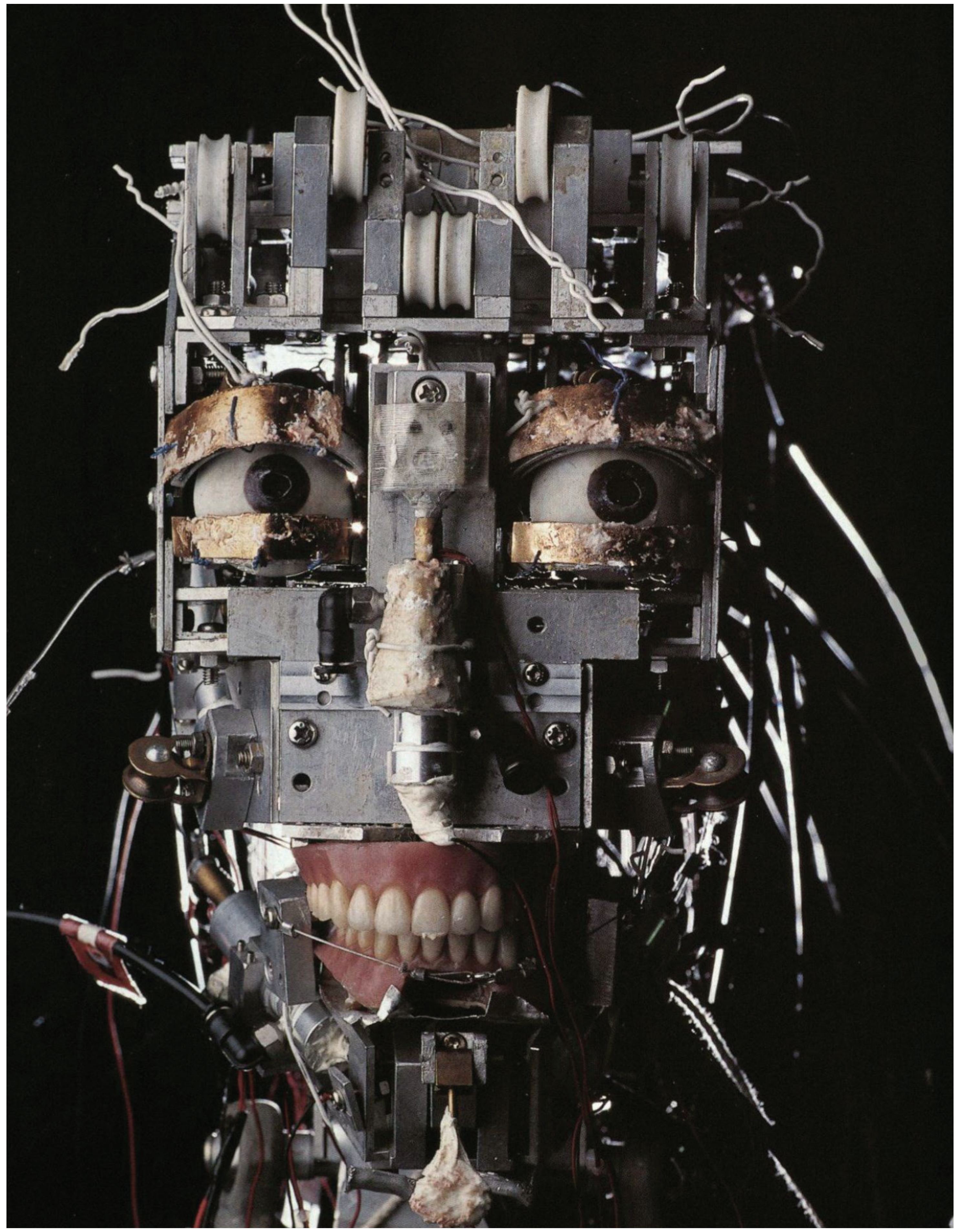
Tong-June Moon

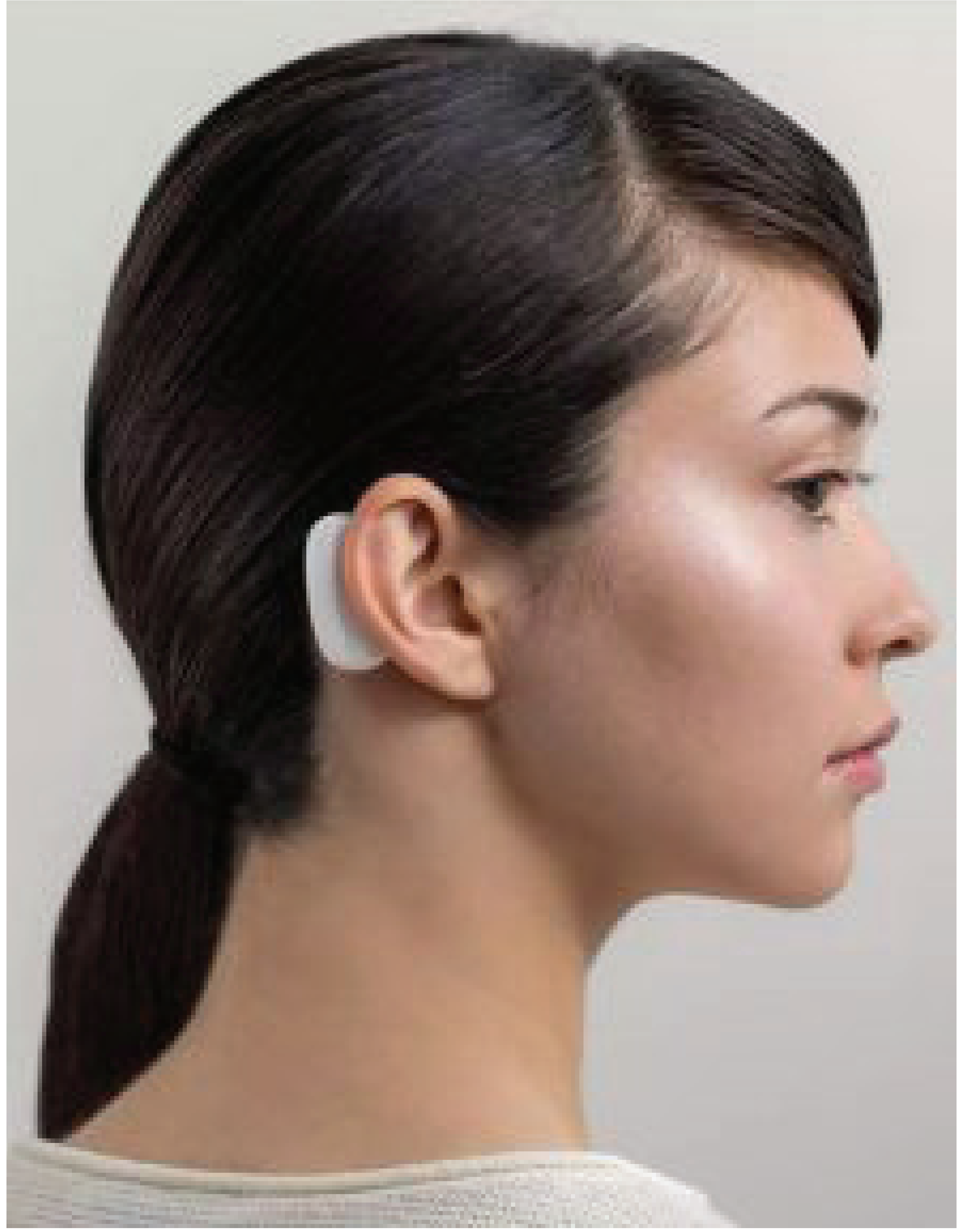
Bayan Mashrequi

SOFT TECH

Fabrics, Electronics and the Body

Previous Grad-ID Studio



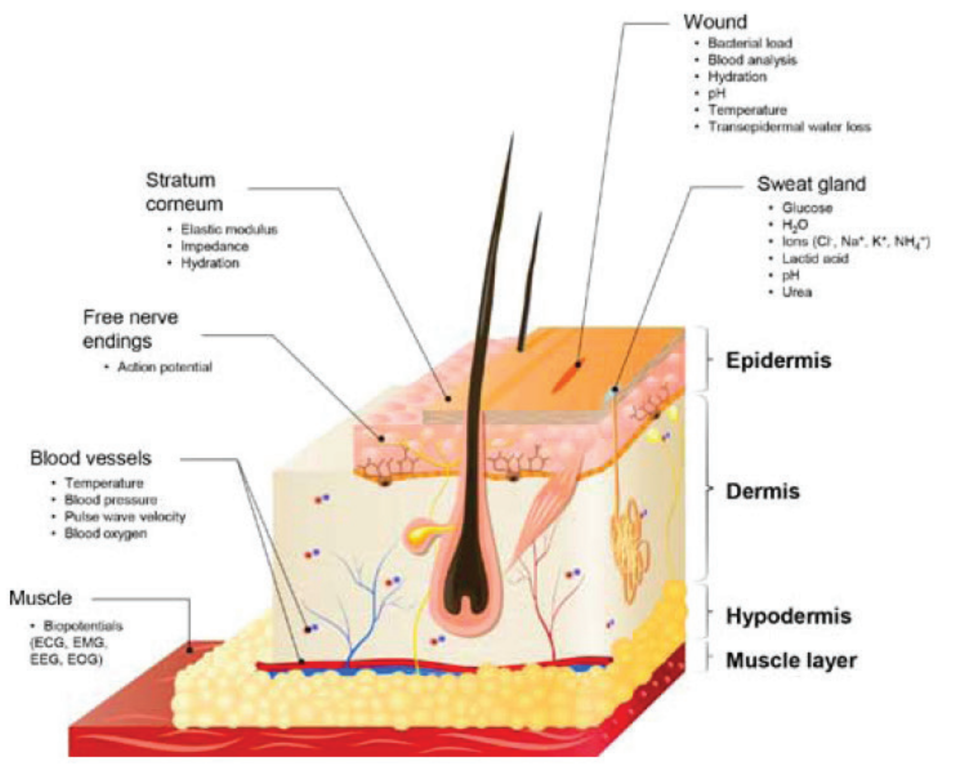


Previous Grad-ID Studio

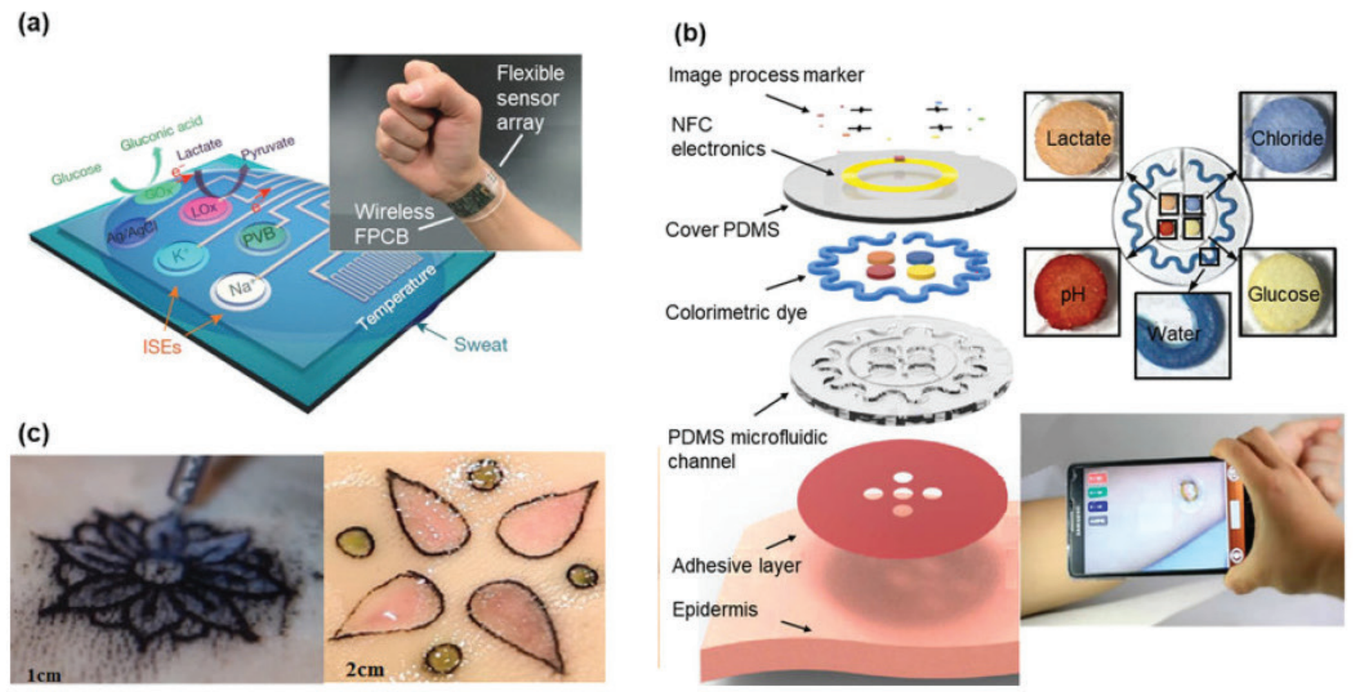
Skin 2.0

WEARABLE SENSOR PROTOTYPES FOR NEW AWARENESS (2019)

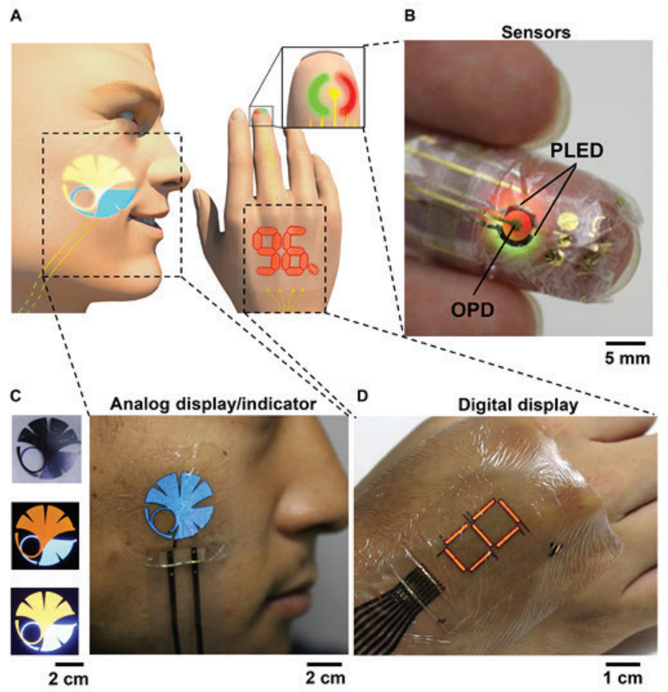
This project is a continuation on the concept of technology as an extension of self. By unlocking the aesthetic of technology outside of its common cultural box forms (phone, computer, watch, tv) and introducing organic shapes and terms such as "skin," we can regain a connection with nature and world to propose new ideas of interacting with it.



Lab-On-Skin, Nanowerk (2017)



Real Time Analysis of Bioanalytes in Healthcare, Food, Zoology and Botany, Researchgate.net (2017)



Ultraflexible Organic Photonic Skin, Science Advances (2016)

3 Pages

Moon_Tong-June, Portfolio

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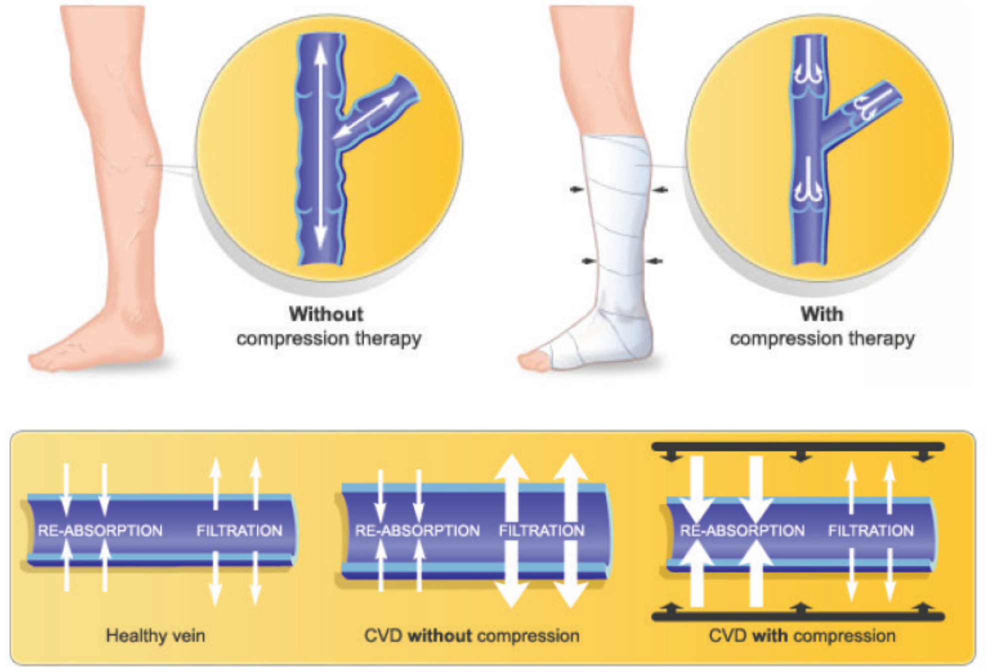
Skin 2.0 Sleeve, Front View

Skin 2.0 Sleeve, Side View

Compression Sleeves

Compression sleeves are used across a variety of end users from the elderly, hospital patients, to professional athletes and astronauts. It appliyes pressure to veno-lympatic systems for better blood flow and vessel tension which are key to efficient recovery or during high performance stress.

Skin 2.0 (a full body layer of sensors) connects us more deeply with our internal bio rhythms and external environments. A smart compression system would extend the interface (a bodysuit, sleeves, leggings) functionality with particular multi-sensor combinations, warning us of low blood sugar or toxic gas gas leak in our proximity. It will alert us of extreme weather conditions such as high UV rays as well as let us regulate our bodily functions more effectively.



The Mechanism of Action of Compression Therapy on the Veno-lympatic systems, Urgo.co.uk (Current)

Tattoo Turtleneck, Vetements

Kobe Bryant in Compression Sleeve (2005)

Sensor Sleeve Concept

Skin 2.0

Moon_Tong-June, Portfolio

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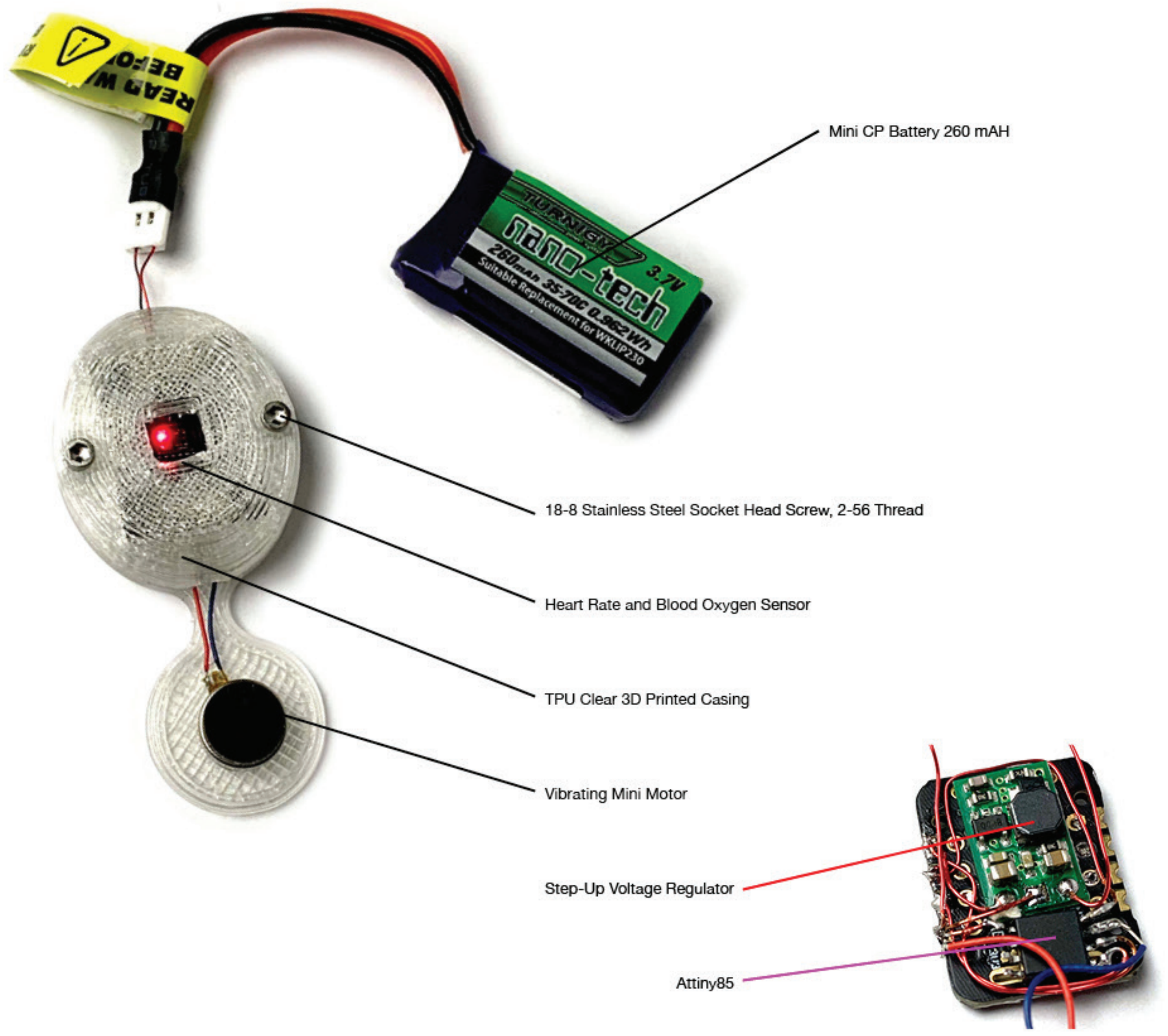
Previous Grad-ID Studio

Wearable Heartbeat Amplifier

By augmenting the biometrics of our bodies through sensations like touch, haptic feedback offers another way to materialize the internal rhythms that our body is communicating about our health. This prototype turns the heart rate into vibrations to quickly feel the users pulse. For an ER doctor seeing numerous patients to blind users, this prototype is an exploration on finding other way to output information by engaging other senses.



