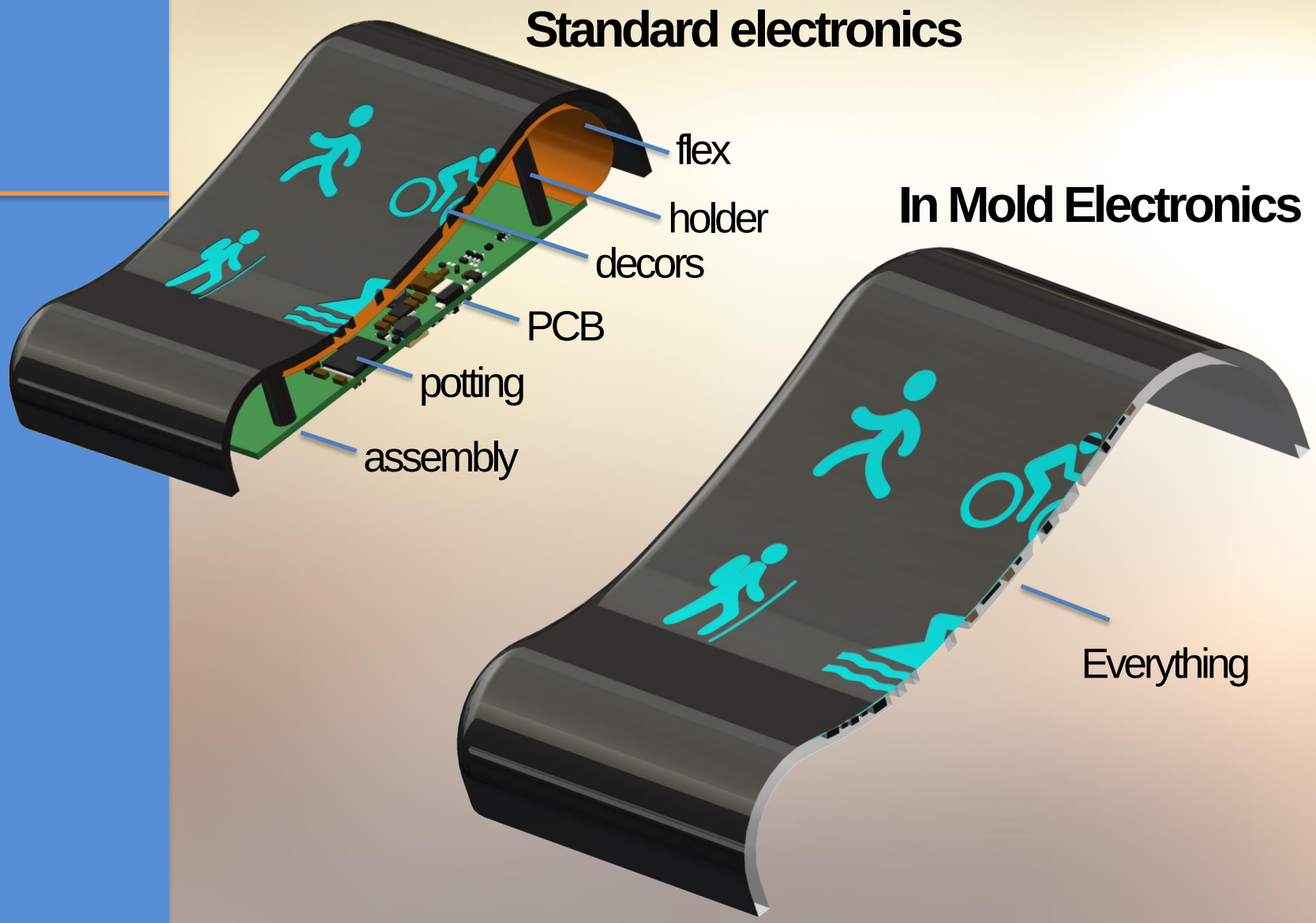
No more shape constraints

Circuit follows the 3D part shape

THE PART IS THE CIRCUIT

Innovate

IMAGINE A DRASTIC CONCEPTION REDUCTION



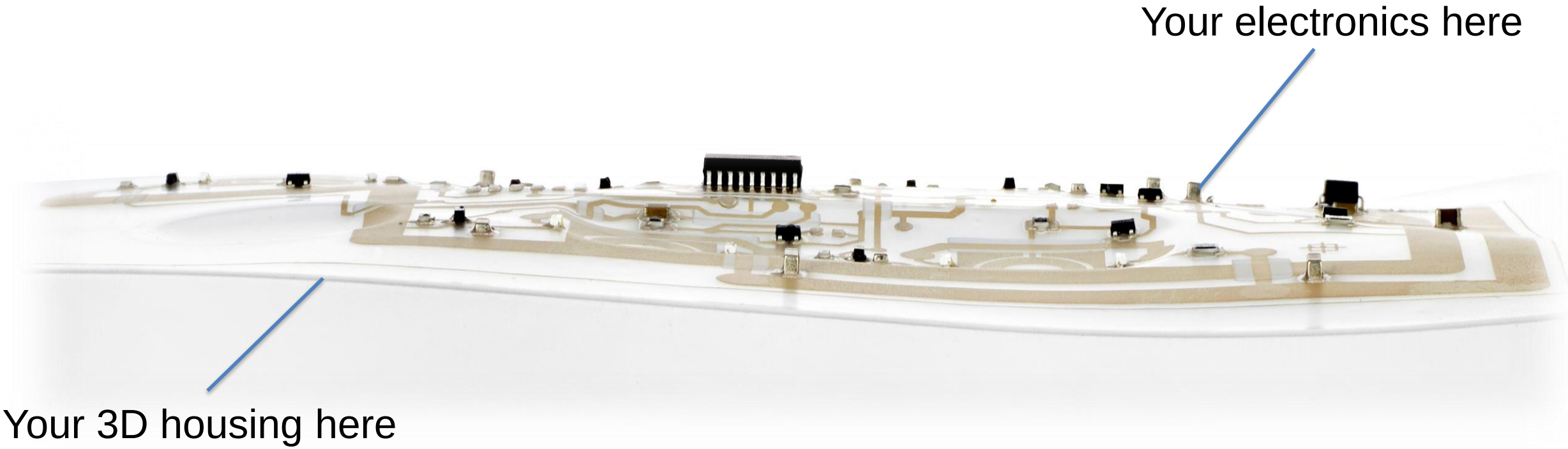
Design

What you get

What you see

What you feel

STRUCTURE AND FUNCTIONALITY



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Sensors Light Climatic
Pressure **Switching** Capacitive
switches **HMI** Buttons
Sliders Backlighting **Automation**
IoT **Lighting** LEDs Deco
Precision lighting **Antennae**
RFID NFC **Shielding** EMI/RFI
Intrusion shield **Signal processing**

Huge possibilities

Integrated functions needs ?

