

# SENSING THE BODY

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“Clothes mean nothing until someone lives in them.”

*-Marc Jacobs*

BIO

SHAPE CHANGING



TENTH ANNIVERSARY CONFERENCE ON TANGIBLE  
EMBEDDED AND EMBODIED INTERACTION

14-17 FEBRUARY 2016, EINDHOVEN, THE NETHERLANDS

# OUR CLOTHES AND ACCESSORIES MEDIATE OUR EXPERIENCES

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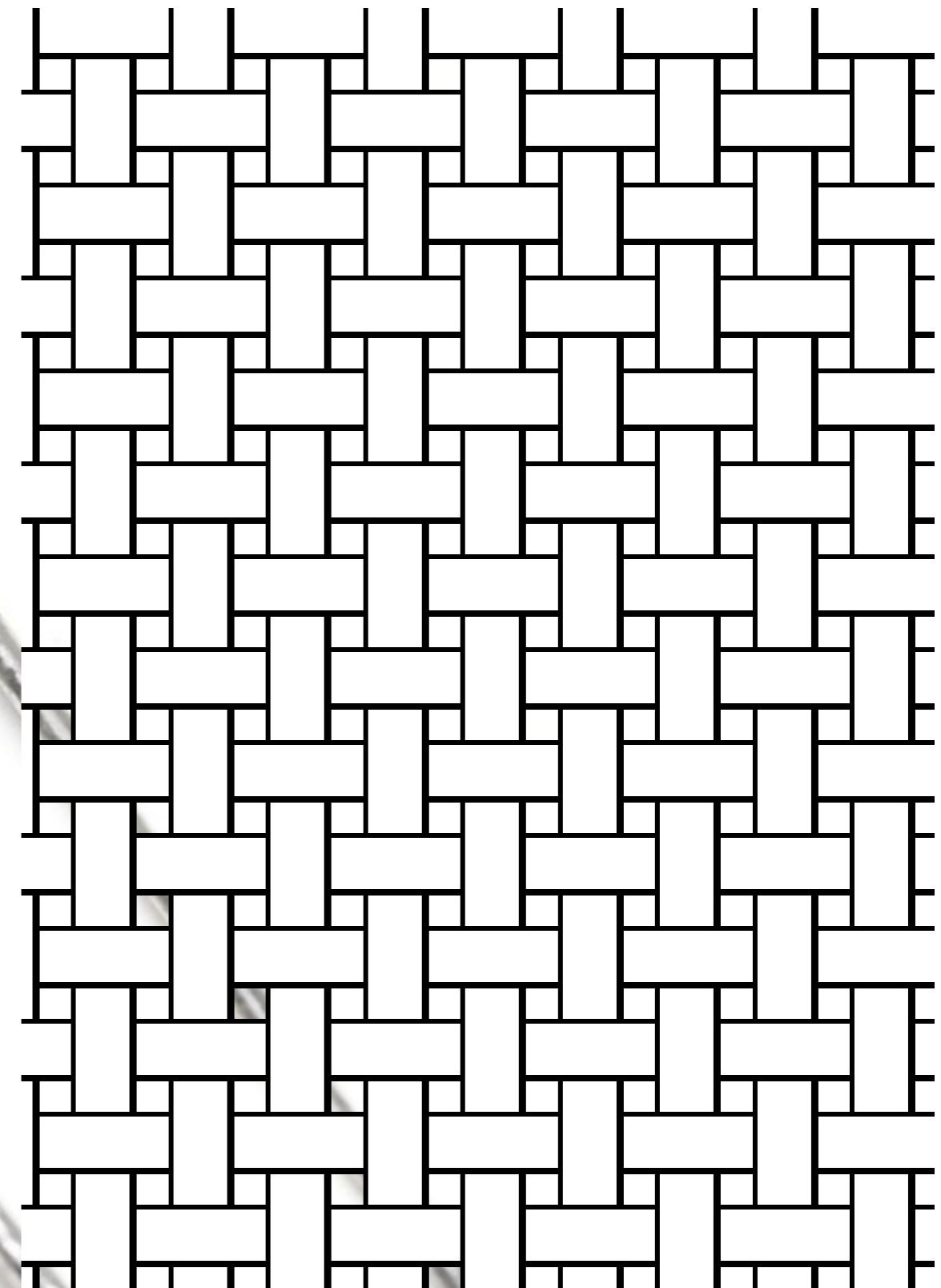