New Haptic Armband Gives VR a New Sense of Touch, edgy.app (2018)

Wearable Prototyping

Skin 2.0

Moon_Tong-June, Portfolio

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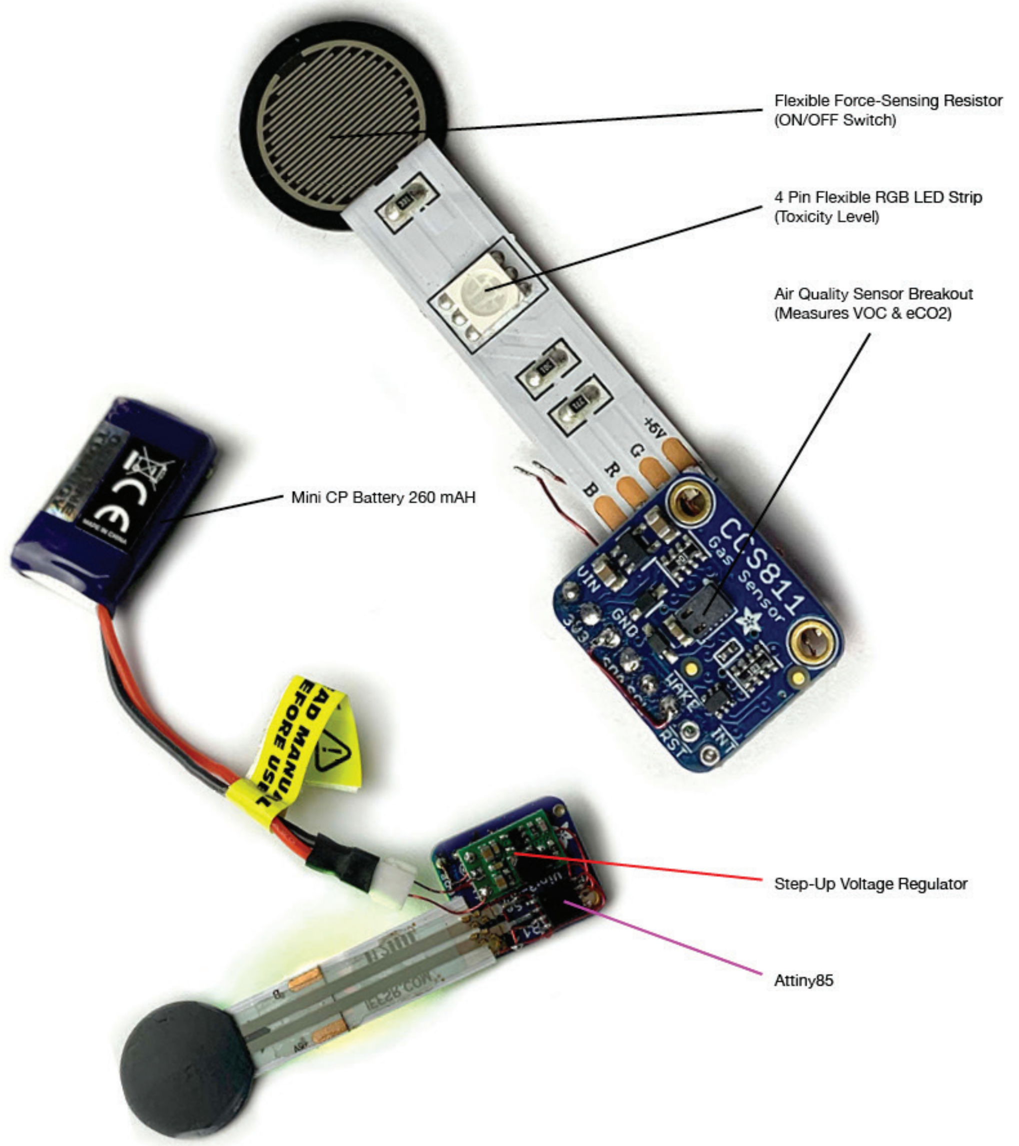
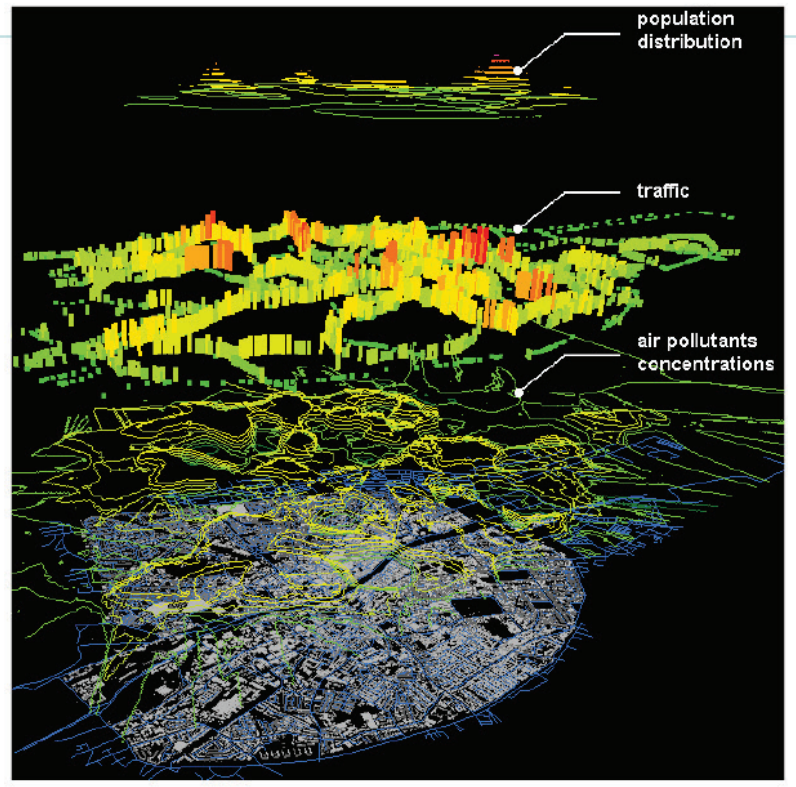
Wearable Atmospheric Sensor

Whether air quality or UV exposure, users have real time awareness about external conditions they are immersed in at any given moment. Crowd sourced data allows users to visualize the changing environment that might other wise be invisible. Decentralizing our connectivity based on our own daily movements could help us map and pinpoint patterns related to environmental or industrial problems.





Real-time measurement of inhabitants exposure to noise and pollutants with a network of sensors, researchgate.net (2012)

Wearable Prototyping

Skin 2.0

Moon_Tong-June, Portfolio

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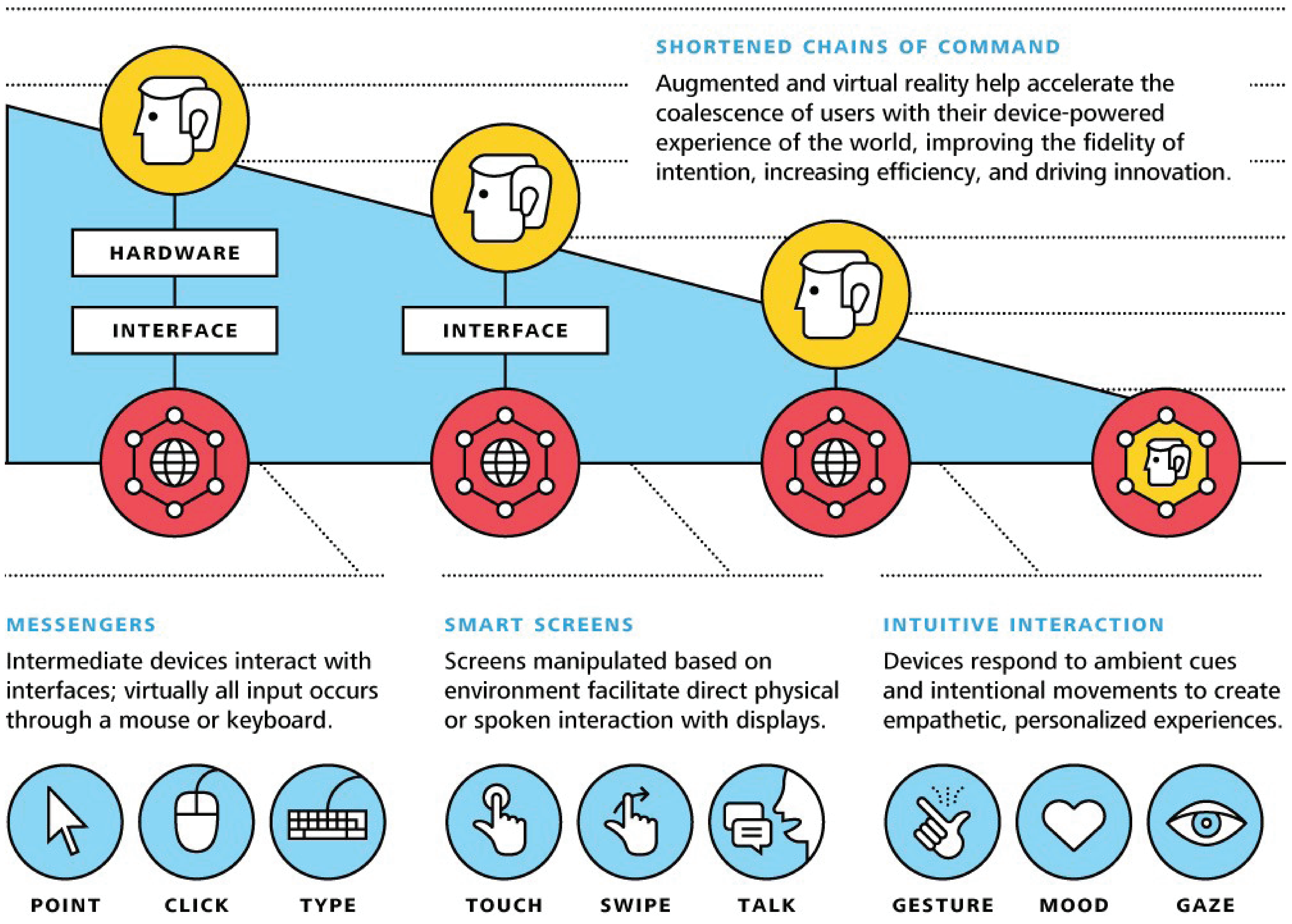
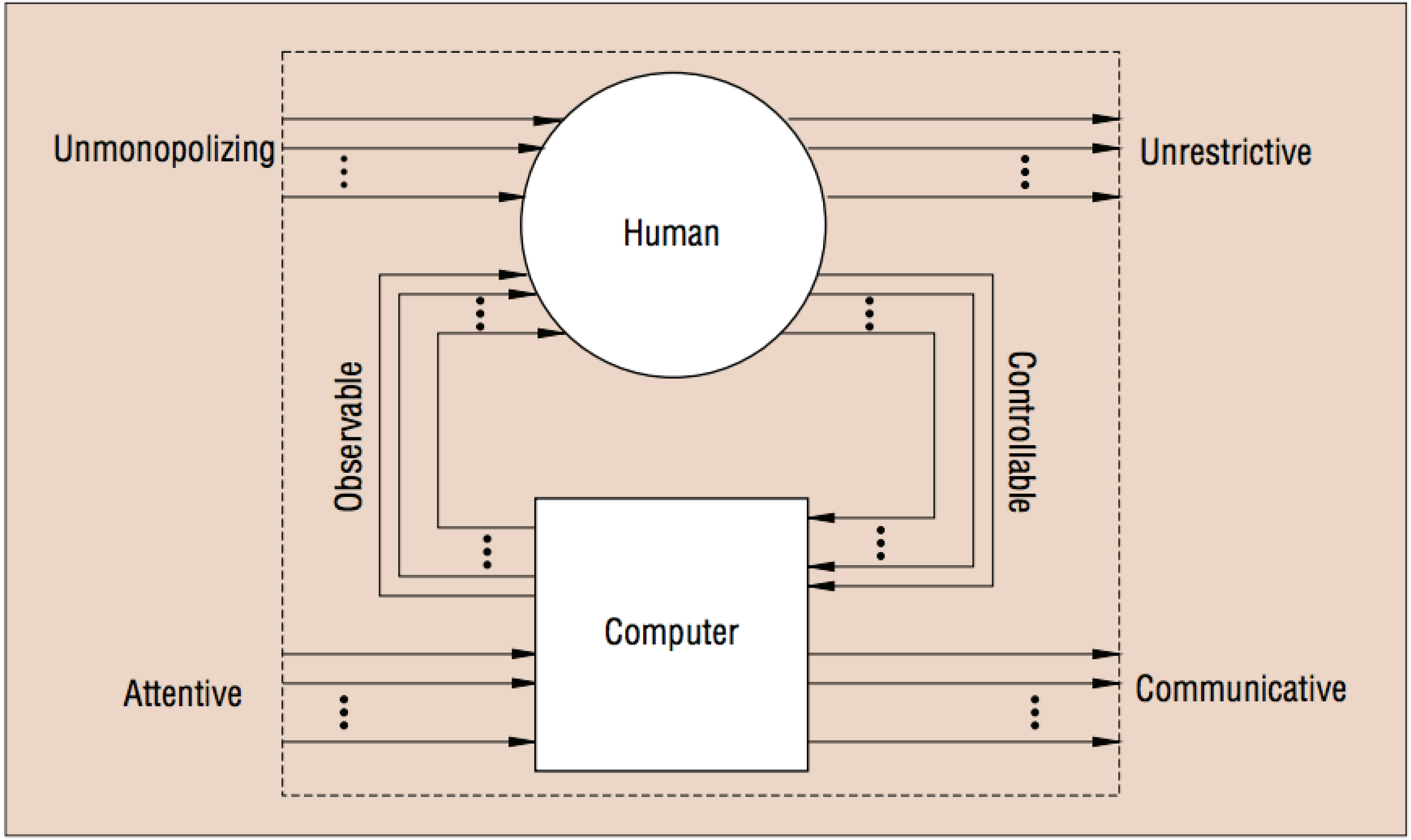
Philosophical Proposal

Figure 1. The evolution of interaction

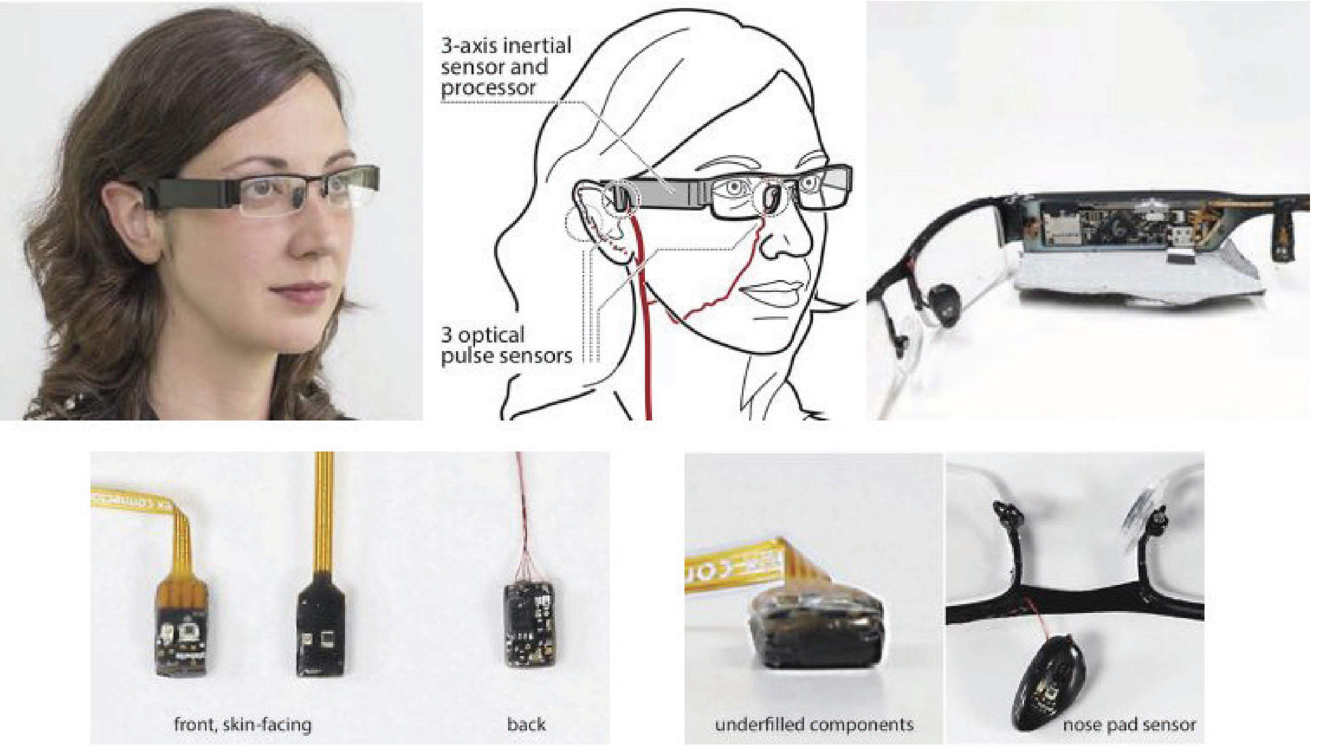


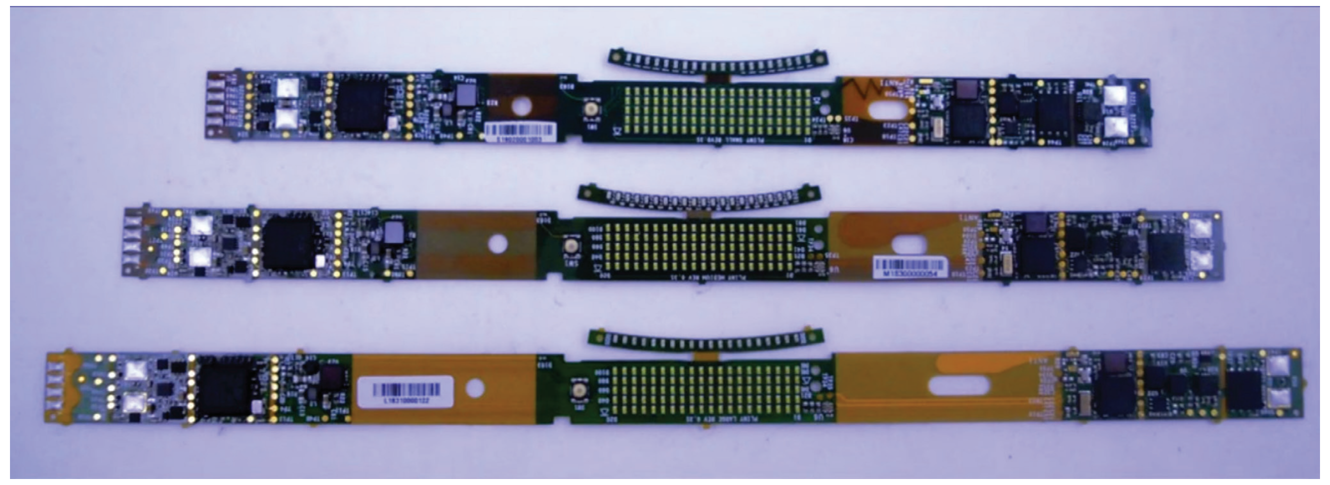
Graphic: Deloitte University Press | DUPress.com