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Use case

MMI panel

- Capacitive buttons
- Backlighted pictograms

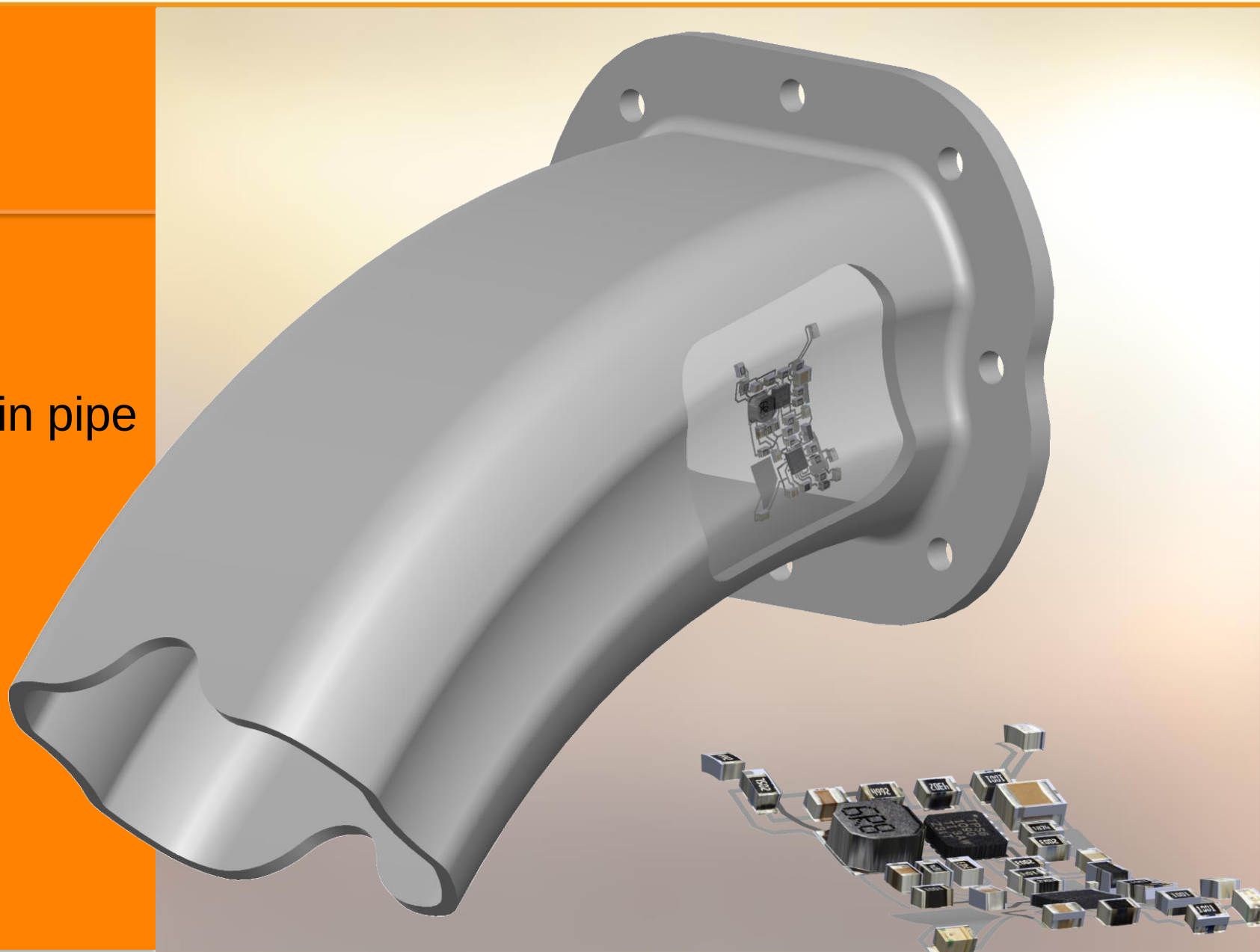
- Capacitive slider
- Temperature sensor