# CONTEXT RECOGNITION

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*Group Activity Recognition*

# What does a future where we integrate textiles and computation look like?



# CONDUCTIVE?



NON-  
CONDUCTOR  
**INSULATOR**

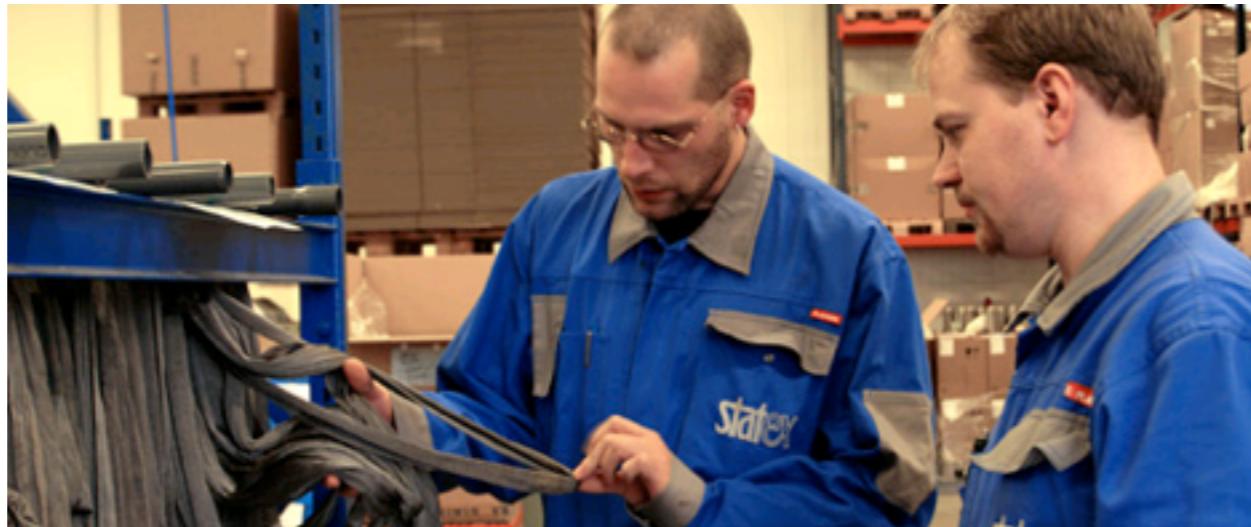


CONDUCTOR

# METALLIZED FIBERS

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**statex**



- - Polyamide-Silver combination
  - Polyamide yarns, textiles are coated with 99% pure silver
  - Each individual filament is completely coated with silver
  - Polyamide gives the yarn strength and elasticity, while soft, silver guarantees electrical conductivity



## Carbon Velostat



- extremely thin fibers about 0.005–0.010 mm in diameter
- produced from a precursor polymer
- the precursor is first spun into filaments and after spinning, the polymer fibers are then heated to drive off non-carbon atoms (carbonization)
- very low temperature coefficient of resistivity -0.0005 °C-1