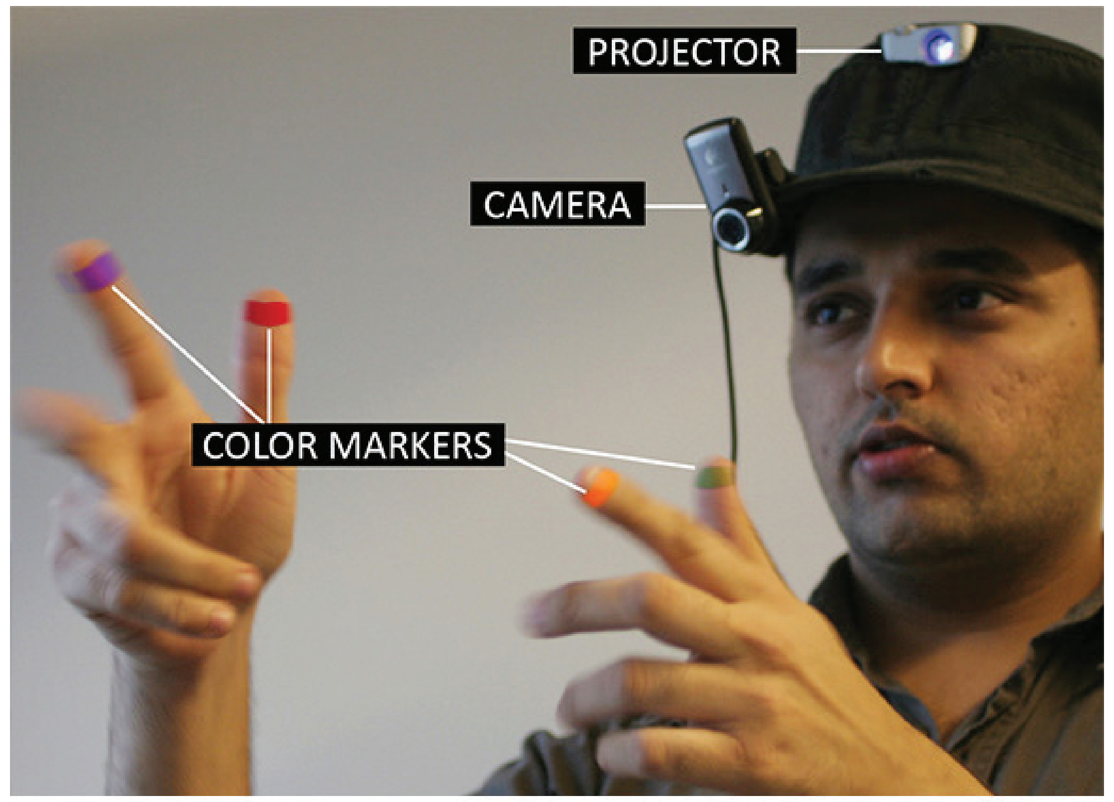
Philosophical Proposal

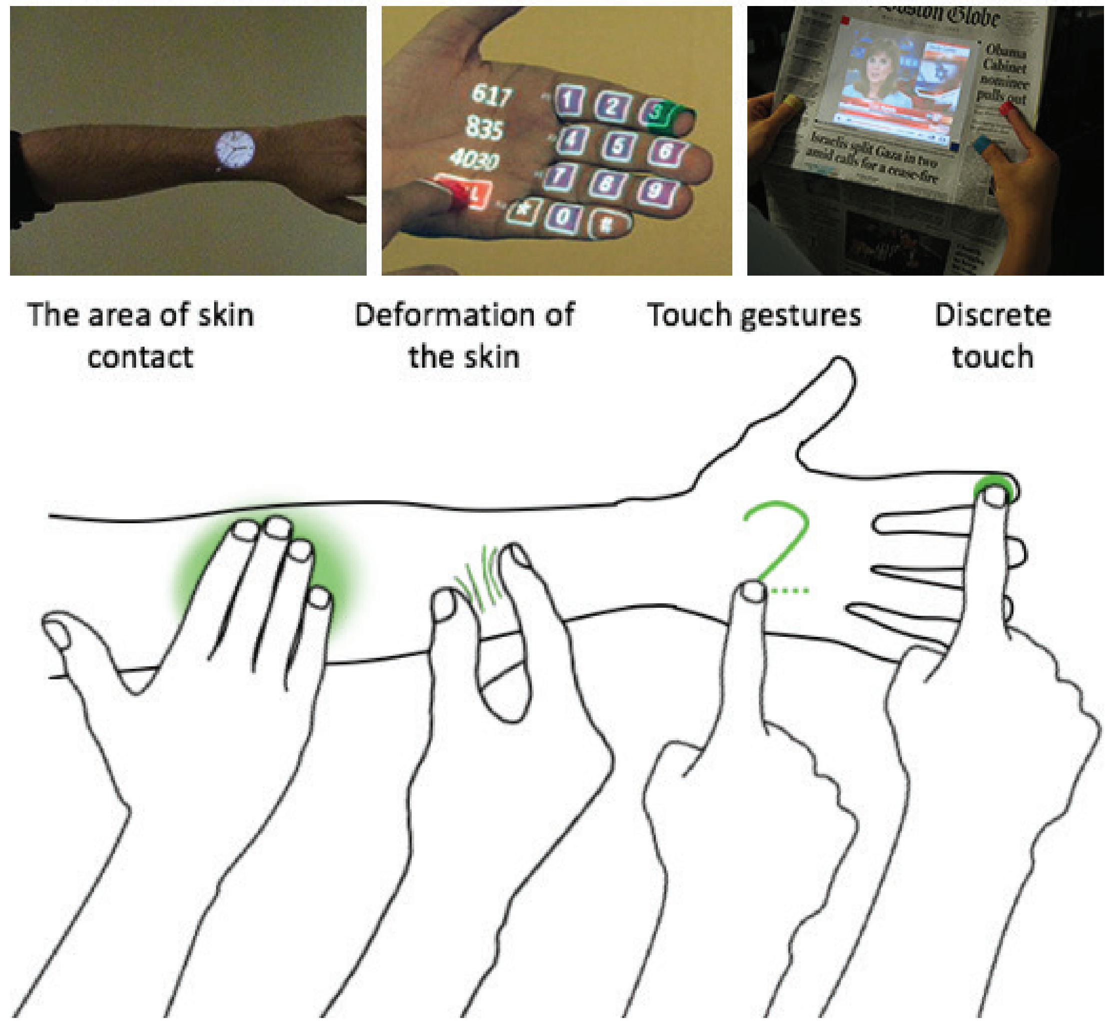


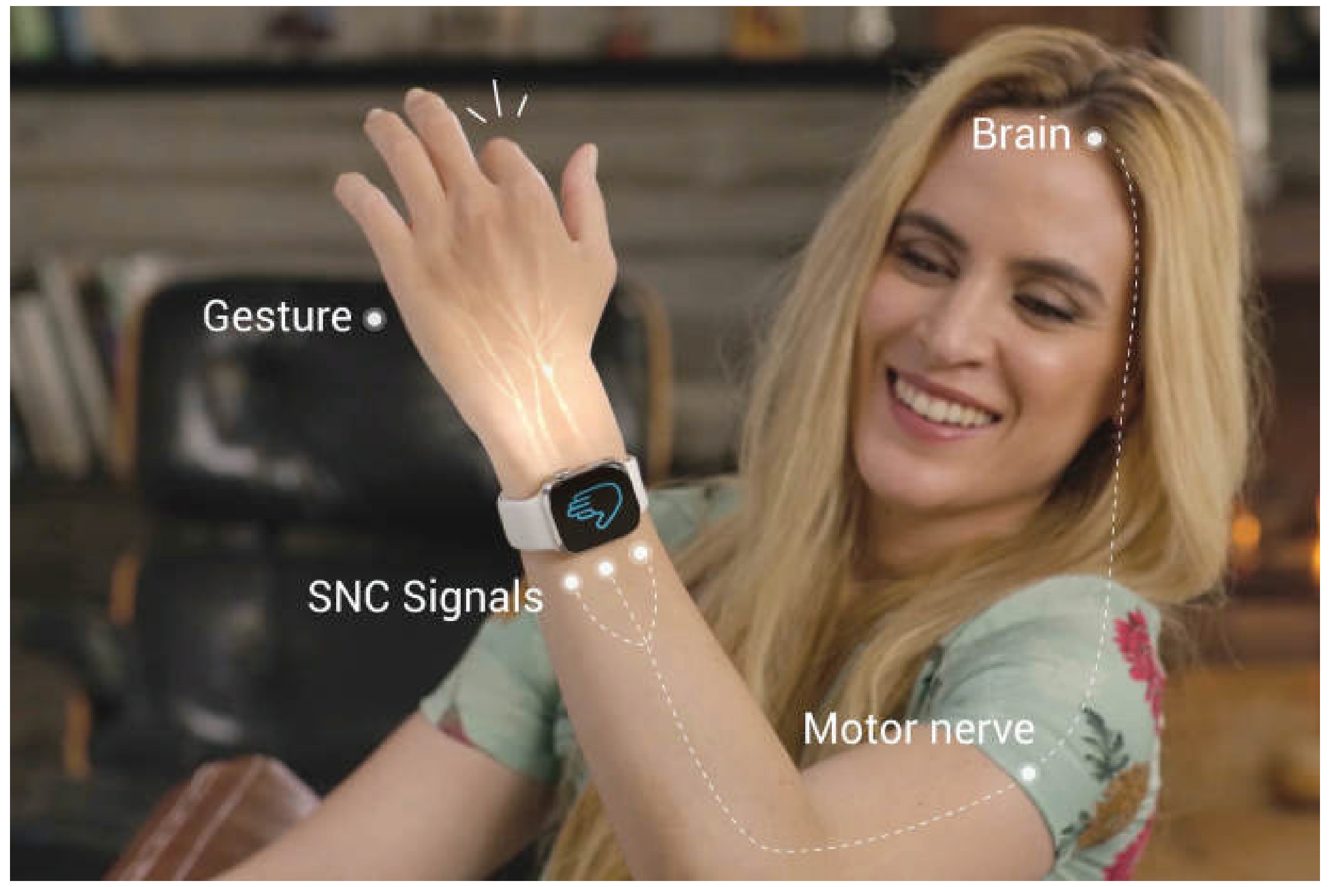
Precedent Research:

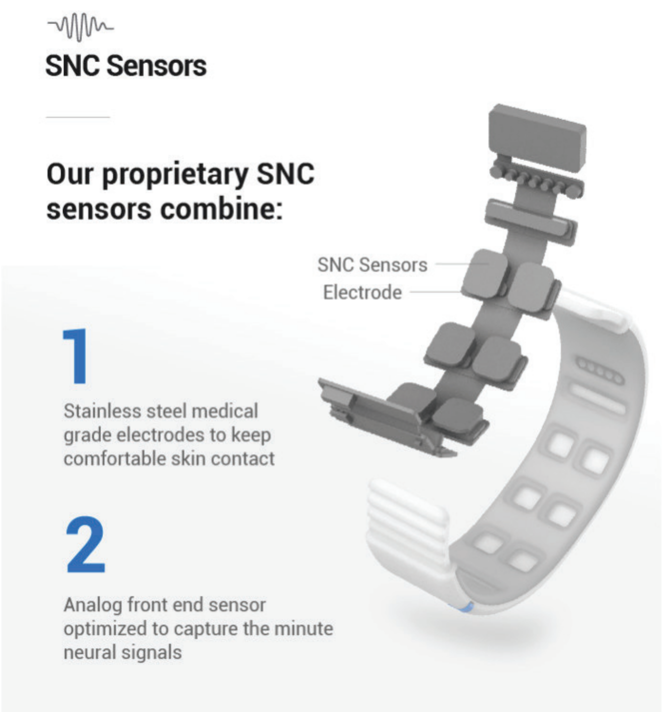




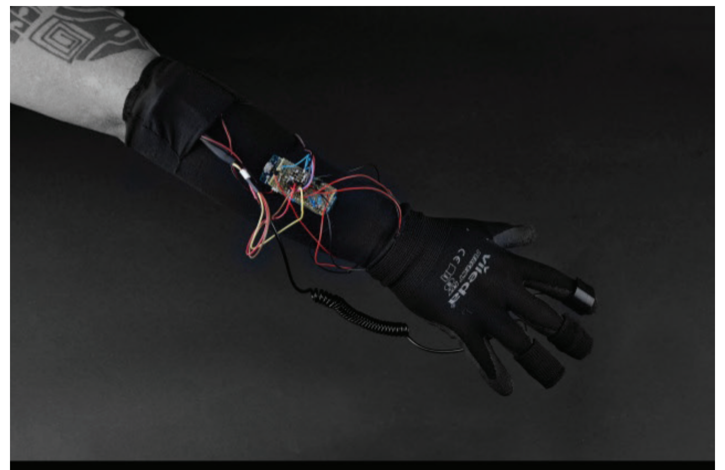




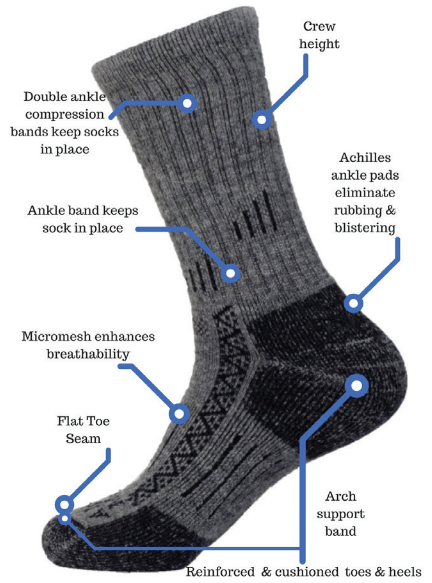


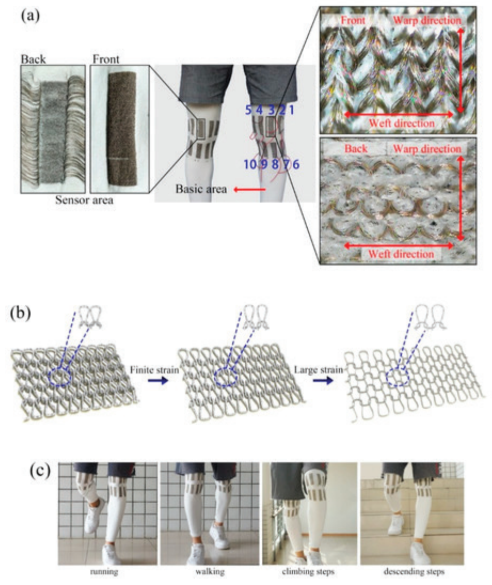


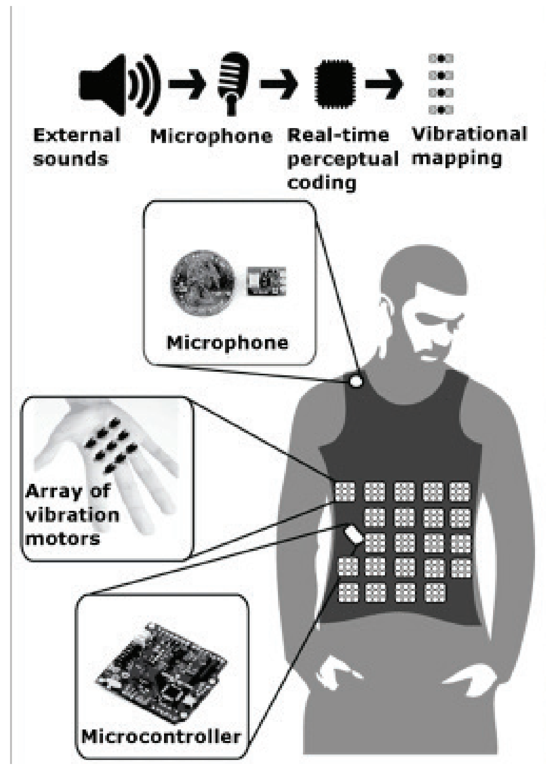
Precedent Research:

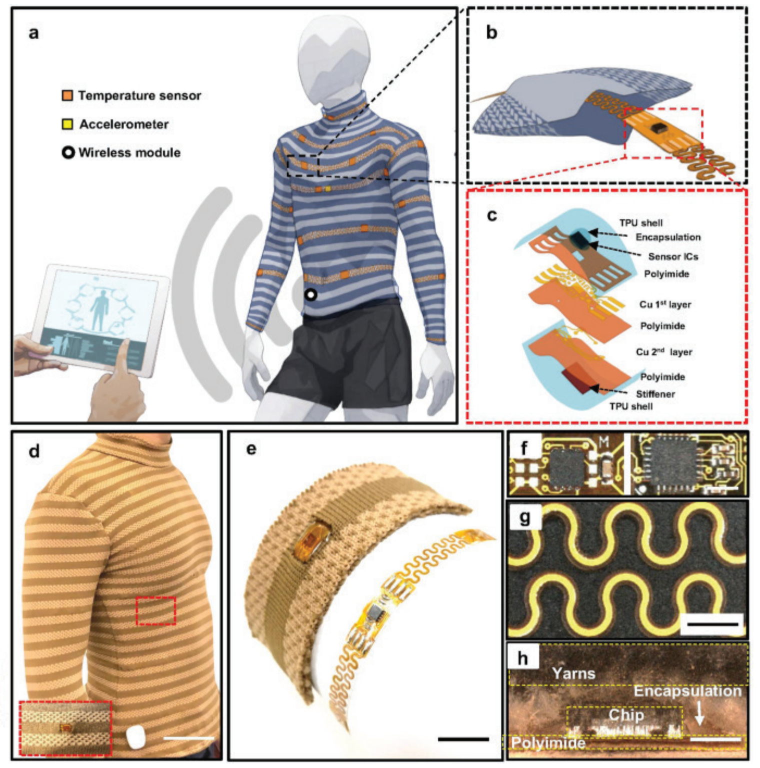


Embodied Suffering: to feel the anxiety of the other.
(Fernando Obieta, Gabriel Bach, Nadine Prigann, 2017)