Use case

SENSORS

- Fluid sensor integrated in pipe

- Fluid monitoring : temperature, flow, pressure
- Liquid, gas, powder, seeds,…



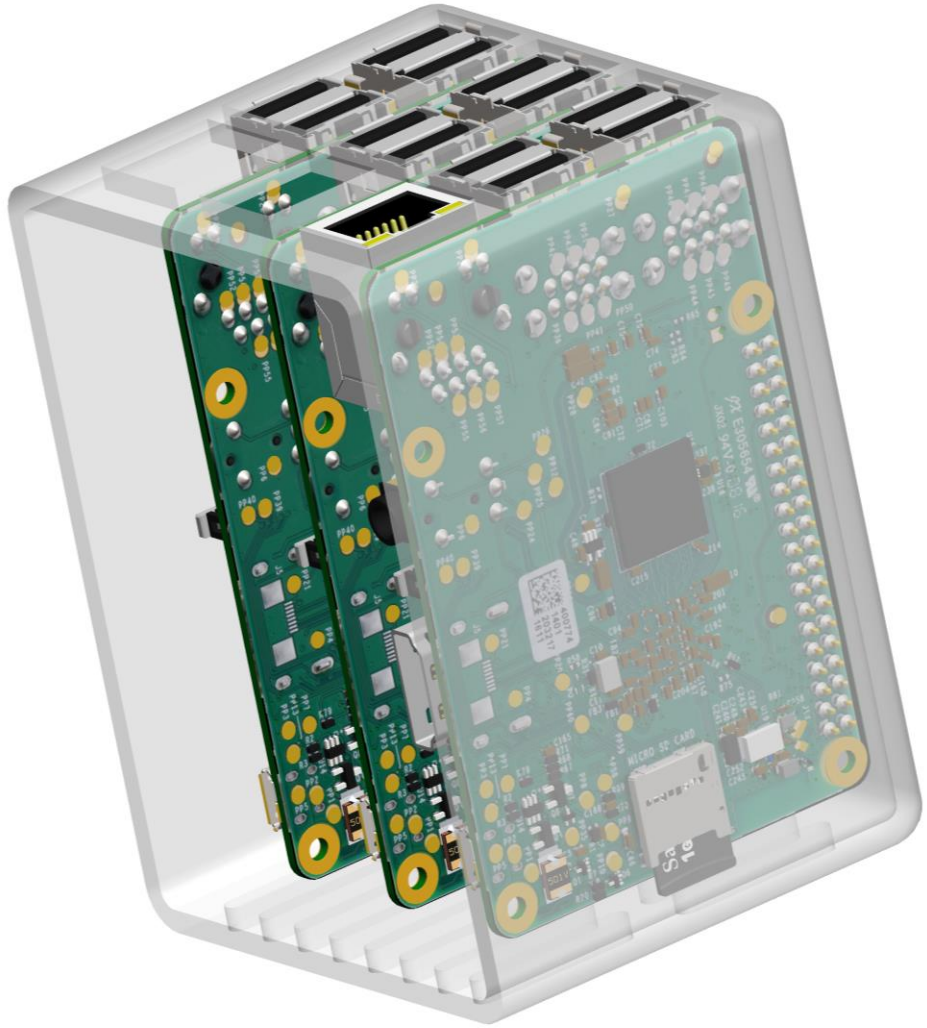
Use case

Fully filled box

You must add new functions but there’s no space available in the box for another PCB

You must redraw all … ☹

>>> Really ?