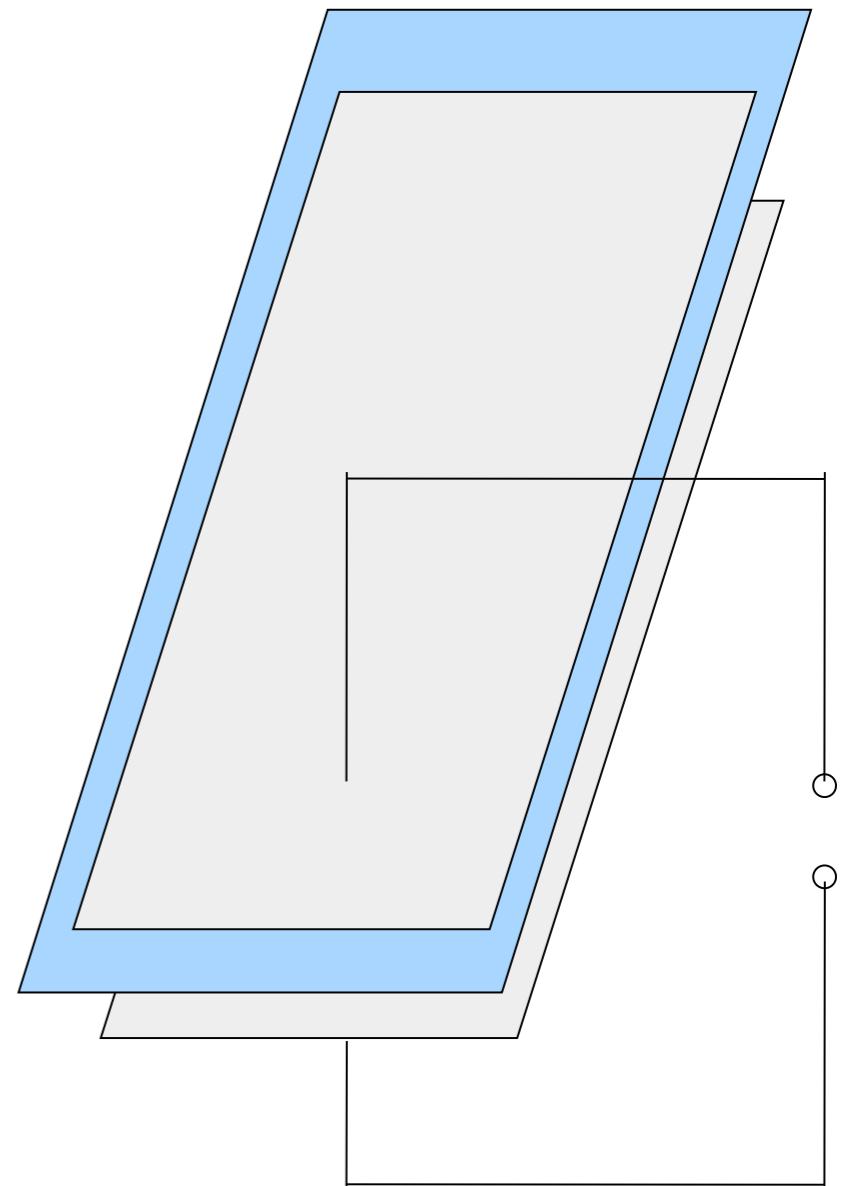


## Touch sensitive fabric

Knitted three-layered fabric, two conductive layers with a non-conductive layer in between

If pressed, the conductive layers touch allowing current flow

Materials: acrylic yarn, stainless steel



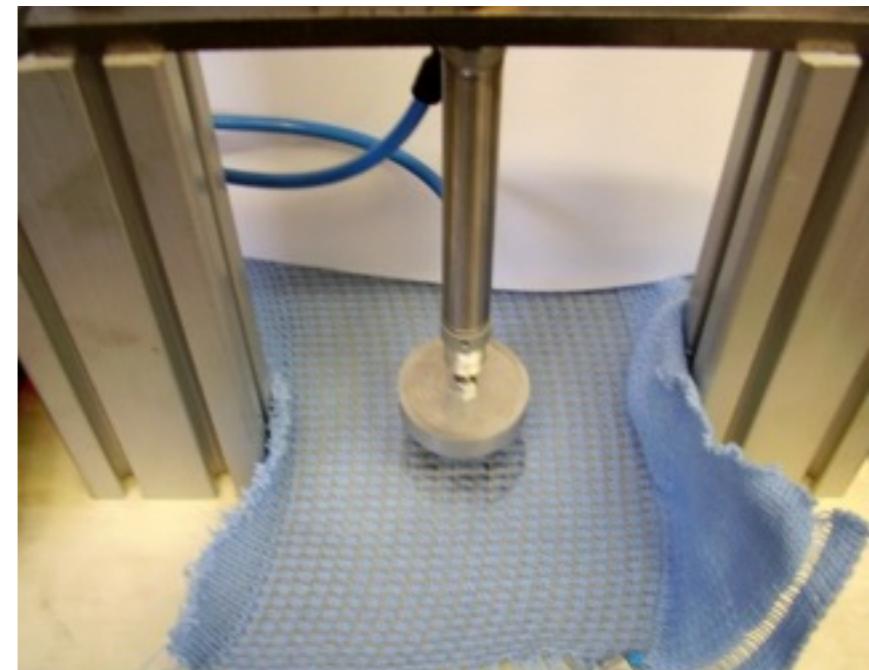
## Pressure sensitive fabric Characteristics