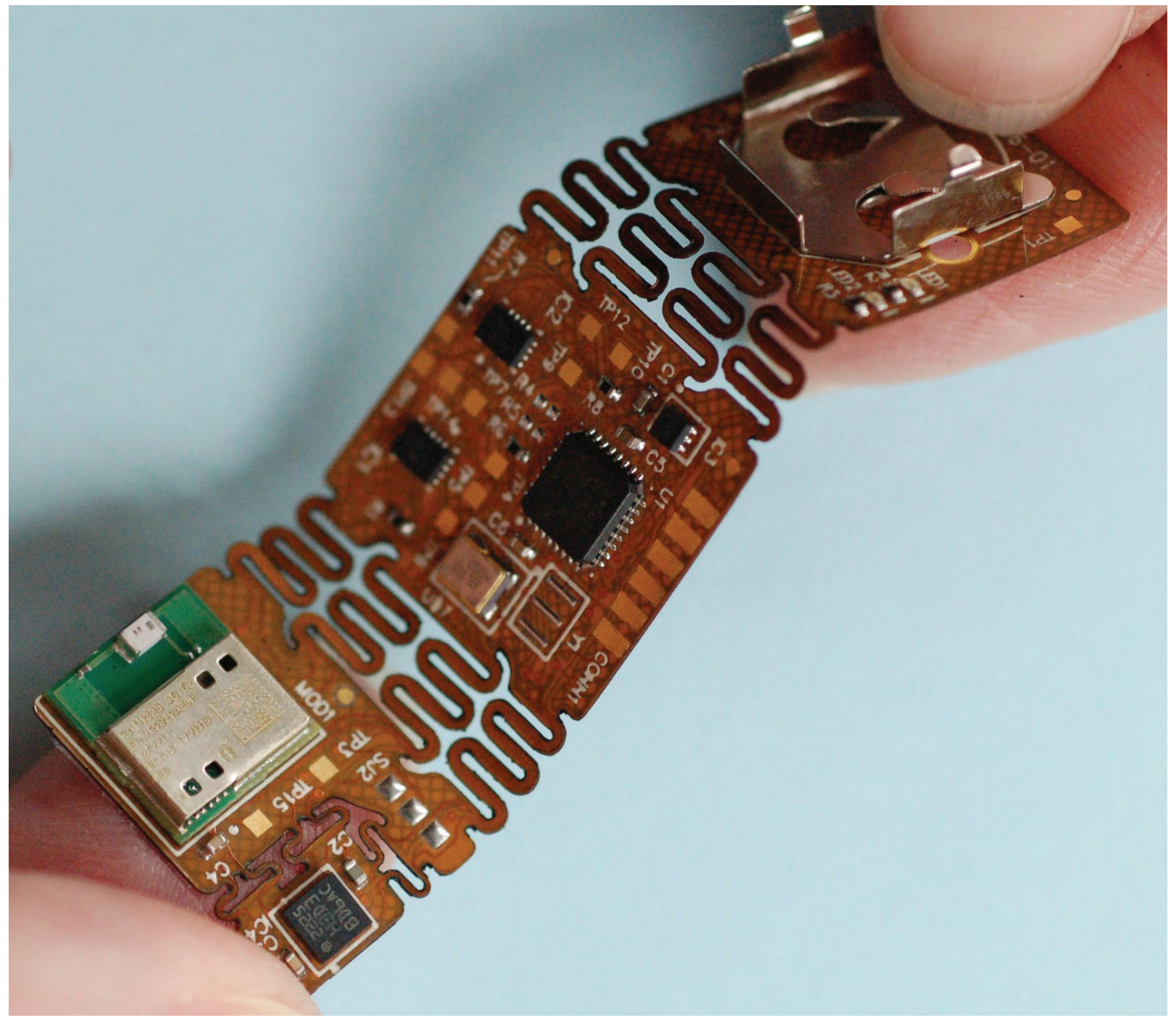


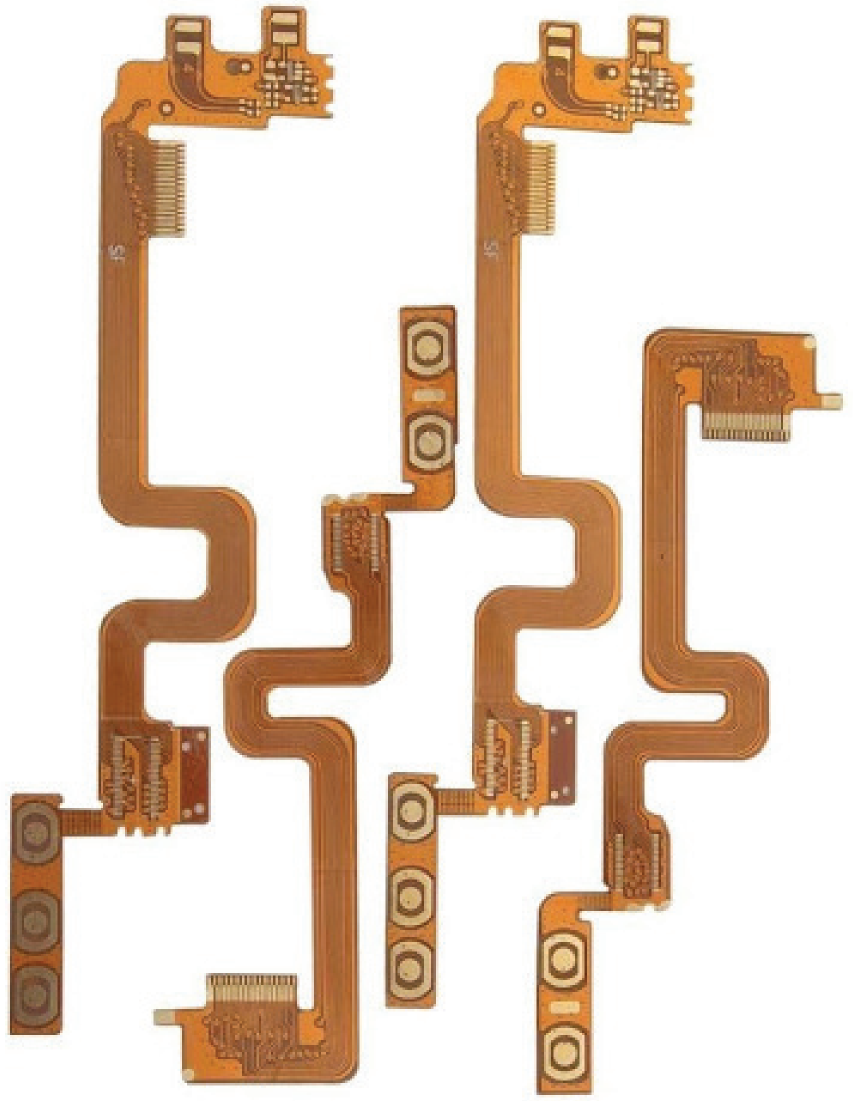


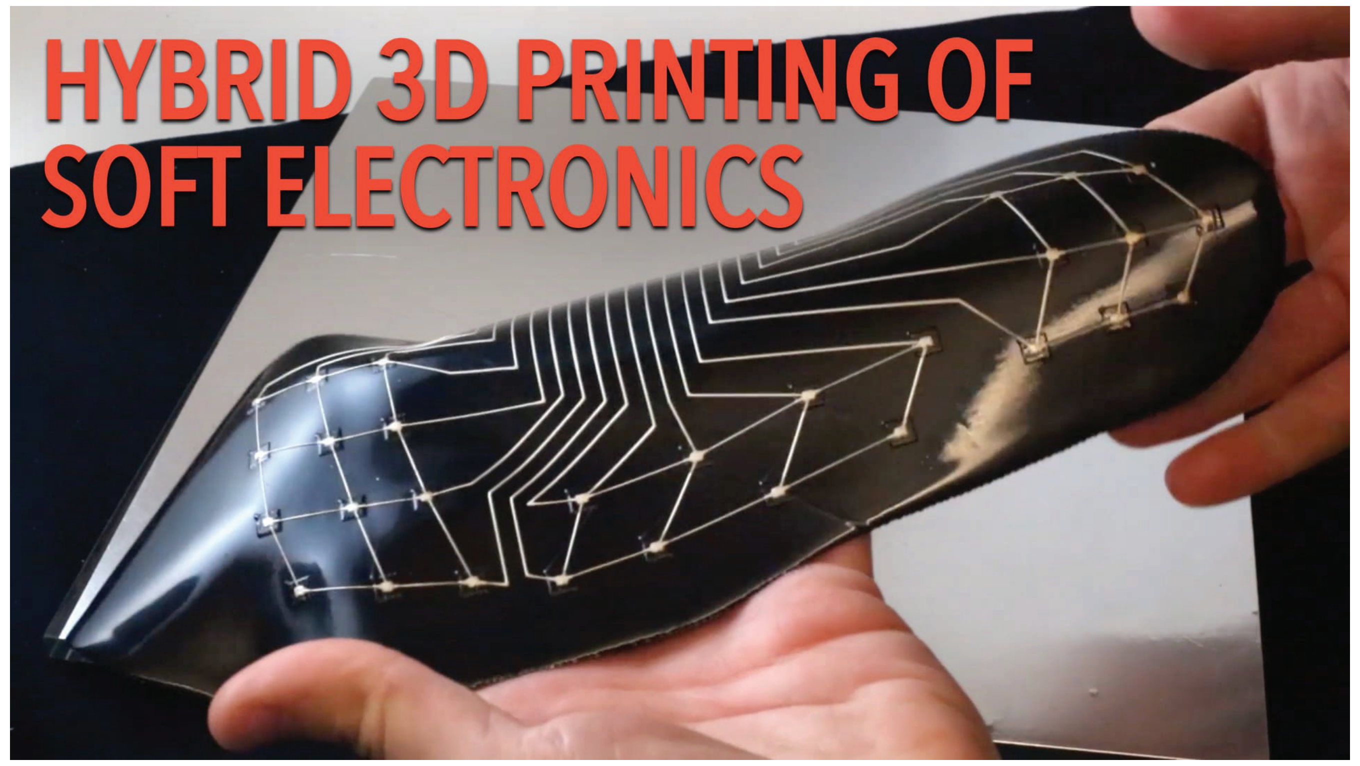
Design Statement

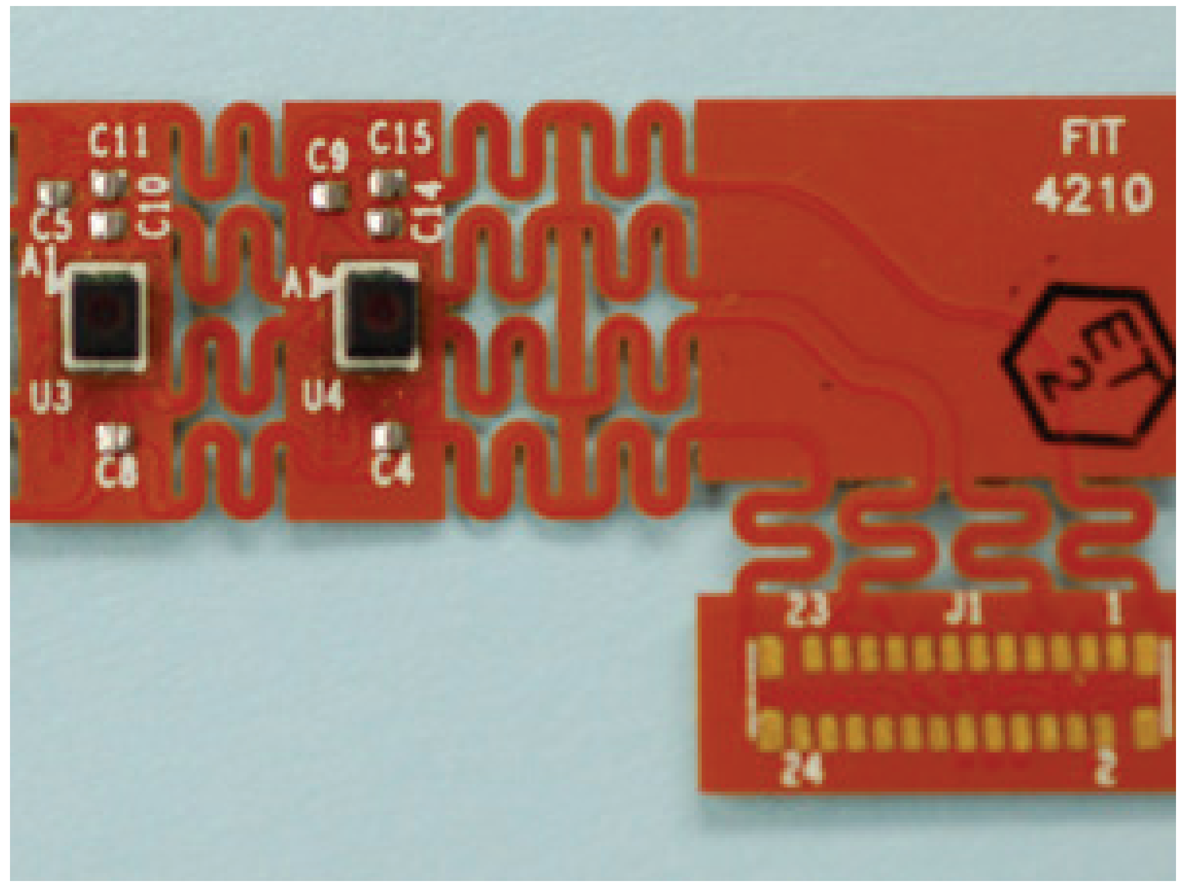
We are building a PCB that can be directly applied to the fabric. This techno composite membrane will be use to experiment on new types of interfaces that augment our reality and perception of it.