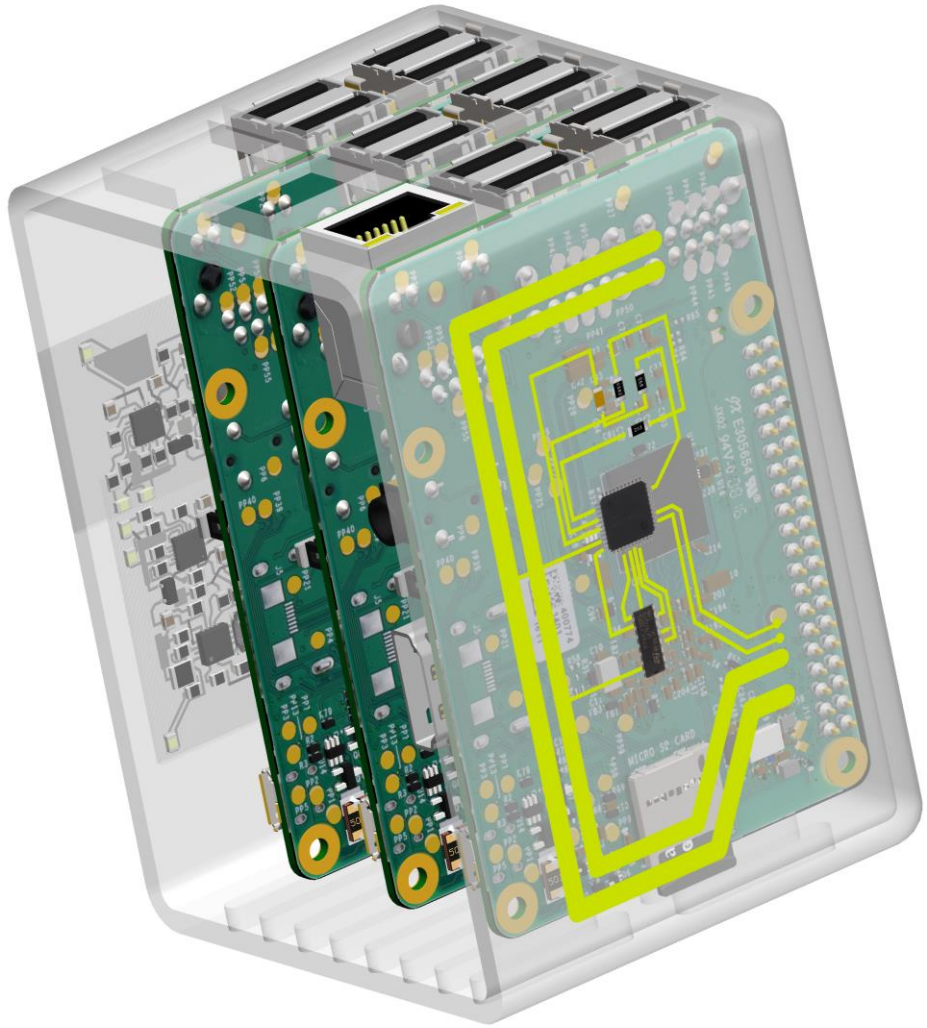


Use case

You can now make use of usually unused volumes

The walls are also free volumes