Activation force 3.6 Kg per 50 mm diameter

More than 1.000.000 cycles

For a 15 cm x 20 cm switch resistance when pressed:

around 200 Ohm, open circuit when non pressed



Pressure sensitive fabrics

Innovative aspects

No need of further production steps

Low cost

Transpiring

Semi-transparent

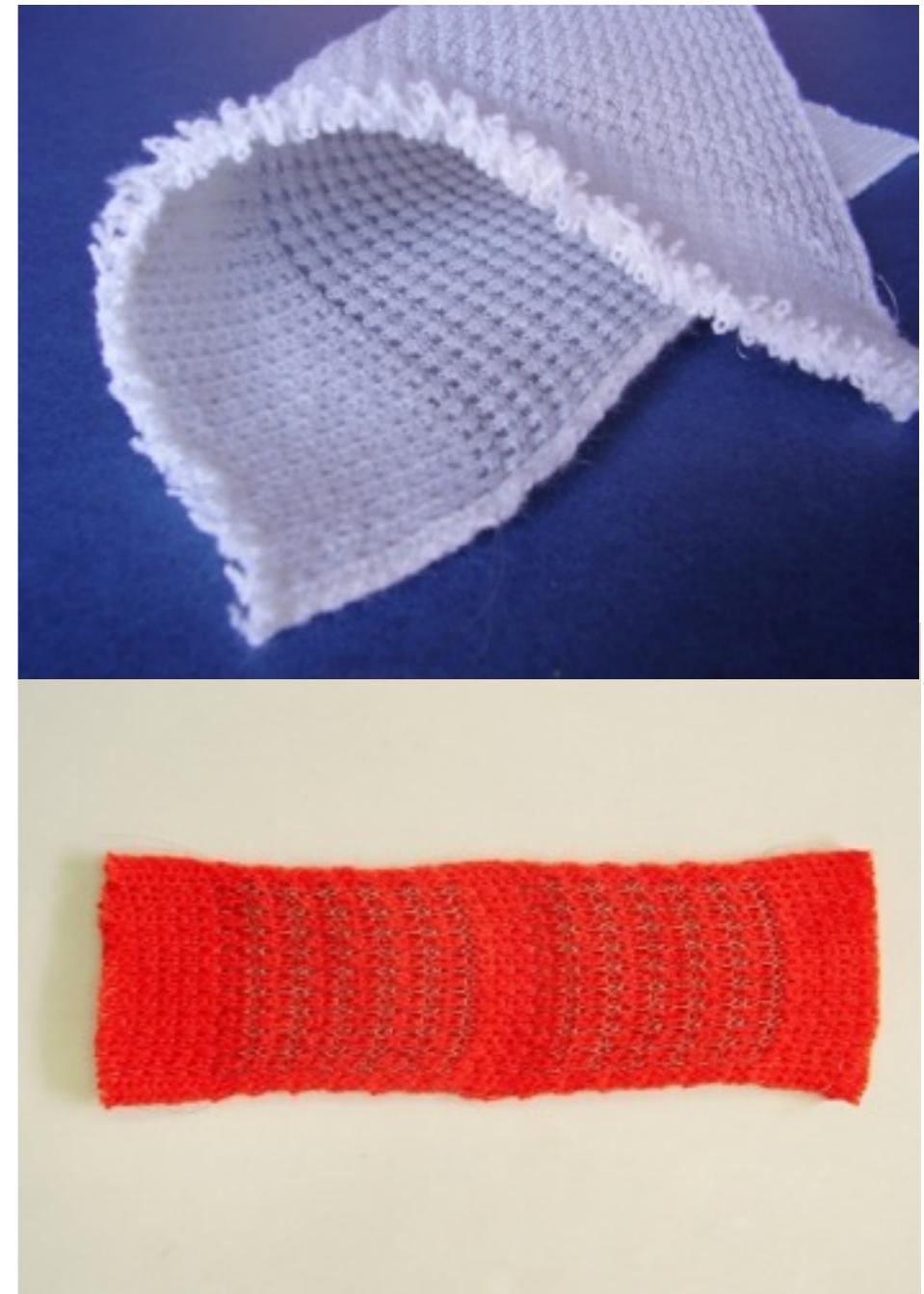
Flexible

Different activating pressures

Matrix switches

Large area switches (50 cm x 50 cm)