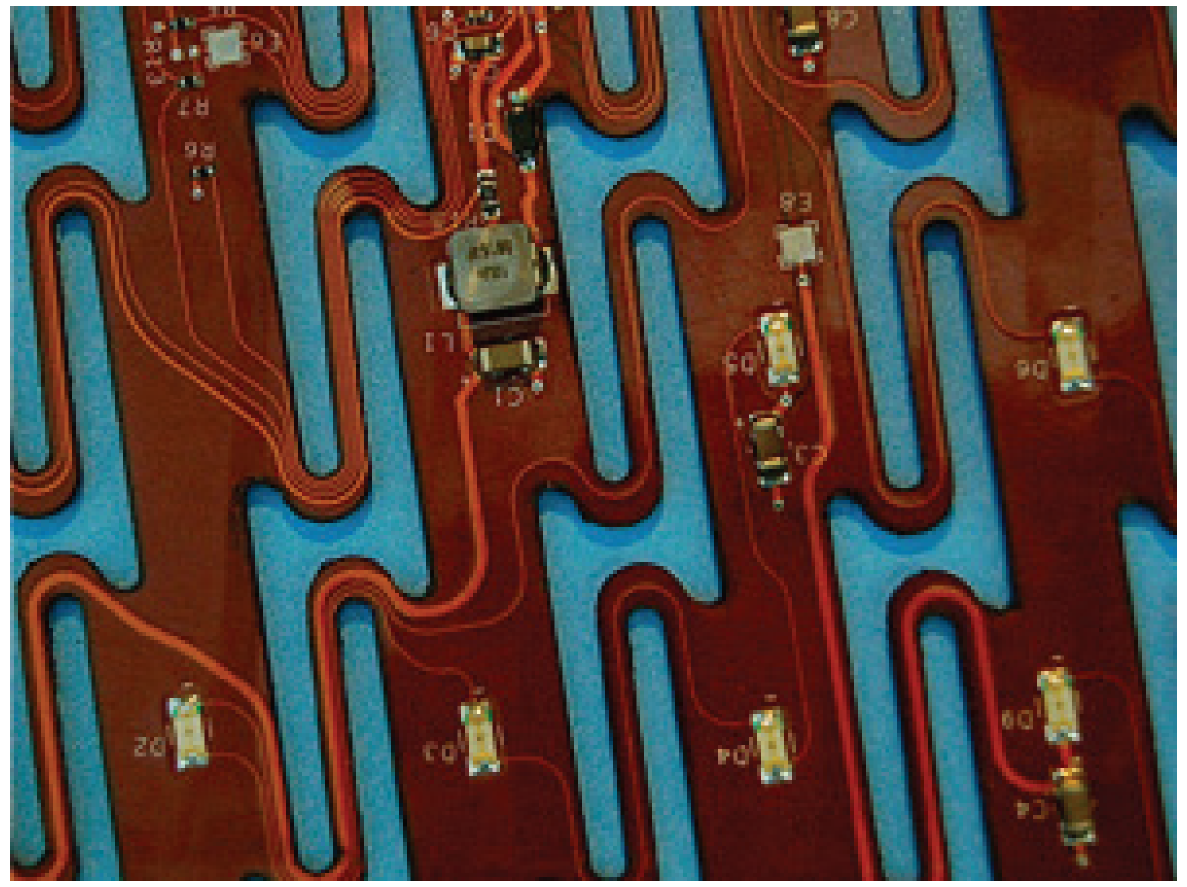
Flexible Technology

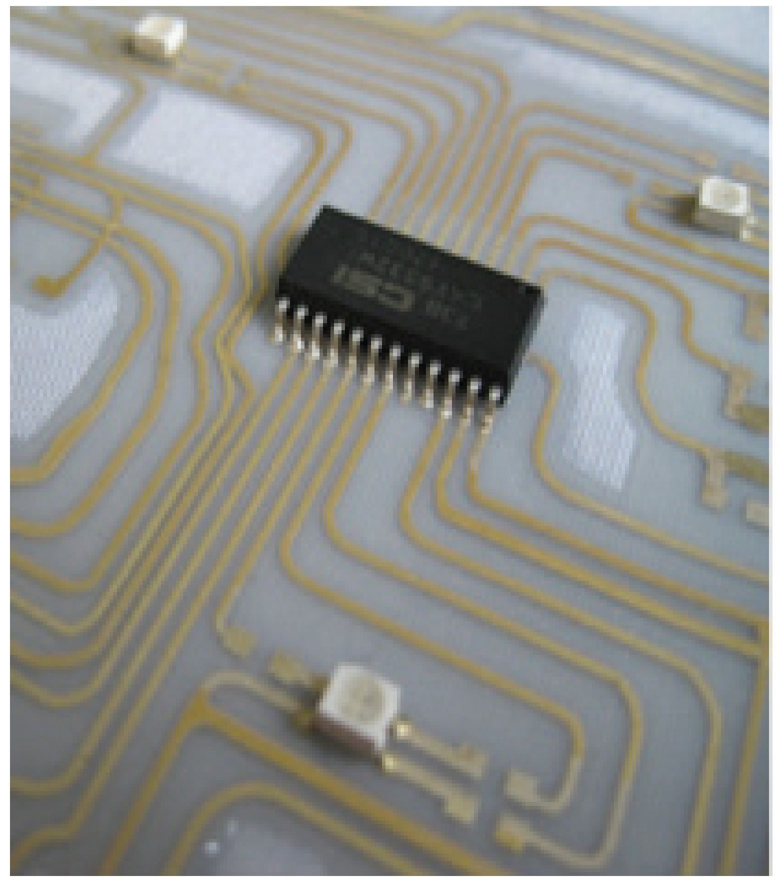




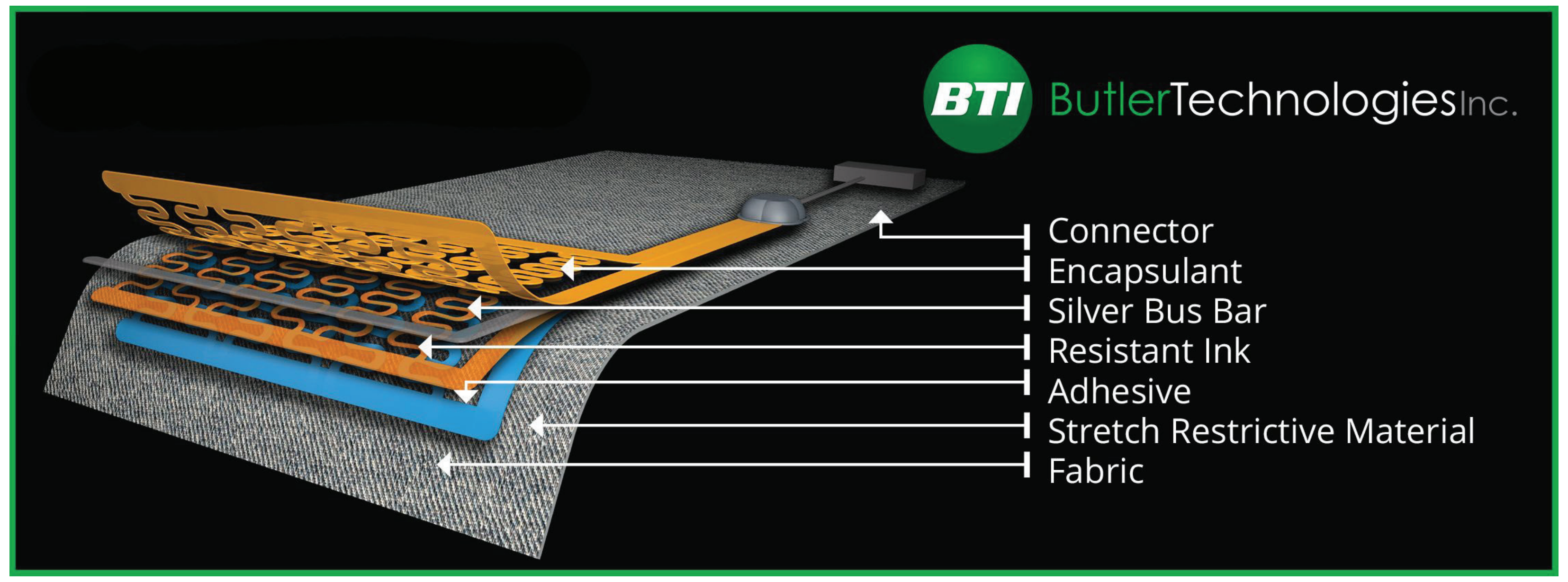


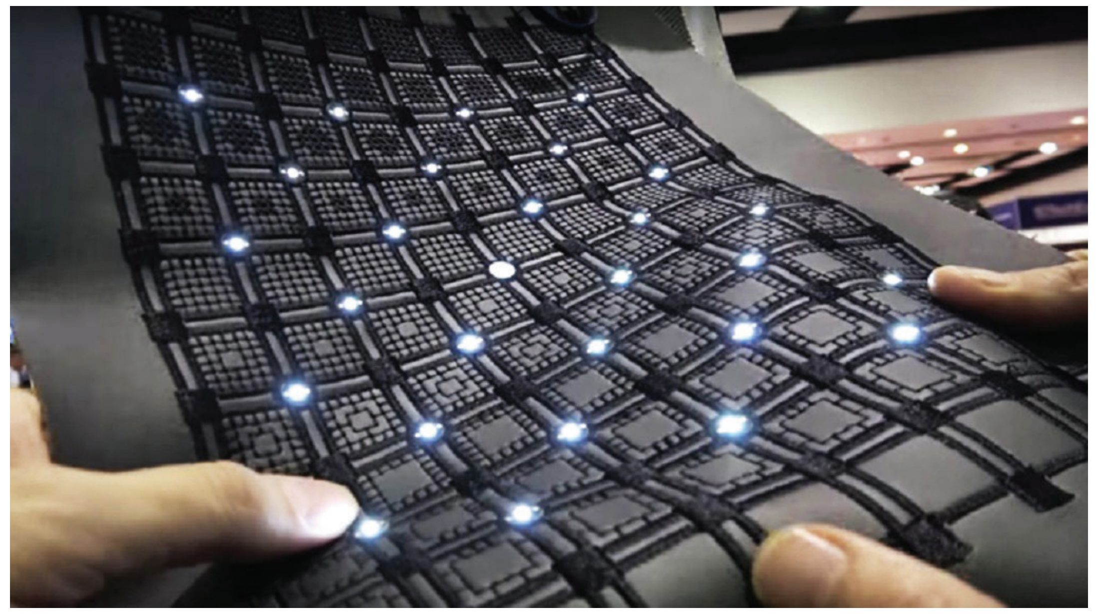


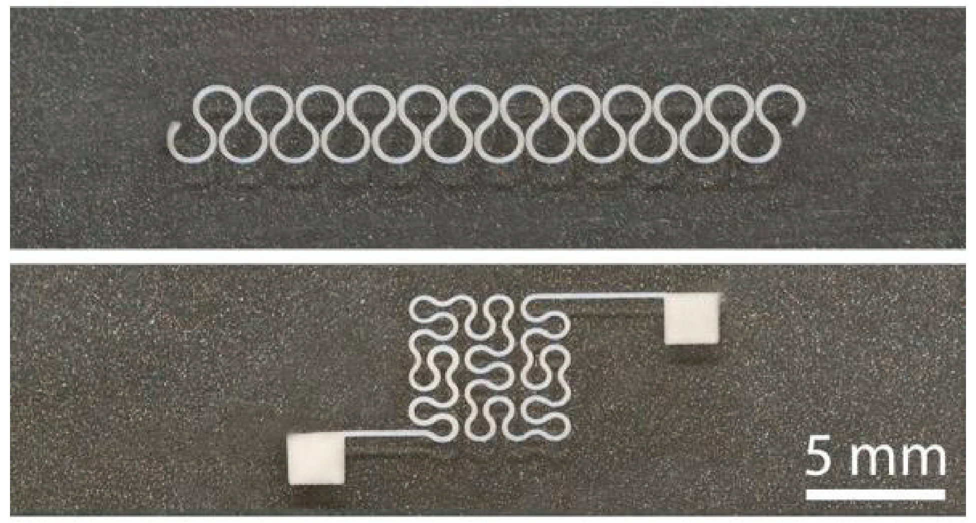


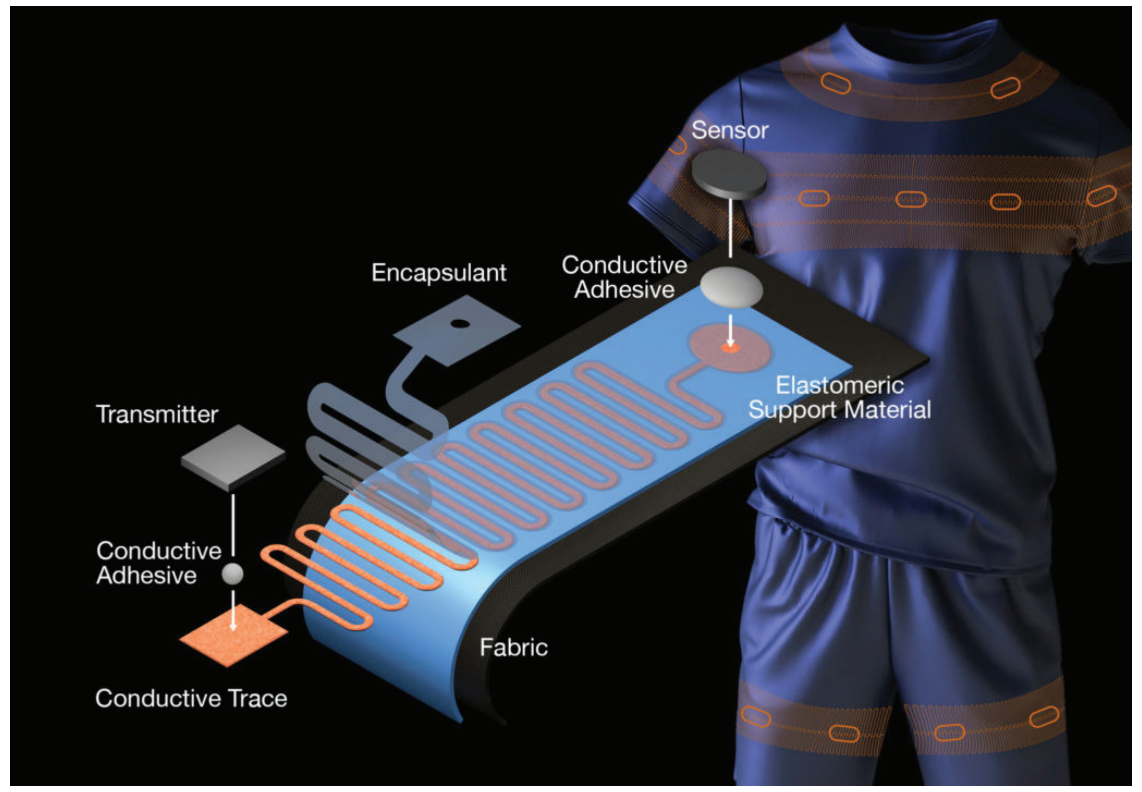


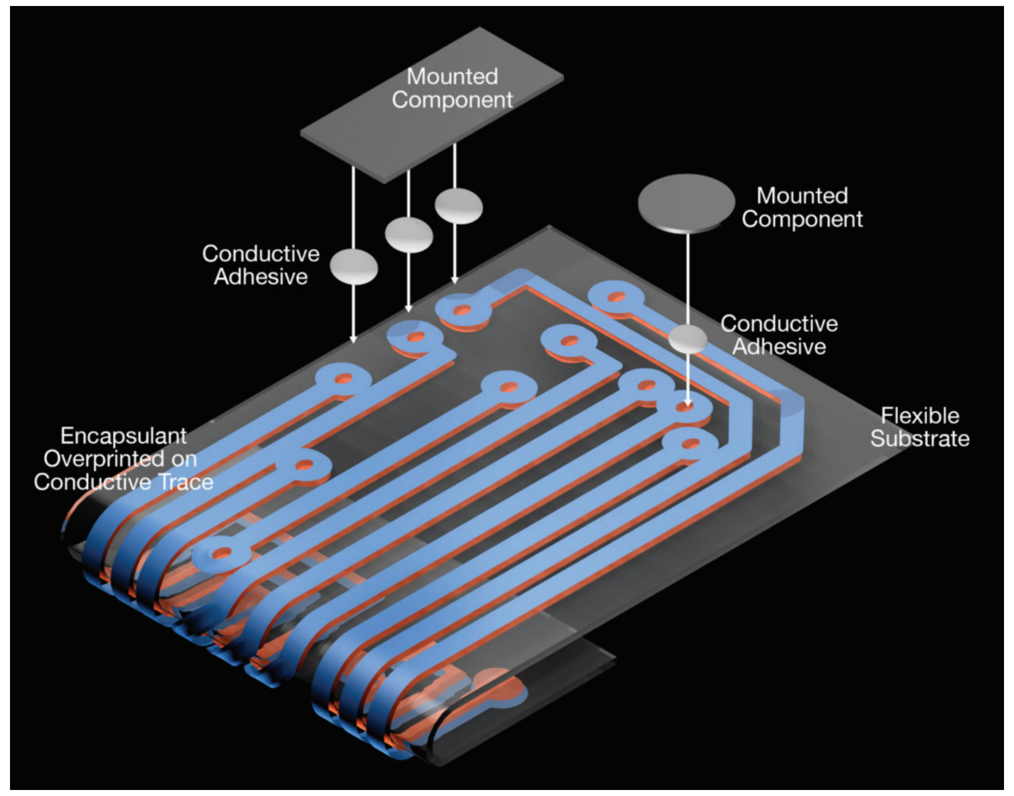
Seamless Application

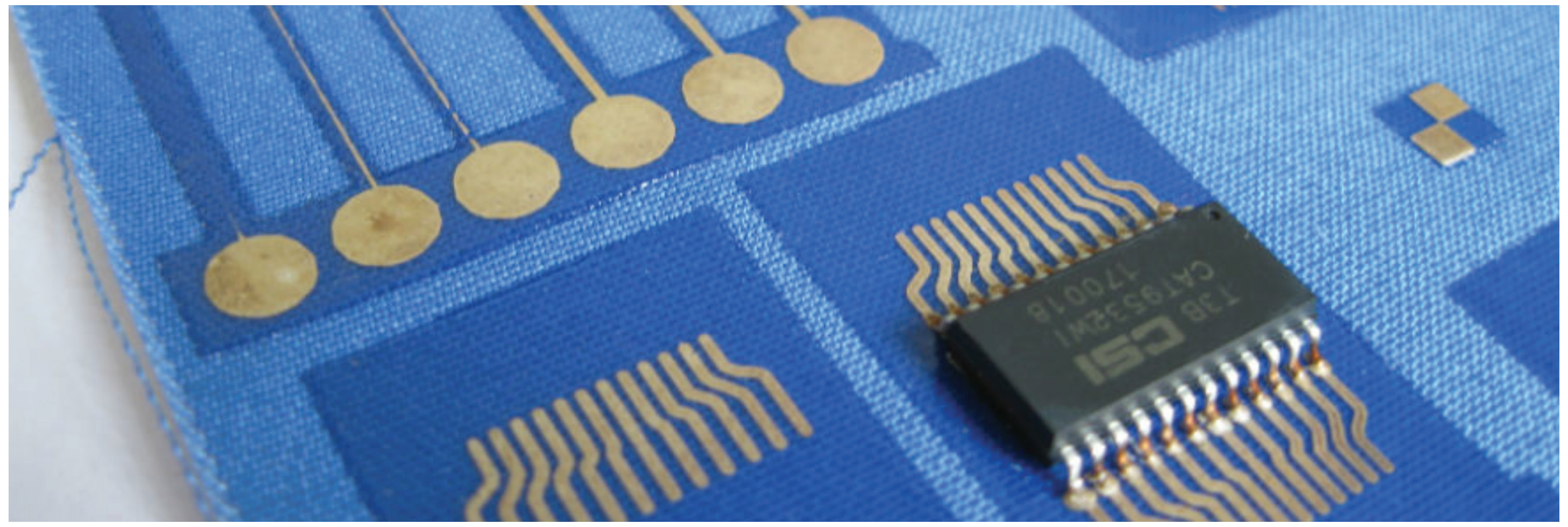


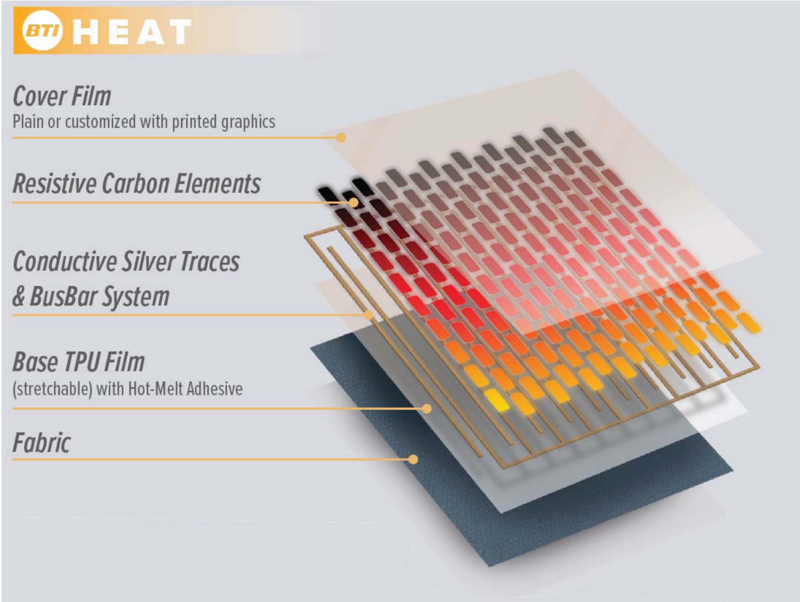












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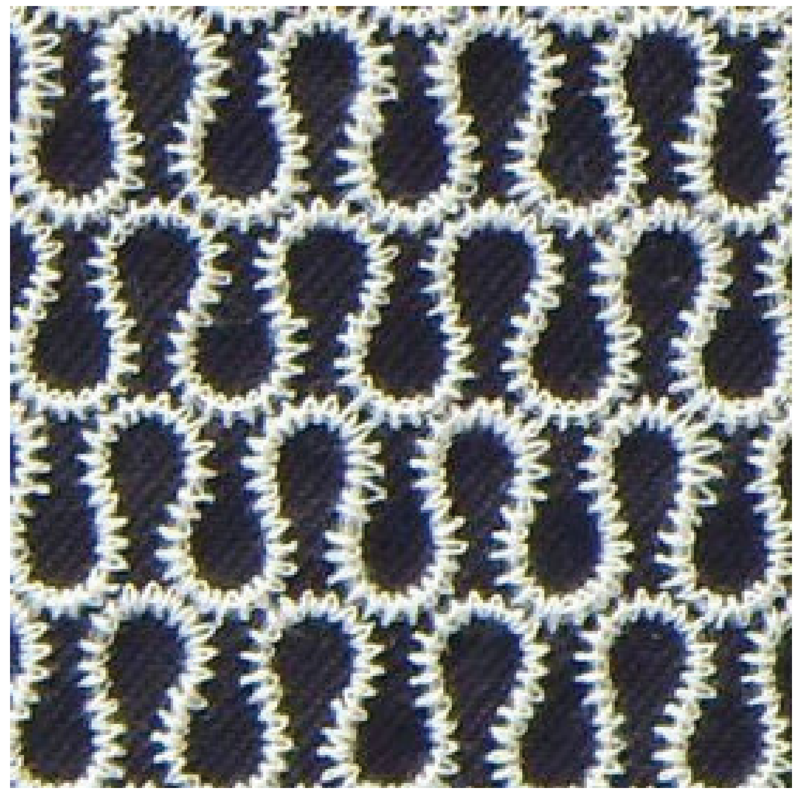