With IME they become support for an additional circuitry



Behind the scene

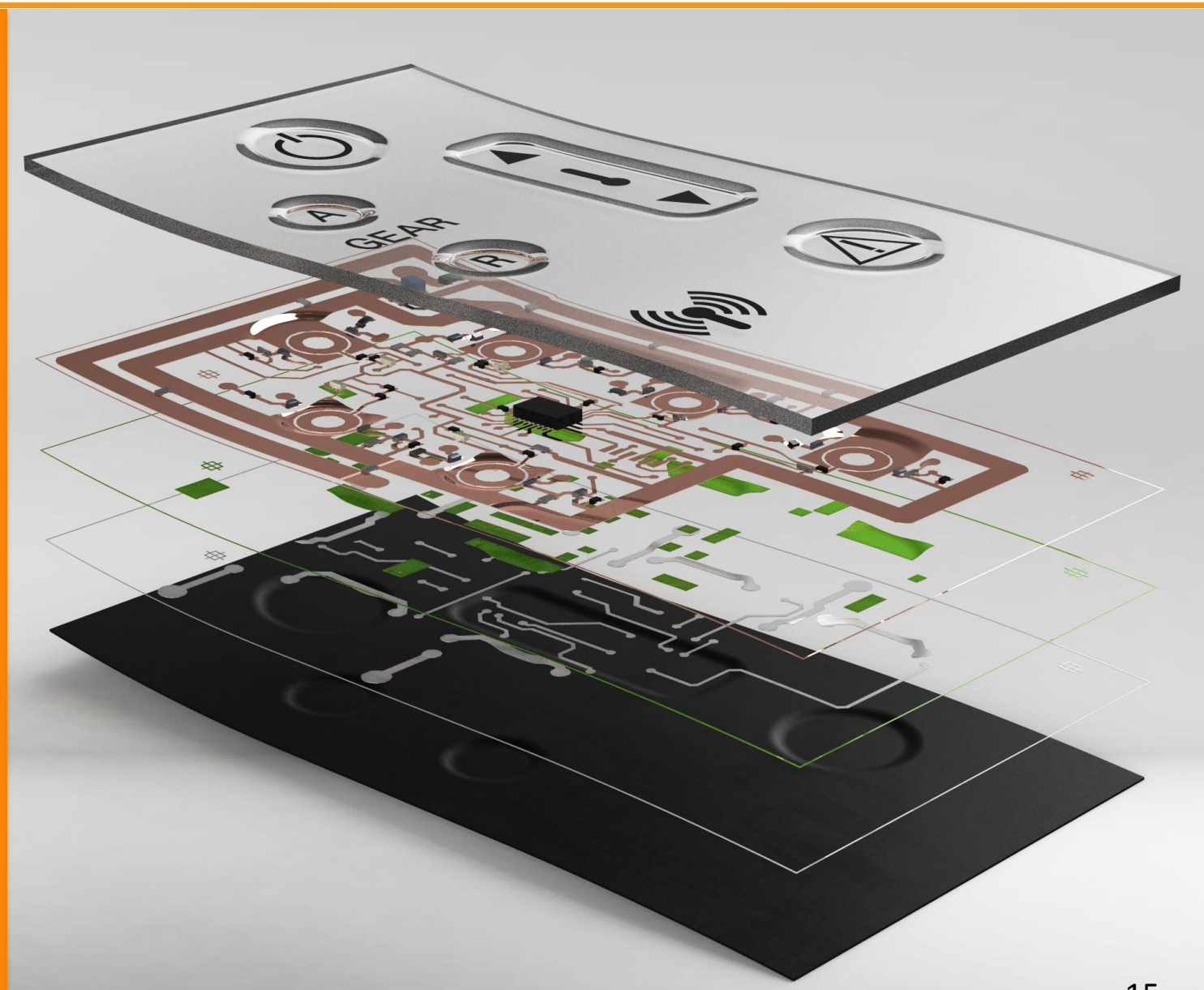
Silk-printed conductive inks and dielectrics