Skin compatible materials



# WHAT CAN WE MEASURE?

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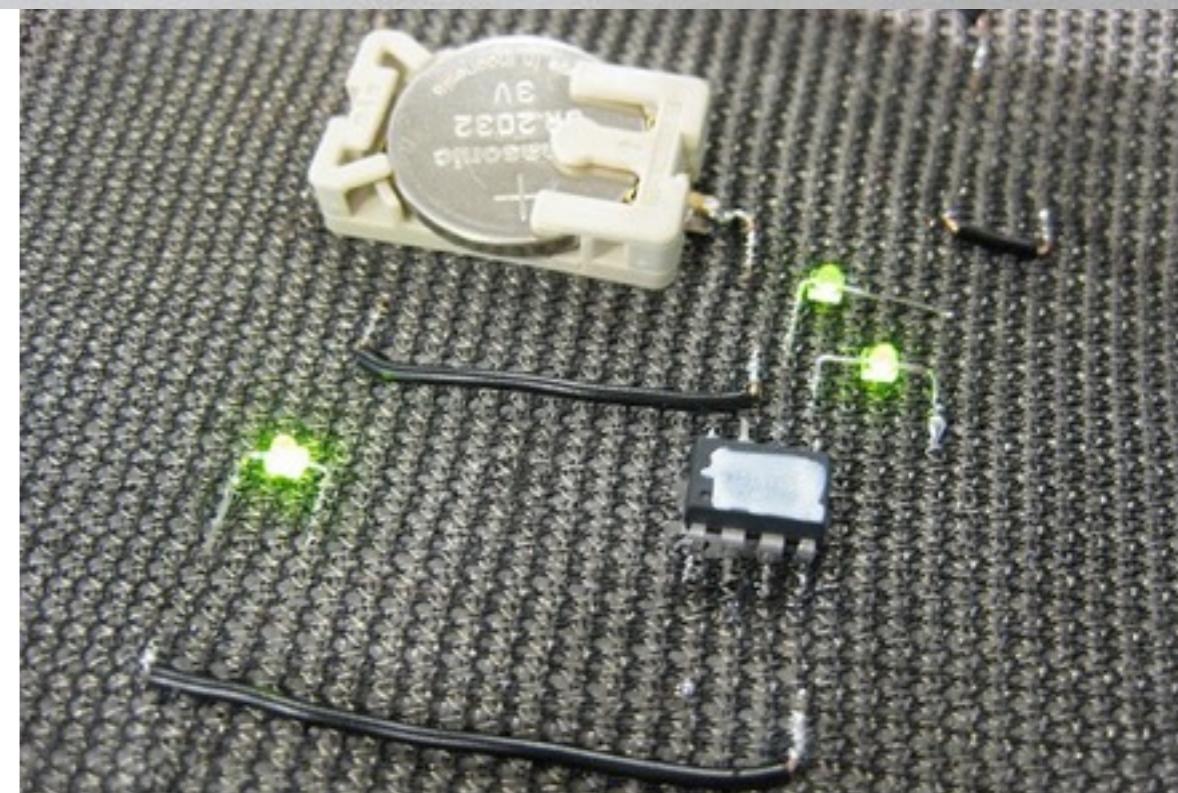
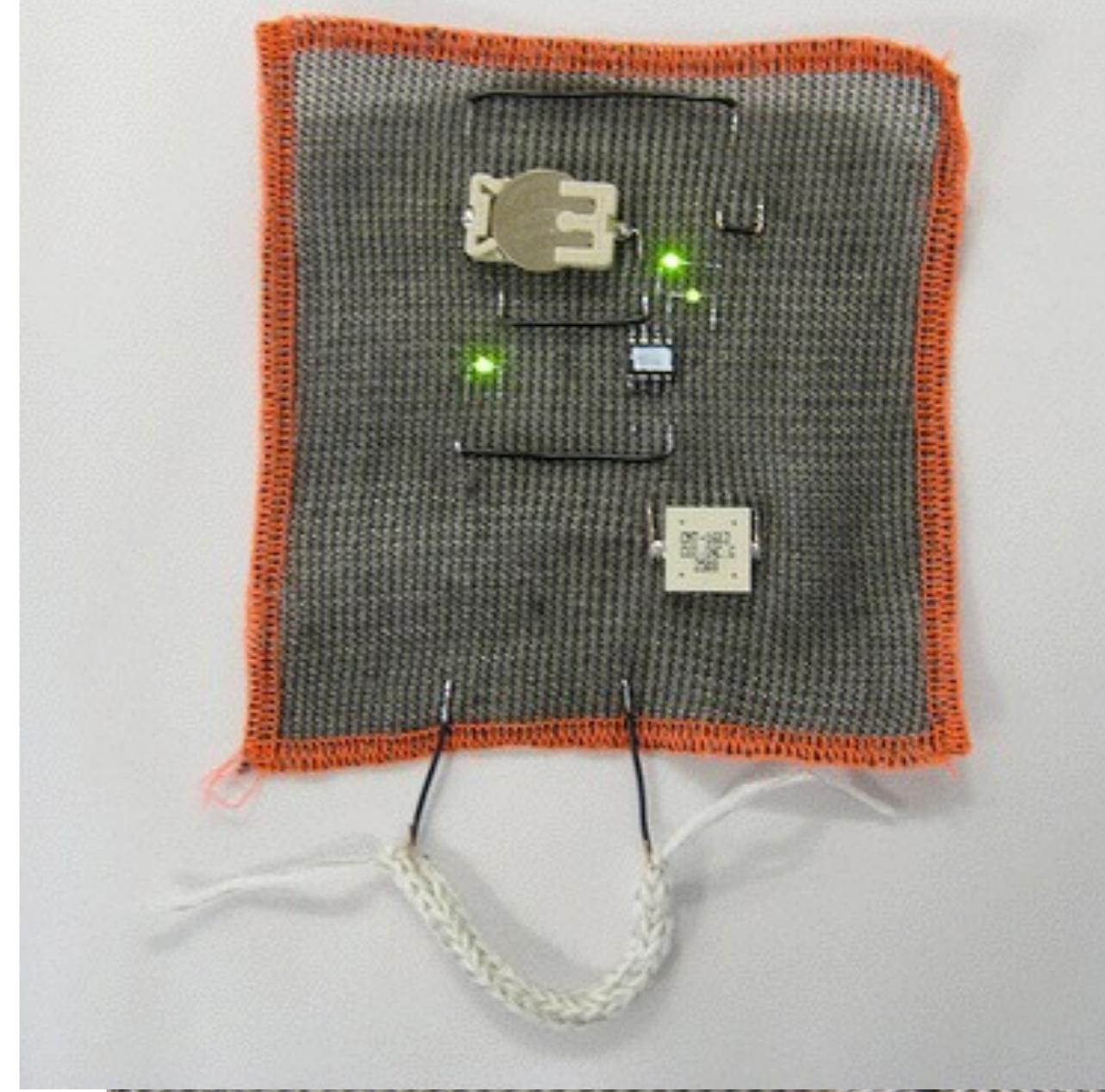
*Pressure  
Position  
Angle of the Feet  
Stretch*

*Humidity  
Daylight  
Inclination  
Shoe Lace Tightness*



# TEXTILE PERFBOARD

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People who are really  
serious about software  
should make their own  
hardware. - Alan Kay

**WHAT KIND OF APP COULD YOU  
CREATE WITH A PRESSURE/  
PRESENCE SENSOR?**

**WHAT KIND OF ON BODY  
ARTIFACT COULD YOU  
DESIGN WITH THE DATA?**