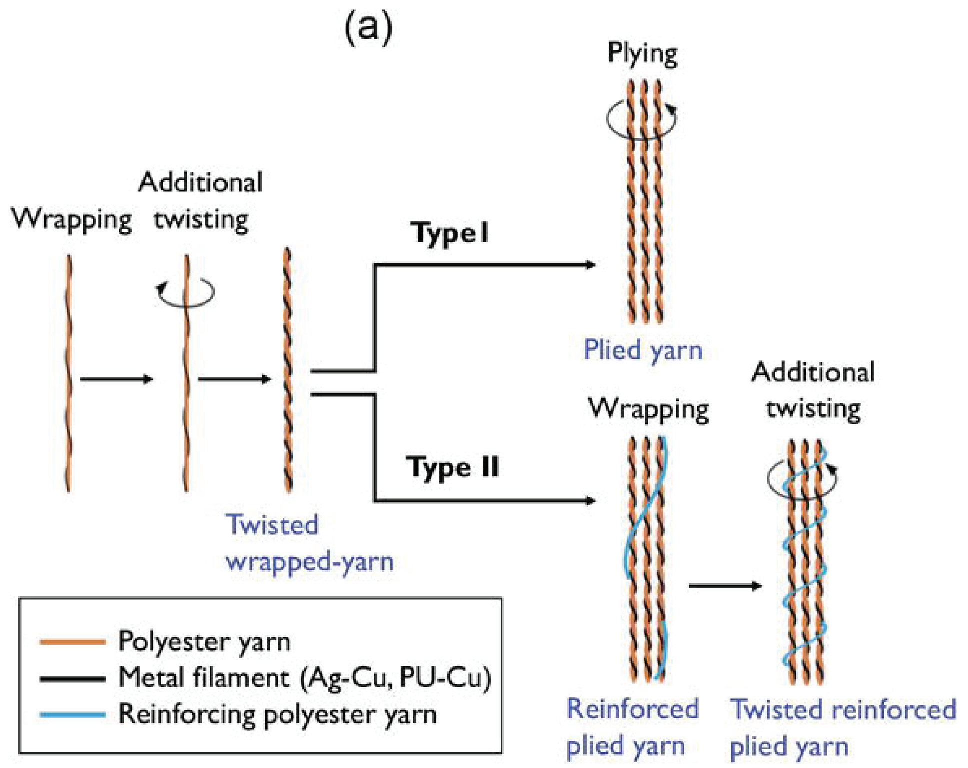

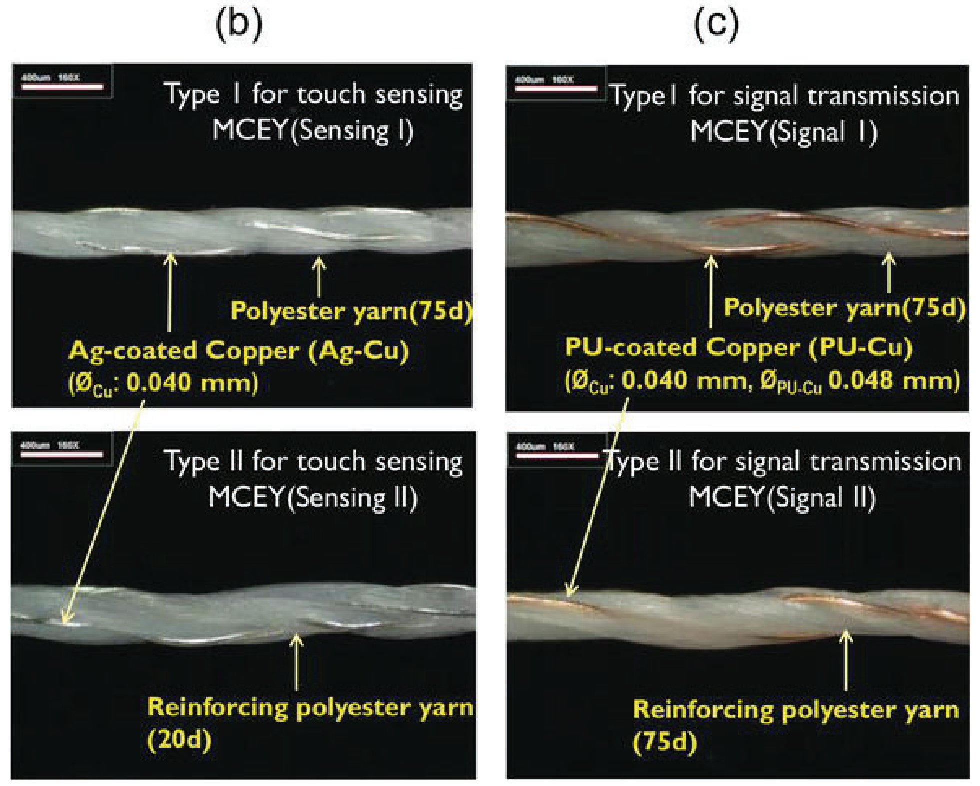

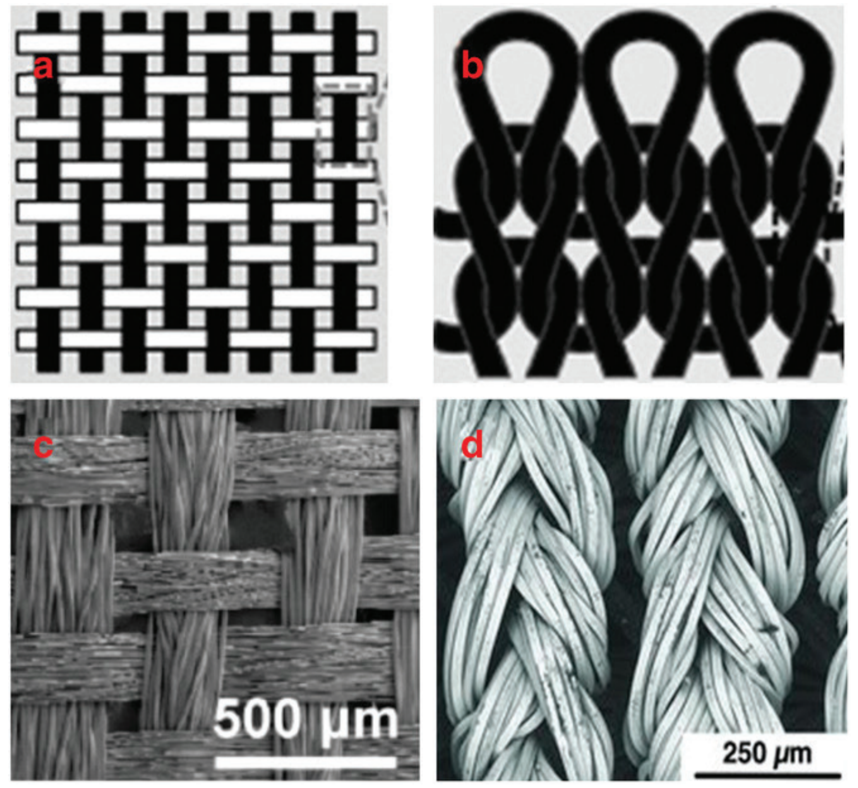

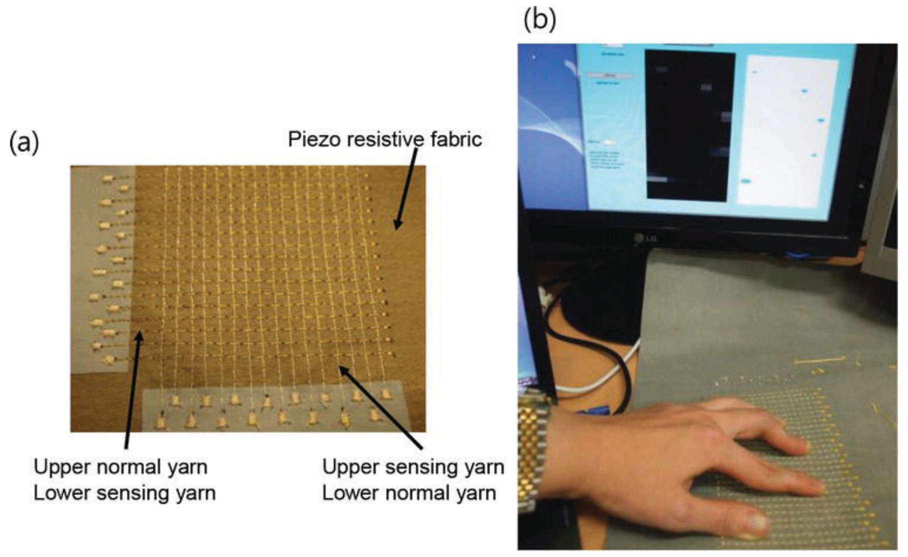

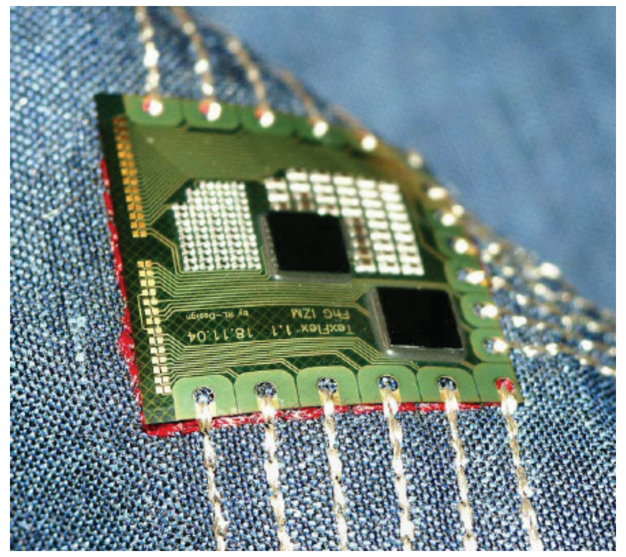

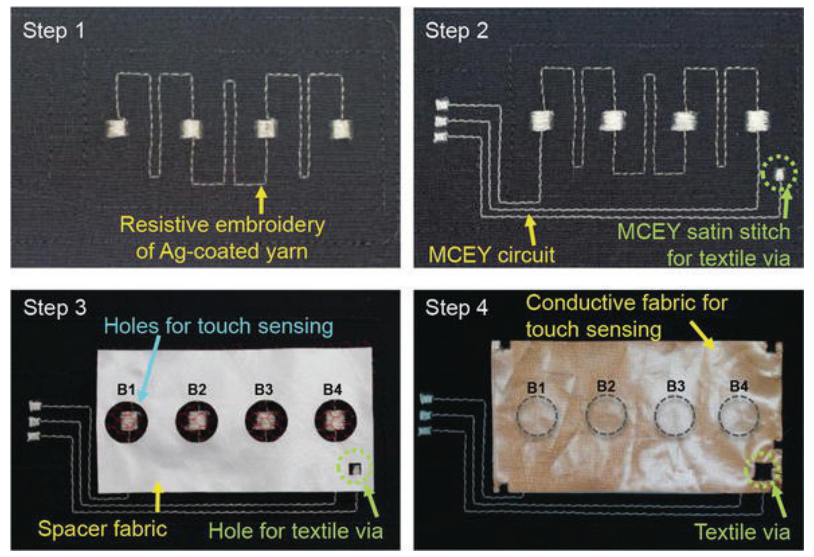

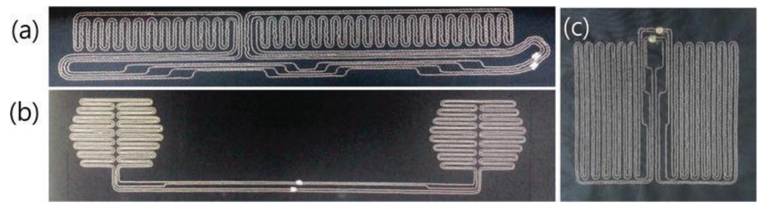

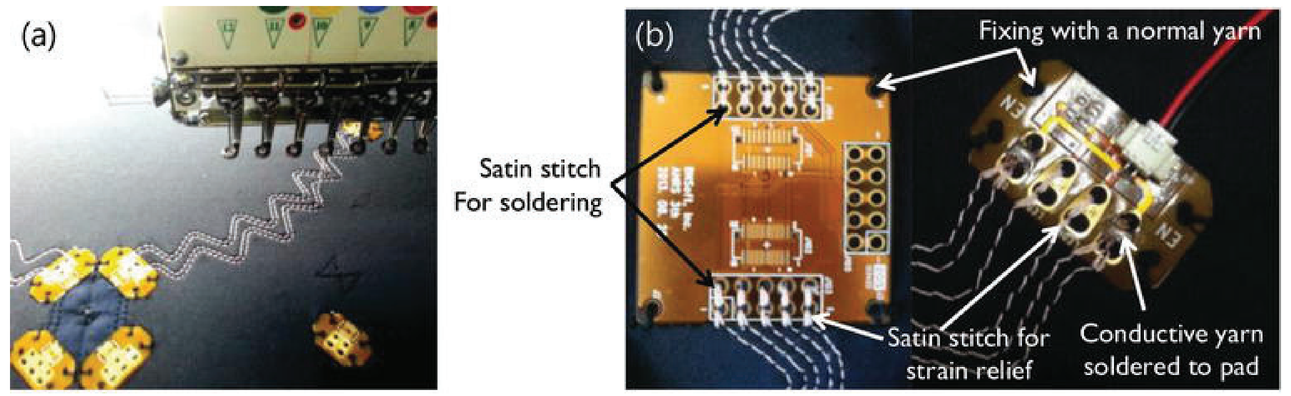

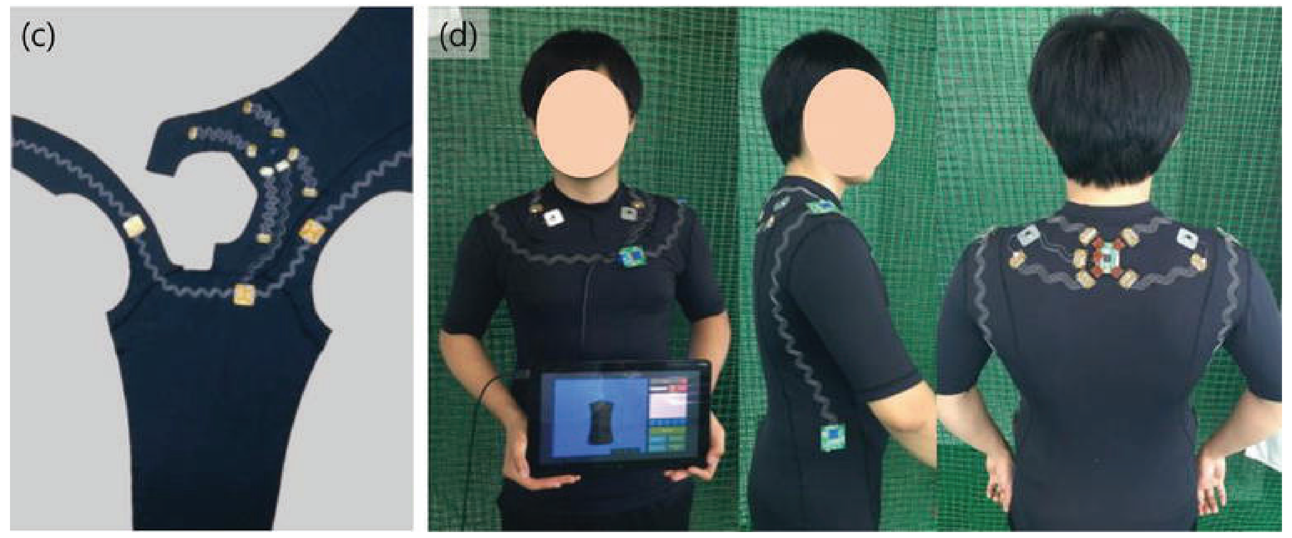

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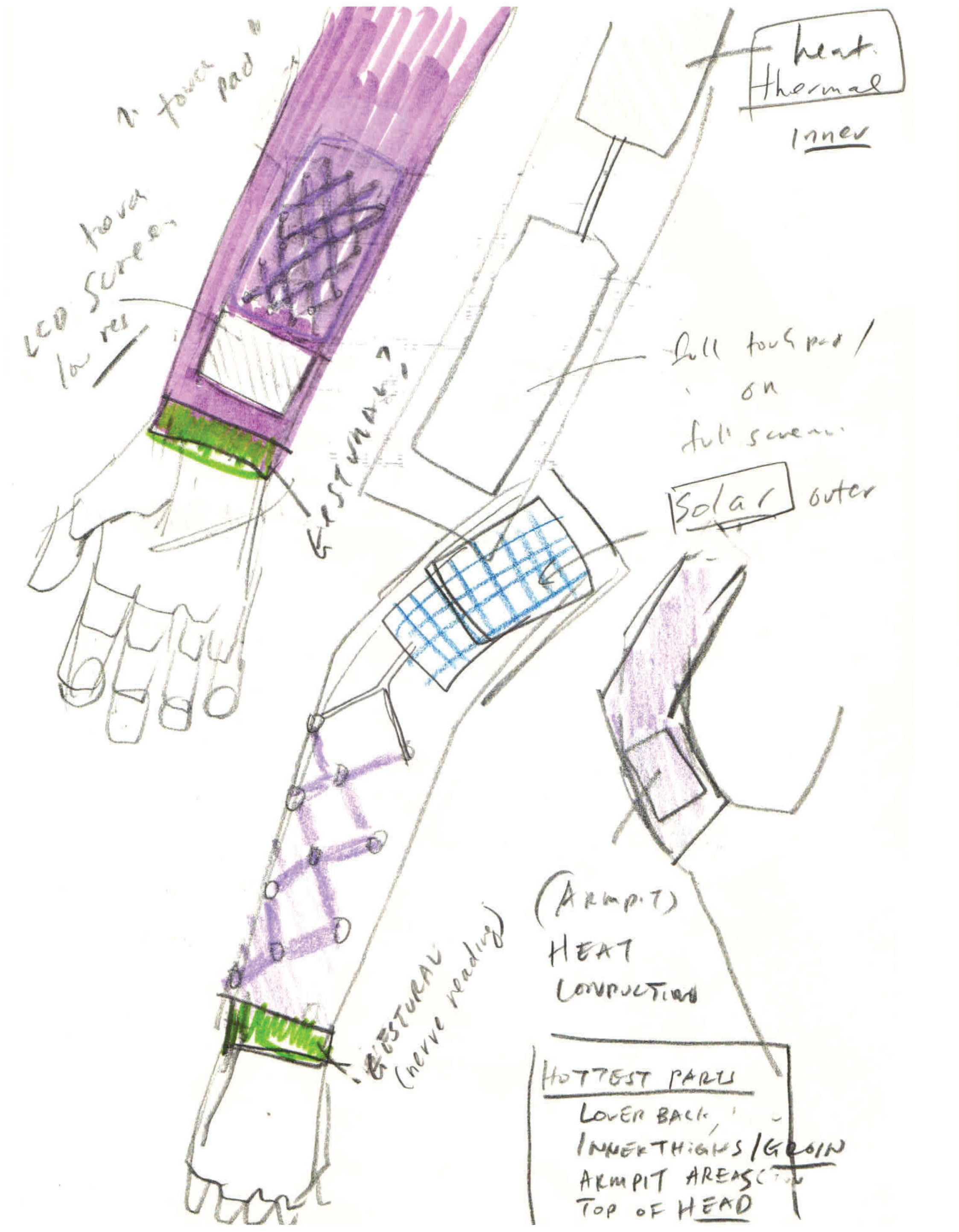
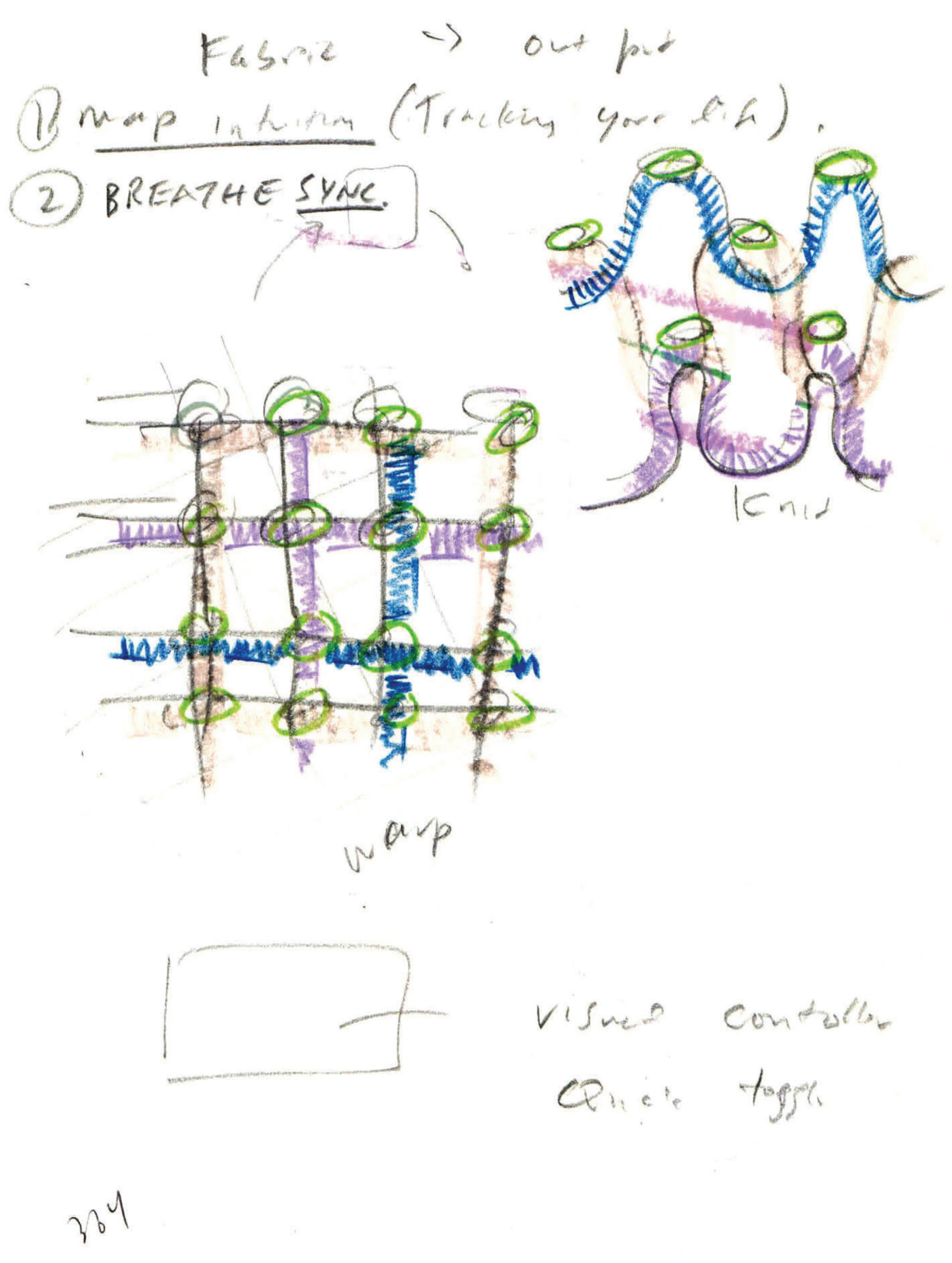
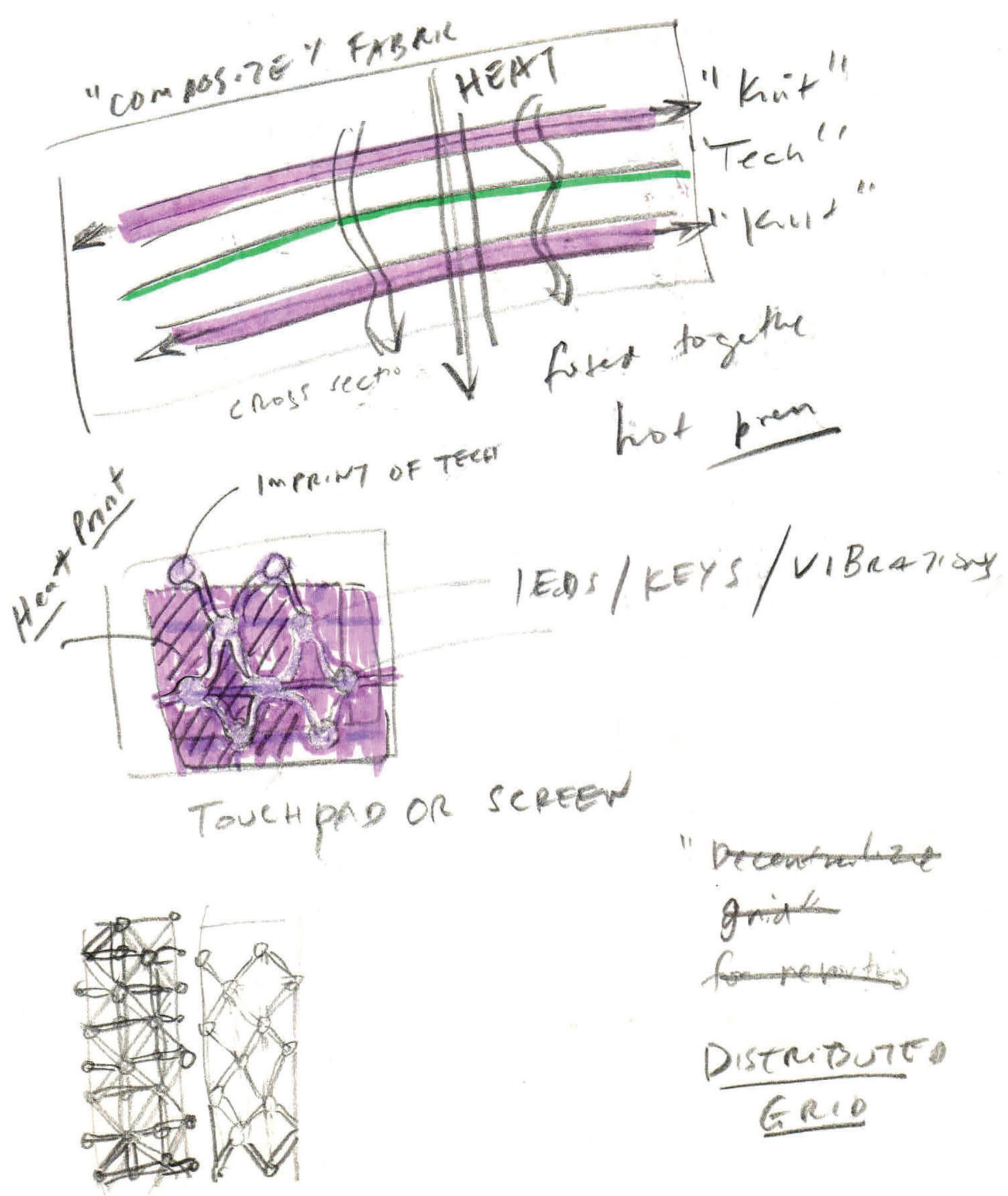
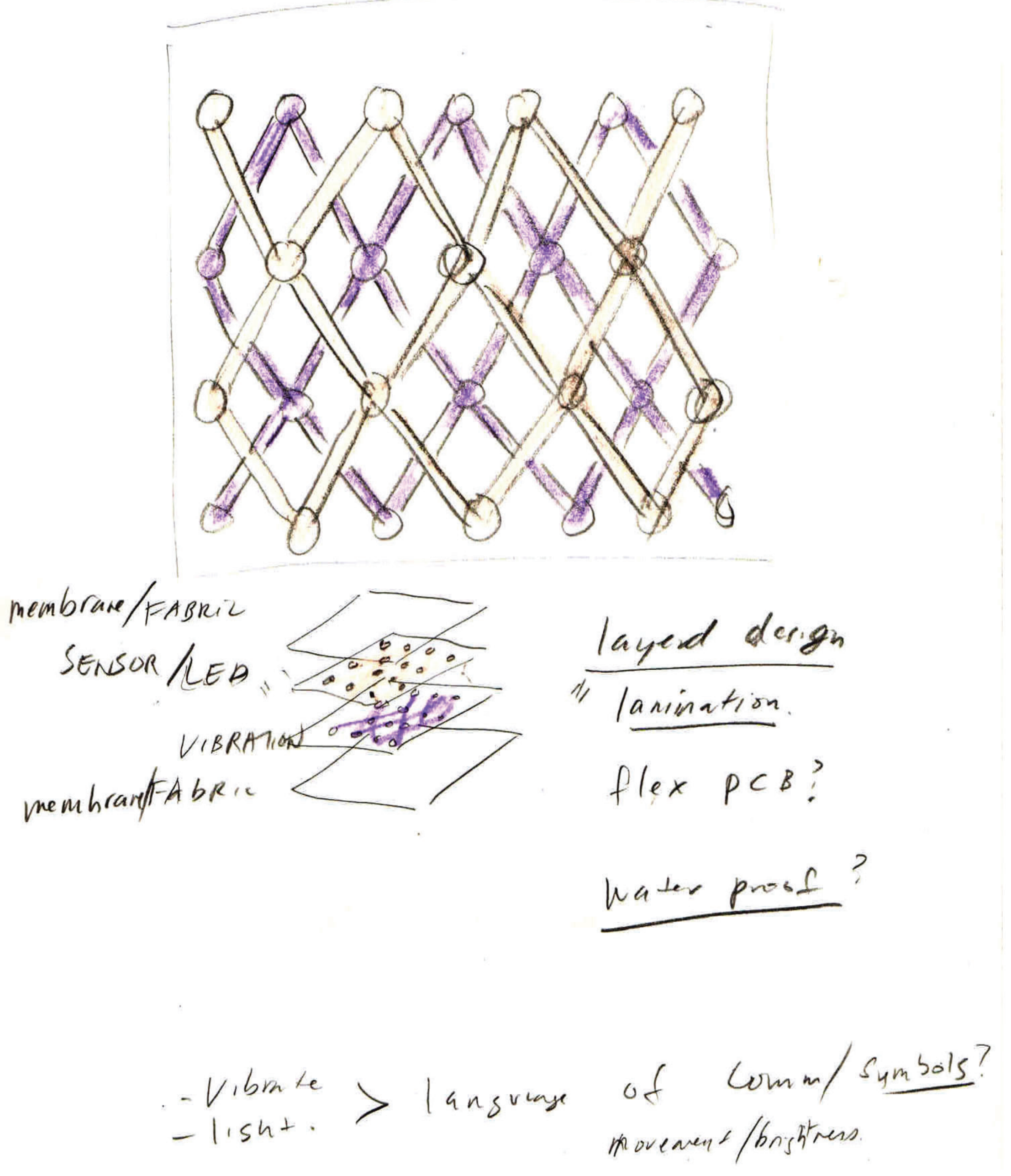
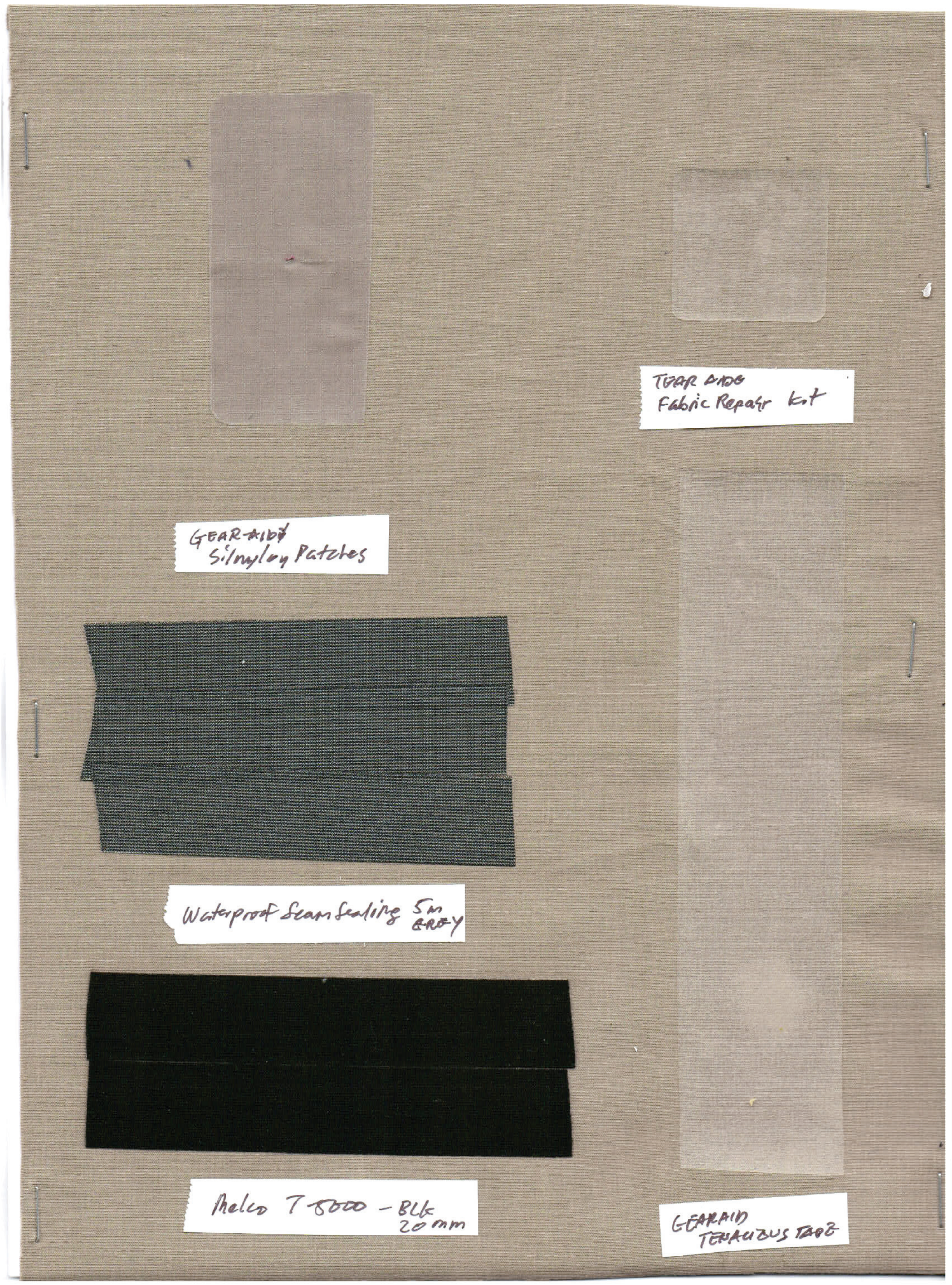