Multimlayers

SMT Components

Thermoforming

Overmolding



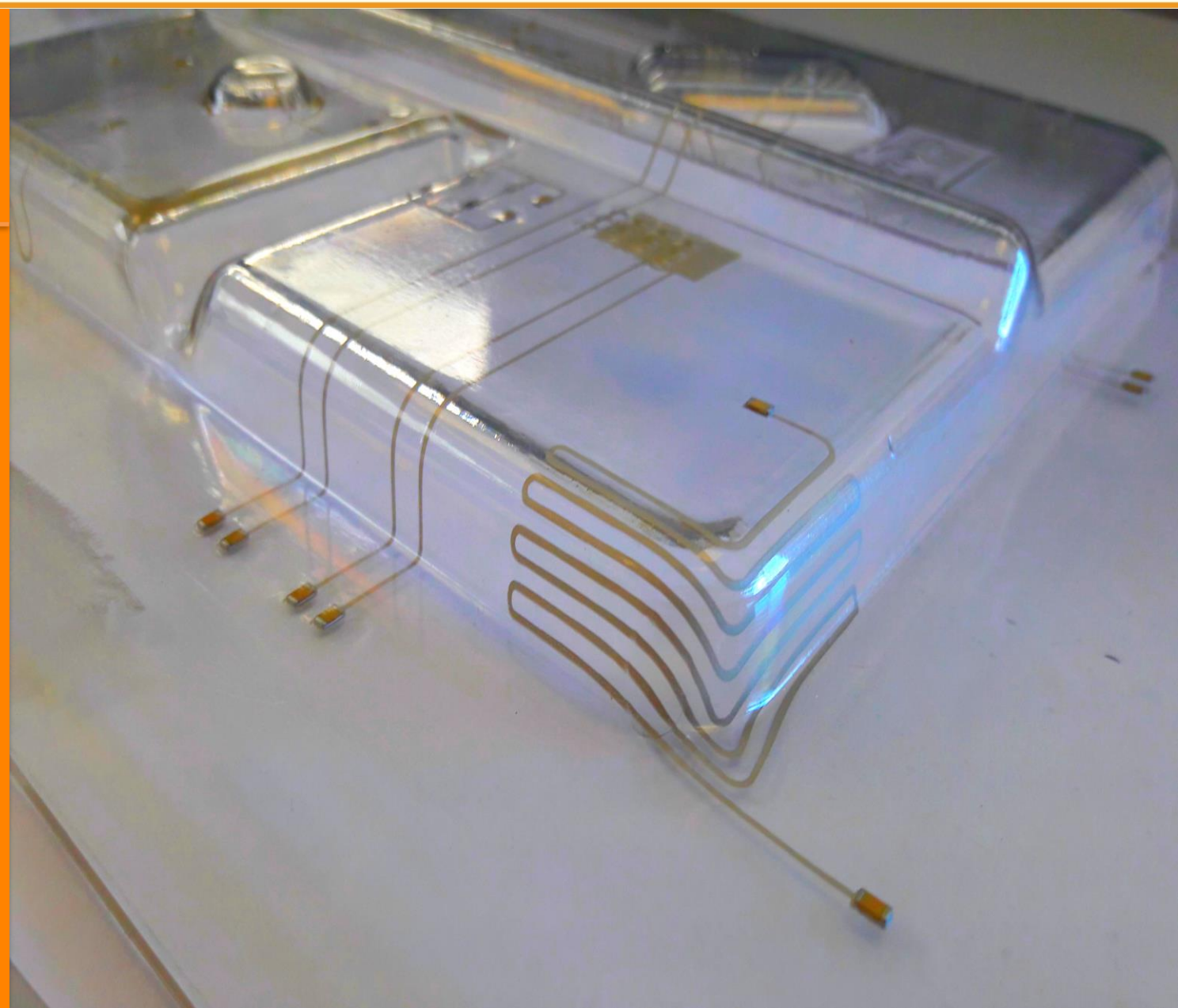
Shapes

Inks for IME allow “big” deformations

Design rules are known :

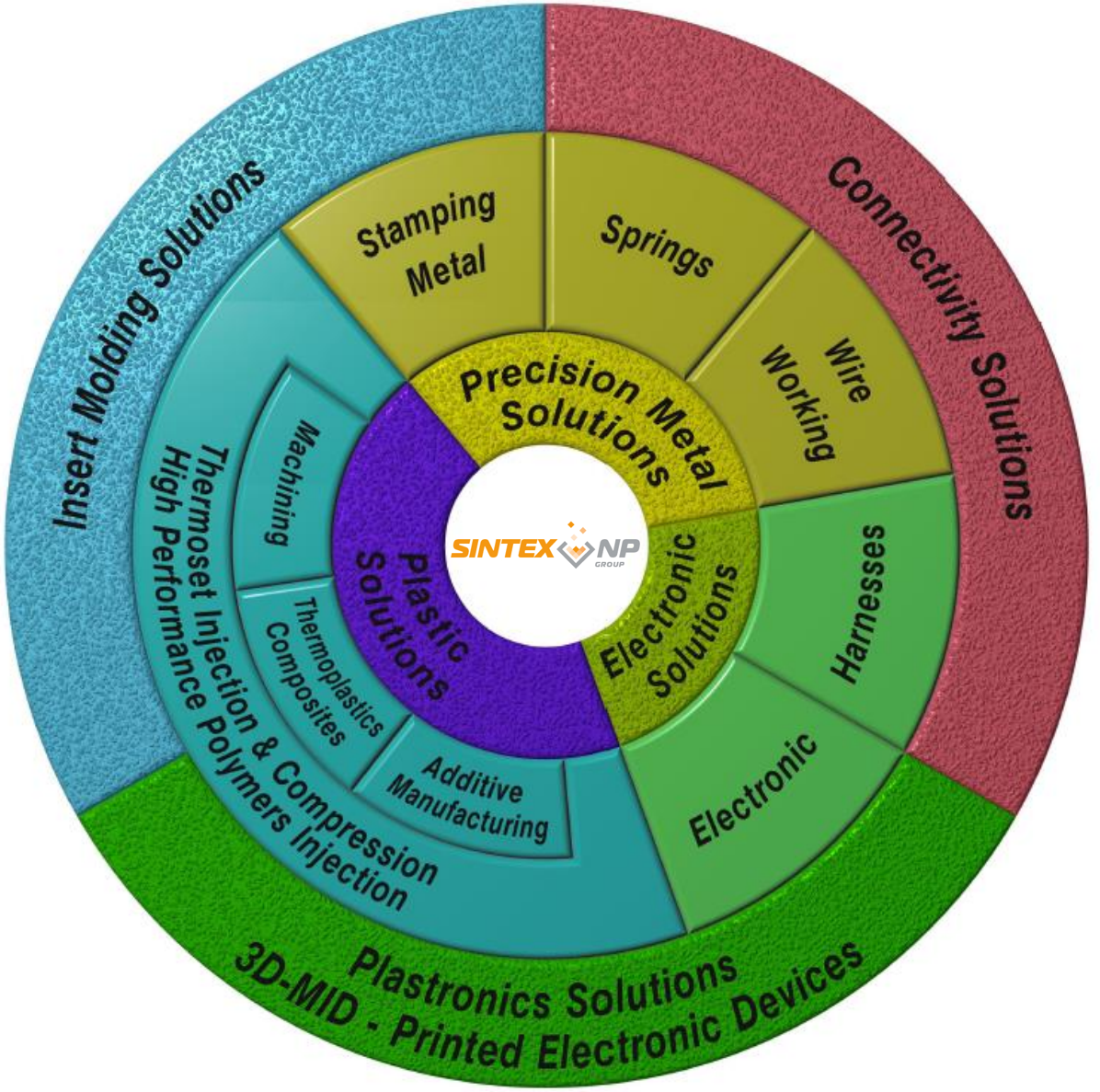
- Position of components
- Industrial sketch

The shape is YOURS



Future is composite

COMBINING KNOWLEDGES TO CREATE NEW SOLUTIONS



Improve your conception

THINK DIFFERENT

In Mold Electronics

An innovative concept based on
standard technologies
to meet the needs of
industrial manufacturing

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