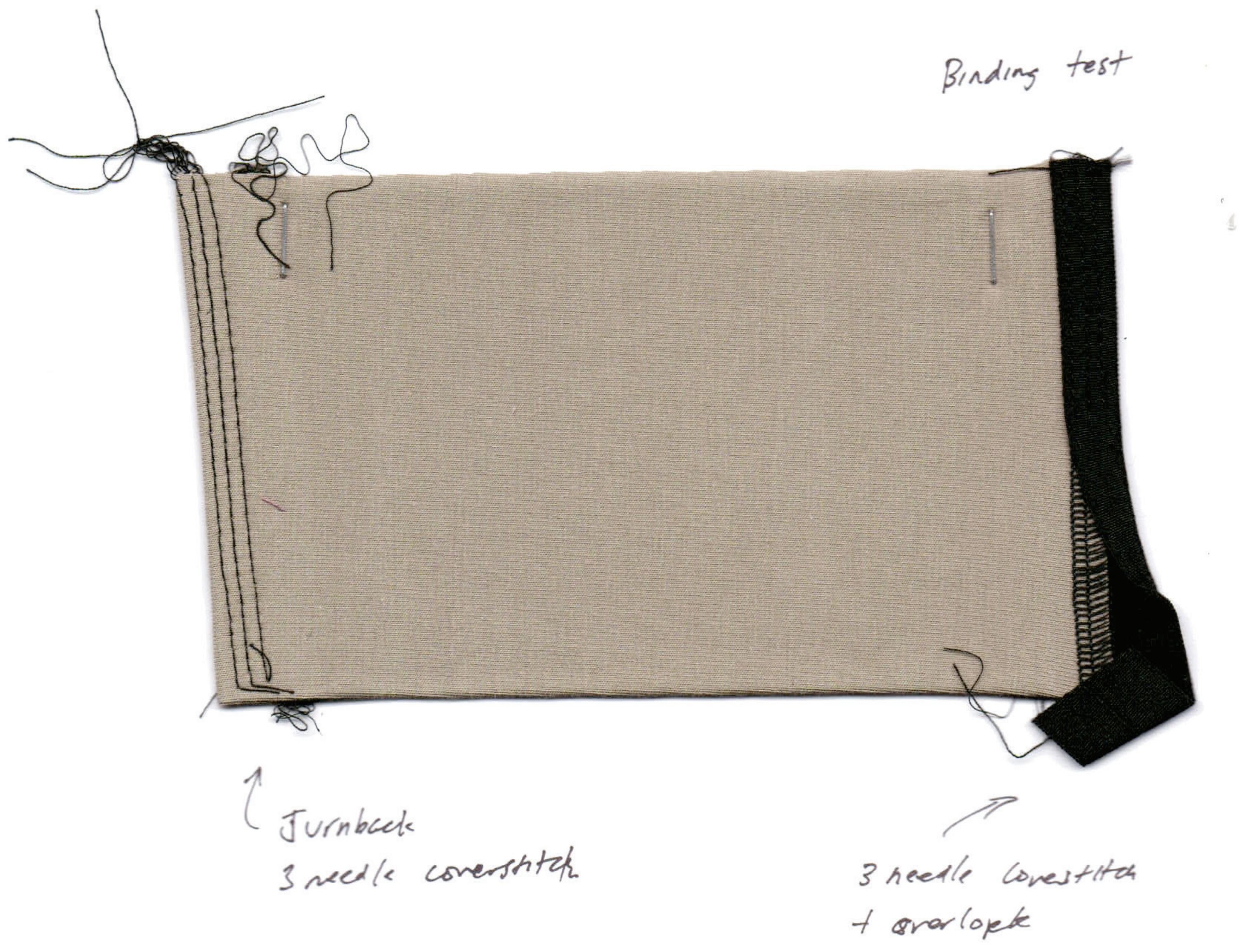


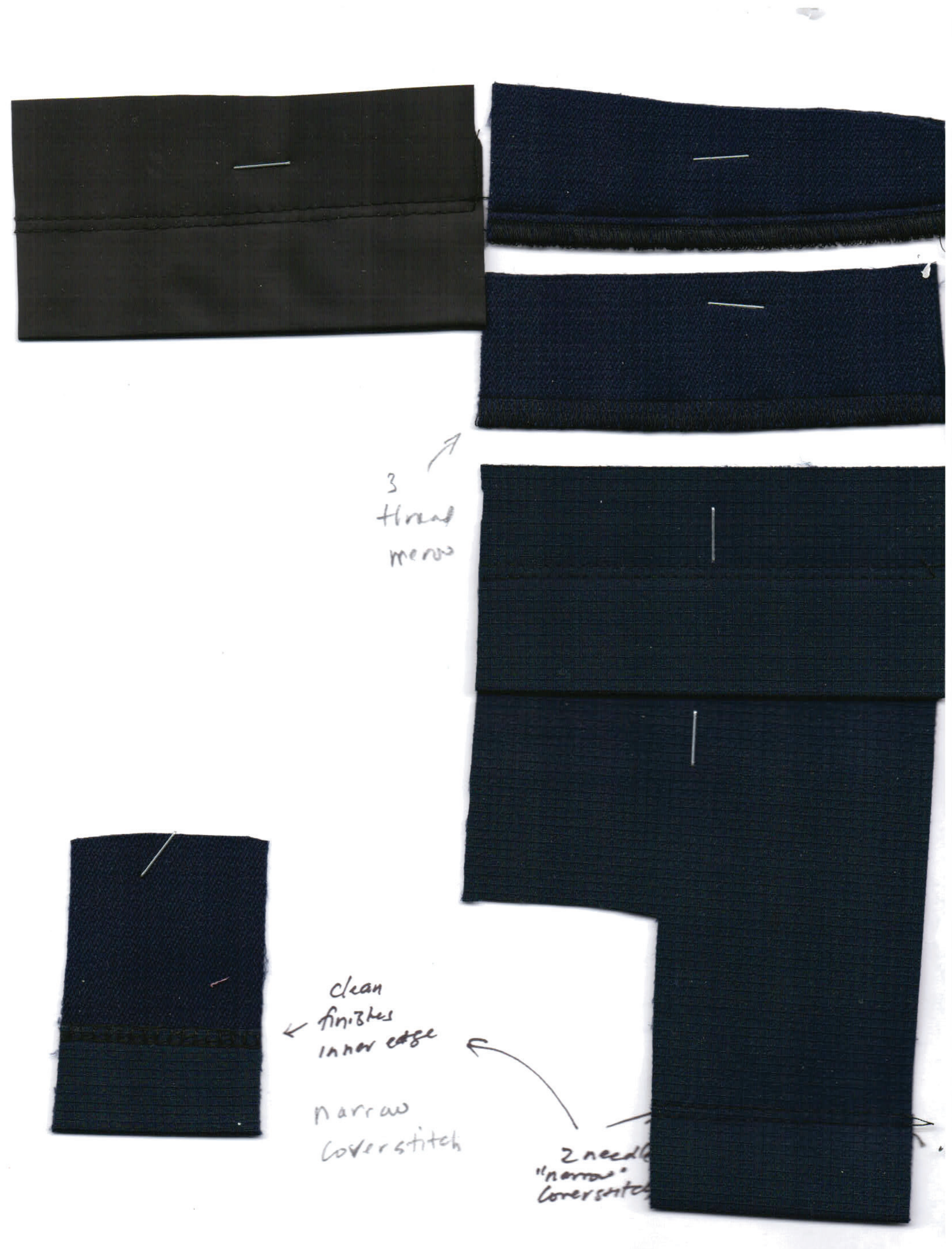




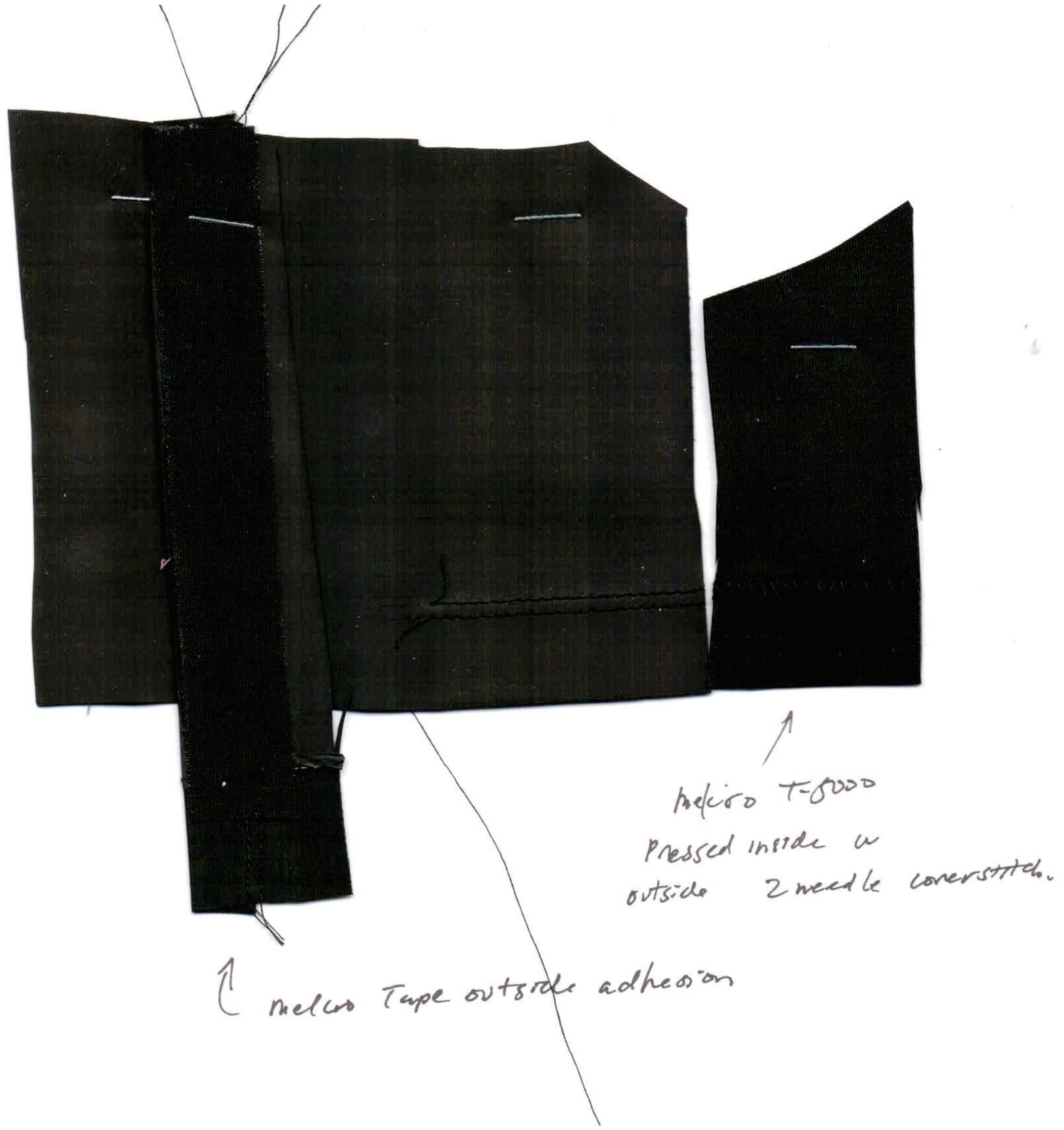
Fabric Experimentation

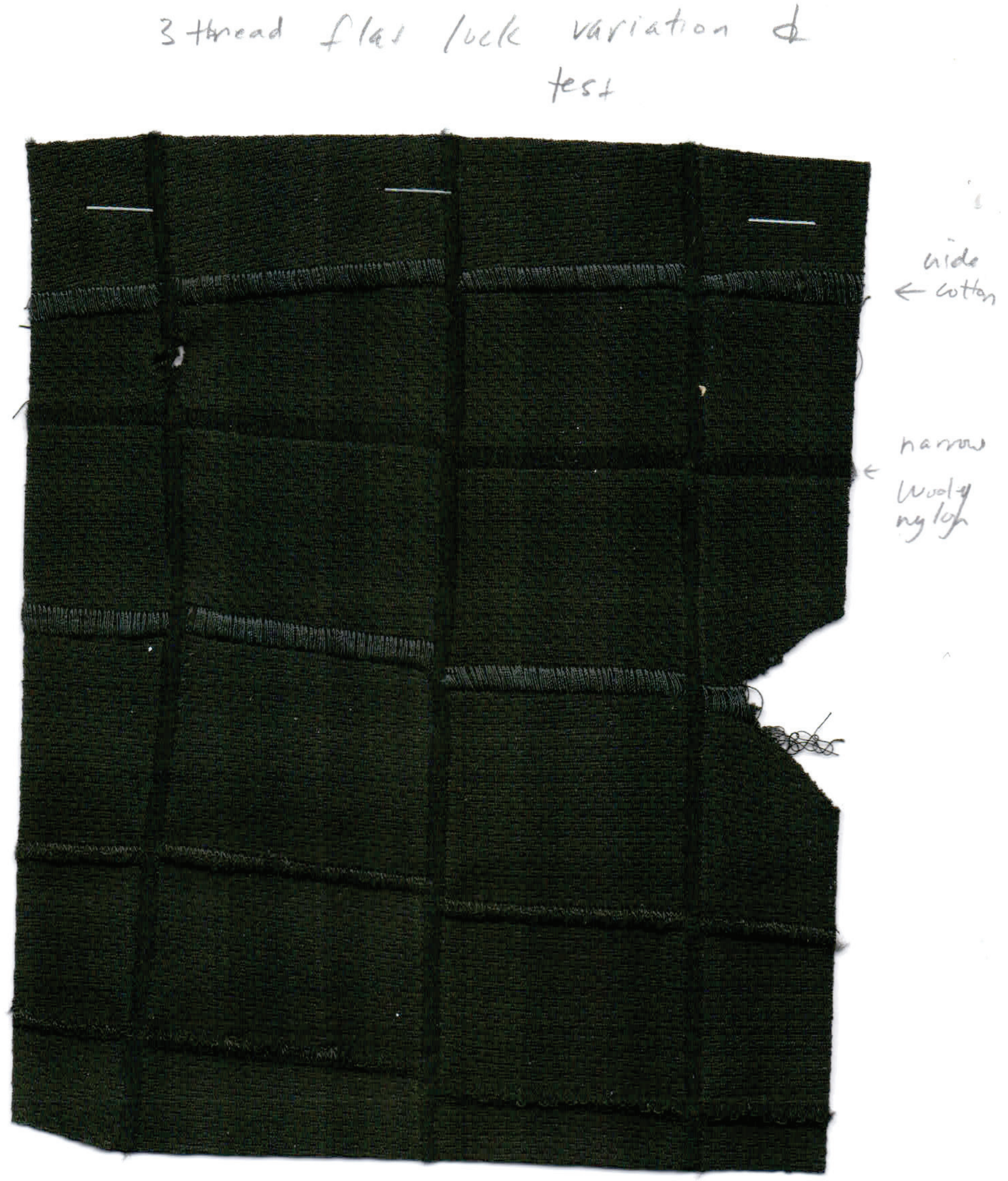




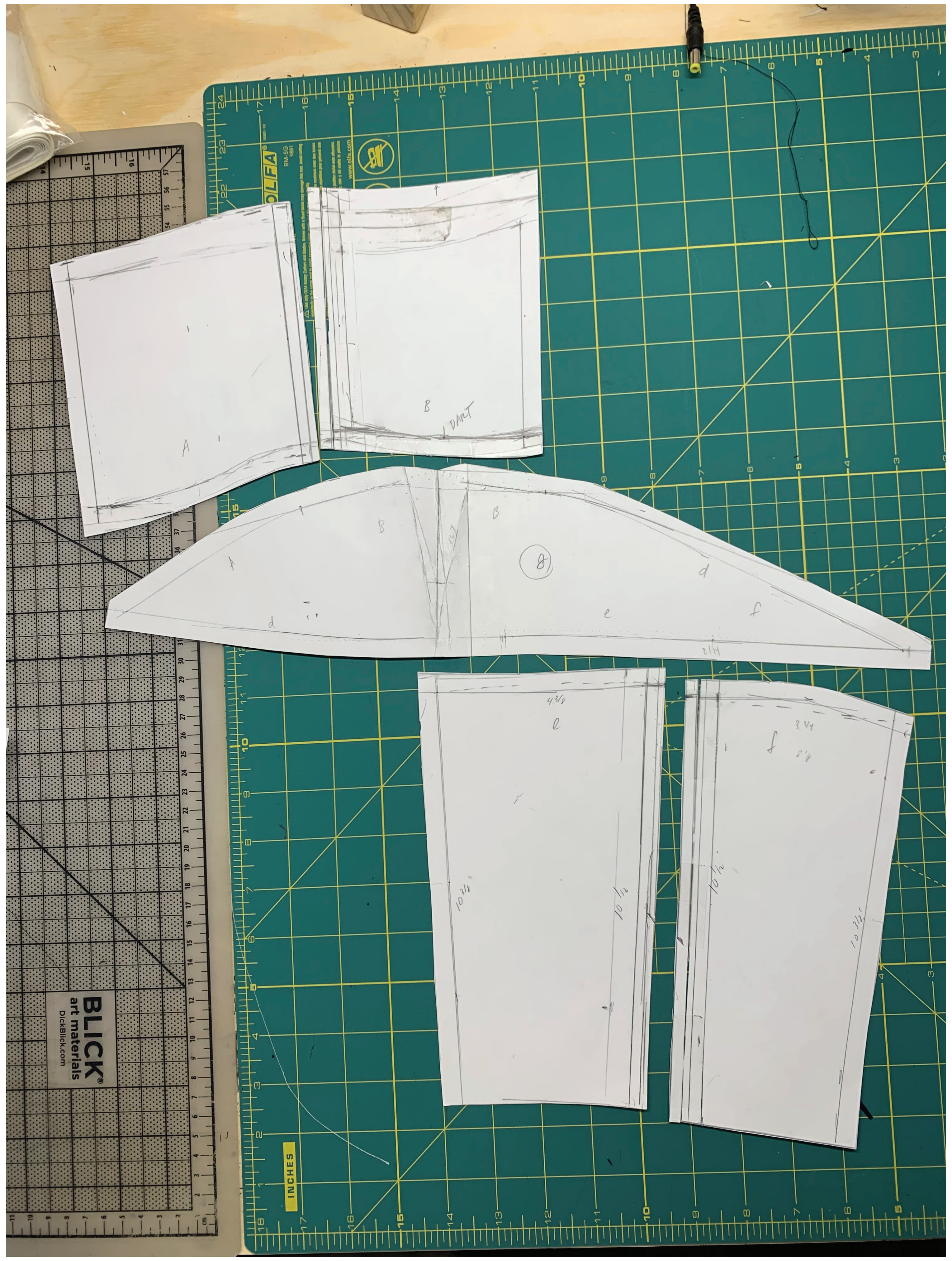


Finish Experimentation





Pattern Making



Prototyping

Finishing Details

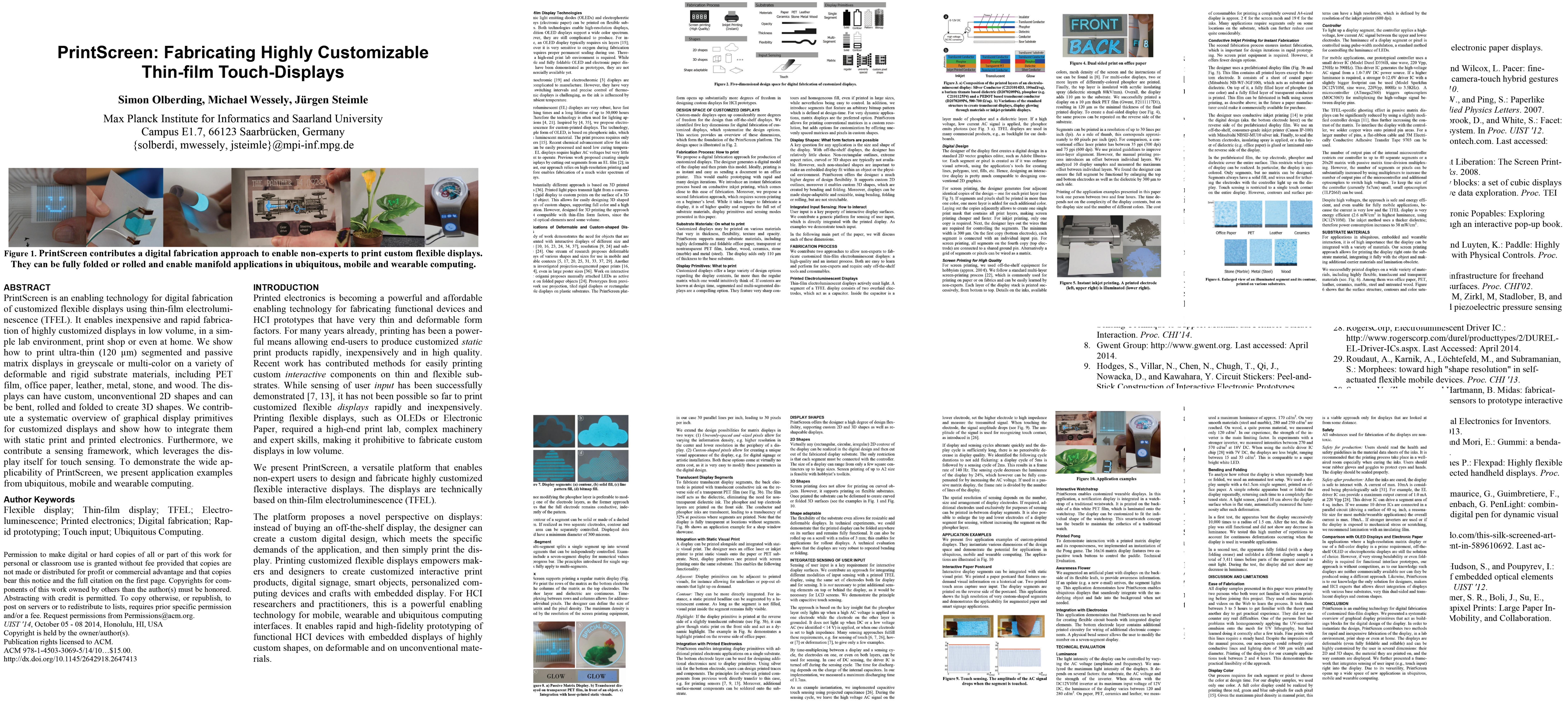





YouTube: Soft Tech RISD

https://www.youtube.com/channel/UC1R14PkbHHb8PCEqFD59_yQ

Electroluminescence



PrintScreen: Fabricating Highly Customizable Thin-film Touch-Displays

Simon Olberding, Michael Wessely, Jürgen Steimle

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Figure 1. PrintScreen contributes a digital fabrication approach to enable non-experts to print custom flexible displays. They can be fully folded or rolled and enable manifold applications in ubiquitous, mobile and wearable computing.

ABSTRACT

PrintScreen is an enabling technology for digital fabrication of customized flexible displays using thin-film electroluminescence (TFEL). It enables inexpensive and rapid fabrication of highly customized displays in low volume, in a simple lab environment, print shop or even at home. We show how to print ultra-thin (120 µm) segmented and passive matrix displays in greyscale or multi-color on a variety of deformable and rigid substrate materials, including PET film, office paper, leather, metal, stone, and wood. The displays can have custom, unconventional 2D shapes and can be bent, rolled and folded to create 3D shapes. We contribute a systematic overview of graphical display primitives for customized displays and show how to integrate them with static print and printed electronics. Furthermore, we contribute a sensing framework, which leverages the display itself for touch sensing. To demonstrate the wide applicability of PrintScreen, we present application examples from ubiquitous, mobile and wearable computing.

Author Keywords

Flexible display; Thin-film display; TFEL; Electroluminescence; Printed electronics; Digital fabrication; Rapid prototyping; Touch input; Ubiquitous Computing.

ACM 978-1-4503-3069-5/14/10…$15.00.
http://dx.doi.org/10.1145/2642918.2647413

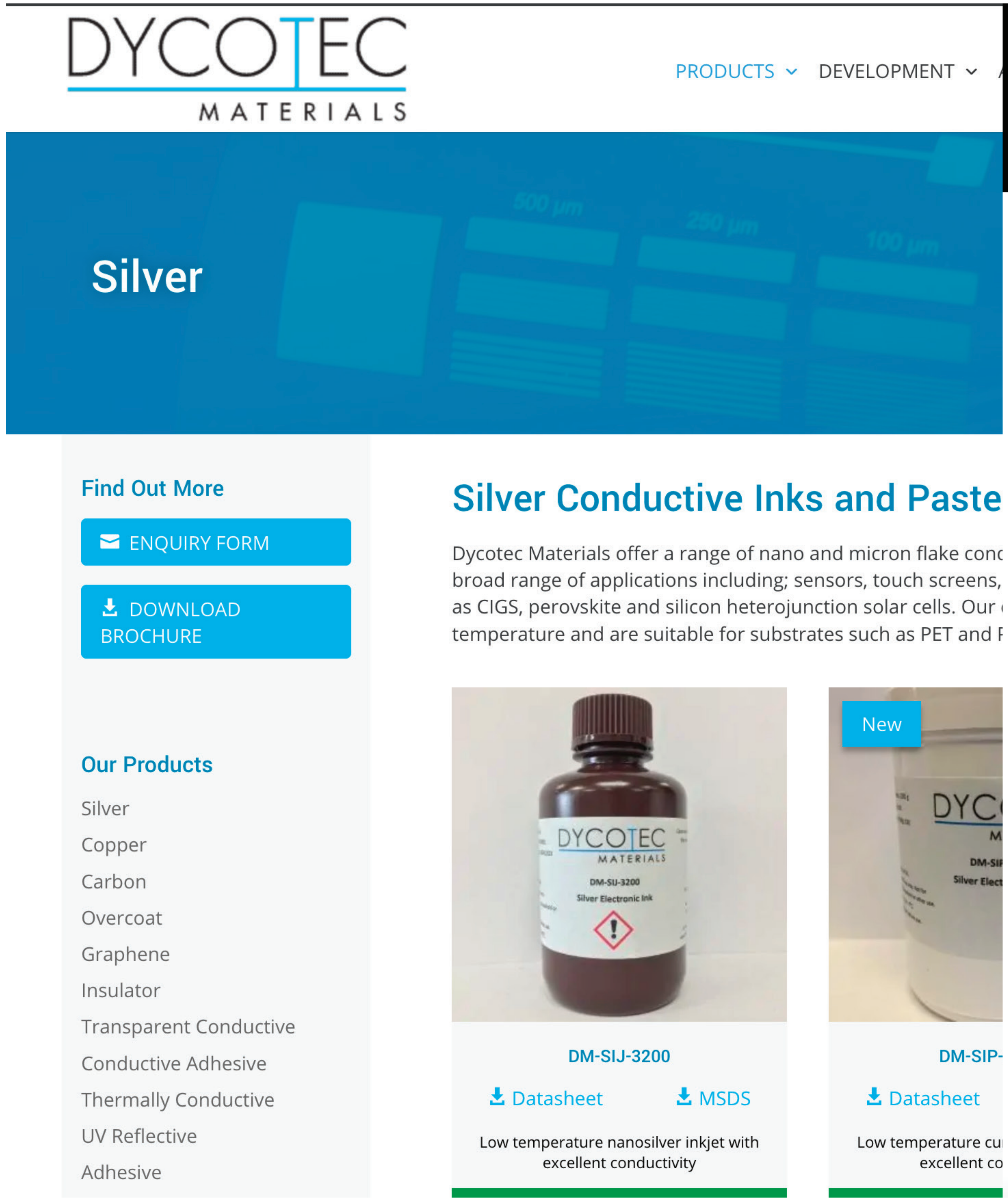
INTRODUCTION

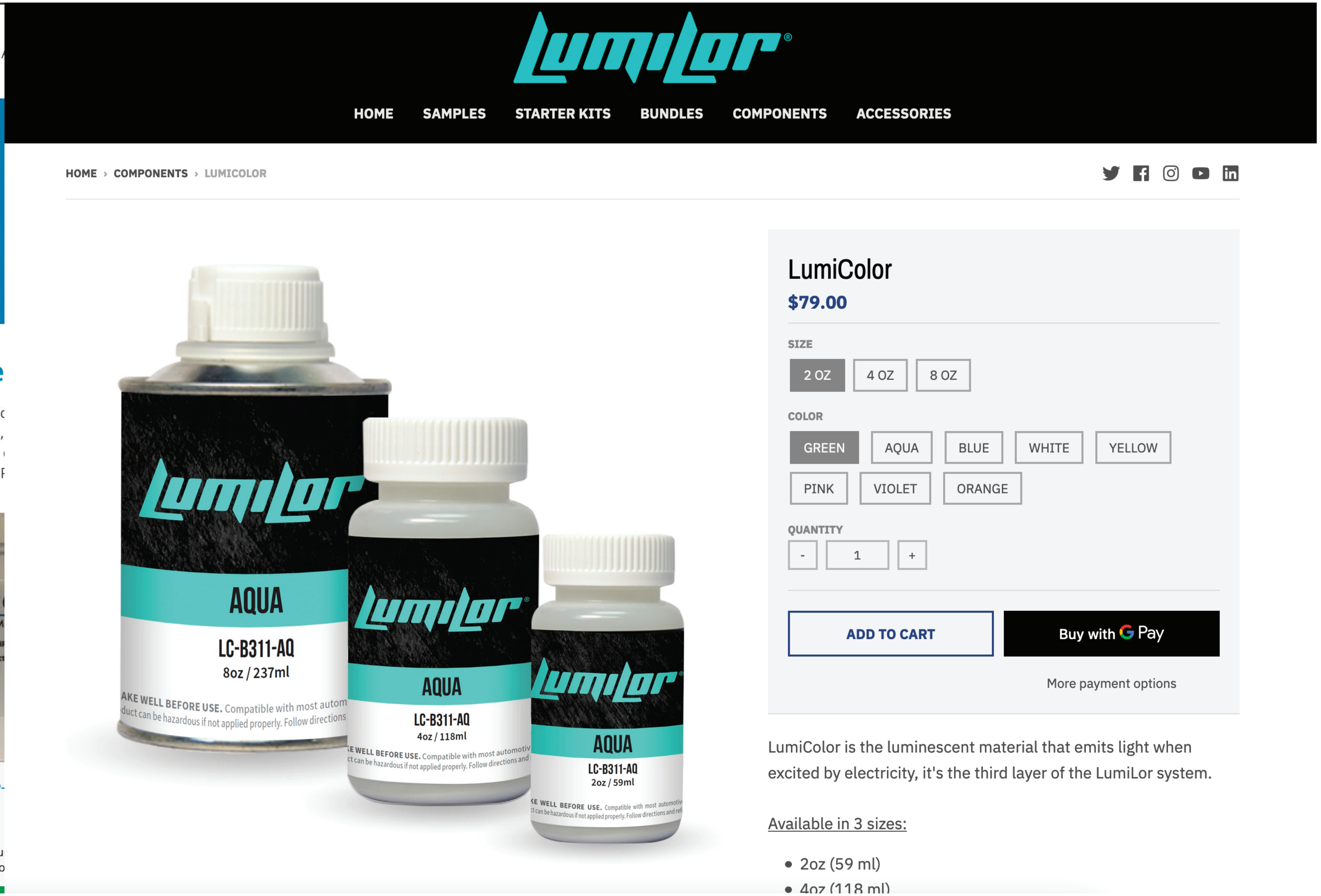
Printed electronics is becoming a powerful and affordable enabling technology for fabricating functional devices and HCI prototypes that have very thin and deformable form factors. For many years already, printing has been a powerful means allowing end-users to produce customized *static* print products rapidly, inexpensively and in high quality. Recent work has contributed methods for easily printing custom *interactive* components on thin and flexible substrates. While sensing of user *input* has been successfully demonstrated [7, 13], it has not been possible so far to print customized flexible *displays* rapidly and inexpensively. Printing flexible displays, such as OLEDs or Electronic Paper, required a high-end print lab, complex machinery and expert skills, making it prohibitive to fabricate custom displays in low volume.

We present PrintScreen, a versatile platform that enables non-expert users to design and fabricate highly customized flexible interactive displays. The displays are technically based on thin-film electroluminescence (TFEL).

The platform proposes a novel perspective on displays: instead of buying an off-the-shelf display, the designer can create a custom digital design, which meets the specific demands of the application, and then simply print the display. Printing customized flexible displays empowers makers and designers to create customized interactive print products, digital signage, smart objects, personalized computing devices and crafts with embedded display. For HCI researchers and practitioners, this is a powerful enabling technology for mobile, wearable and ubiquitous computing interfaces. It enables rapid and high-fidelity prototyping of functional HCI devices with embedded displays of highly custom shapes, on deformable and on unconventional materials.

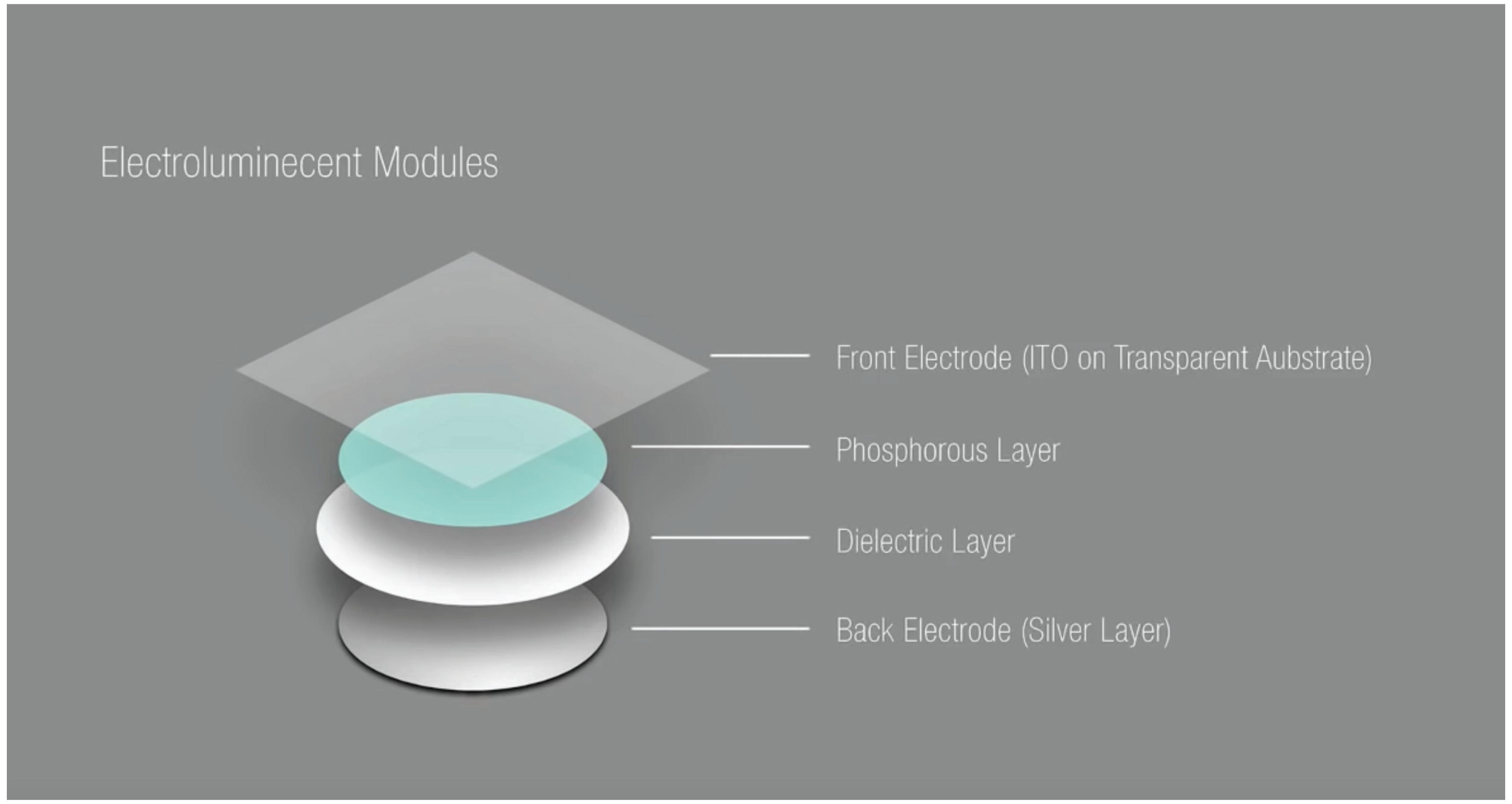
Emerging Materials





Flexible Printed Touch Screens

https://www.youtube.com/watch?v=mnvI6XJeoDw



https://www.youtube.com/watch?v=ZesXSJ0inBg