FASHION x STEAM

Emerging Material
Wearables Technology
Smart Textile

SMART TEXTILES

01 WHAT IS SMART TEXTILES?

Textiles with **the ability to detect and react to environmental changes** are referred to as smart textiles (Koncar, 2016).

Passive Smart Textiles: can alter their characteristics in response to ambient stimuli

E.g.

1) **Hydrophobic**
2) **Hydrophilic**
3) **Shape memory materials**

Windproof, water-repellent fabric's jacket

coperni

Coperni spring summer 2023 Bella Hadid collection

Koncar, V. (2016). Introduction to smart textiles and their applications.
In Smart textiles and their applications (pp. 1-8). Woodhead Publishing.

01 WHAT IS SMART TEXTILES?

Sensors and actuators are included into active smart textiles in order to link internal characteristics to the signal being broadcast (Koncar, 2016).

They are **able to detect various signals** from the environment,
such as

1) **Temperature**
2) **Light intensity**
3) **Pollution**

Heated coat

Sensory dress

Koncar, V. (2016). Introduction to smart textiles and their applications. In Smart textiles and their applications (pp. 1-8). Woodhead Publishing.

Courru00e8ges fall '16 runway.

Smart textiles and sensory dress

02 THE APPLICATION OF SMART TEXTILES

Smart Fabrics

Smart fabrics can sense different environmental conditions and intelligent textiles.

- Can automatically respond to their surroundings or stimuli, such as thermal, chemical, or mechanical changes.

Shape Memory Textiles

A type of material having shape memory functionality woven or finished into textile.

Textiles having exceptional qualities such as shape memory, high deformation recovery, good shock resistance, and flexibility under external circumstances such as temperature, mechanical force, light, pH value, etc. (Dang & Zhao, 2021).

Koncar, V. (2016). Introduction to smart textiles and their applications. In Smart textiles and their applications (pp. 1-8). Woodhead Publishing.
Dang, T., & Zhao, M. (2021). The application of smart fibers and smart textiles. *Journal of Physics: Conference Series, 1790*, 012084. doi:10.1088/1742-6596/1790/1/012084

03 SMART

TEXTILES EXAMPLE

The Hug Shirt

The Hug Shirt™ provided people **to send hugs over distances** is a haptic telecommunication wearable.

==Sensors that record the intensity, length, and position of touches== as well as actuators that replicate the feeling of contact and the emotion of a hug are included in the Hug ShirtTM. With the connection with Bluetooth to transmit the hug movements.

Hug Shirt- telecommunication wearable

Wearables Technology

03 WHAT IS CONTEMPORARY WEARABLE?

The contemporary wearable: **electronic devices designed to be worn on the user's body**.

The technology incorporated into the fabric that **can implement several task tracking fitness or health,** communicating with phones and other devices, and altering fabric properties to match the user's preferences, activities, or surroundings (Gouge & Jones, 2018).

The power clothing help the elderly mobility

Electronic device in fashion

GORE,T. (2018). The microporous Gore-Tex membrane. Gore-Tex. https://www.gore-tex.com/blog/the-gore-tex-membrane-what-it-is-how-it-works-and-why-you-need-it

03

DIFFERENT KINDS OF CONTEMPORARY WEARABLES

Fitness trackers and smartwatches are two common examples of wearable technology (Yasar & Wigmore, 2022).

Contemporary Wearable Application (Gouge & Jones, 2018):

- Professional sports
- Consumer goods
- Healthcare
- Navigation systems
- Advanced textiles

- Jewellery
- Accessories
- Medical devices
- Fashion or elements of clothing

Smartwatch and fitness tracker

Yasar, K., & Wigmore, I. (2022, May 12). What is wearable technology? definition, uses and examples. Retrieved October 7, 2022, from https://www.techtarget.com/searchmobilecomputing/definition/wearable-technology

GORE,T. (2018). The microporous Gore-Tex membrane. Gore-Tex. https://www.gore-tex.com/blog/the-gore-tex-membrane-what-it-is-how-it-works-and-why-you-need-it

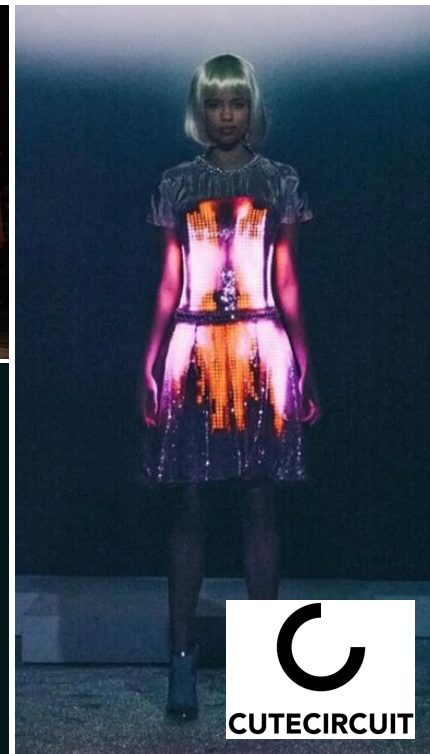# 01 The Future of Fashion

Levi's x Jacquard Jacket

Emel and Aris's Self Heating Coat

Smart X (2021) points out that Smart textiles and wearables will have to comply with the new rules implied by the digital transformation and contribute to the discussion regarding the long-term ethical, environmental, political, social/cultural, economic, and sustainability aspects.

01 WEARABLE TECHNOLOGY
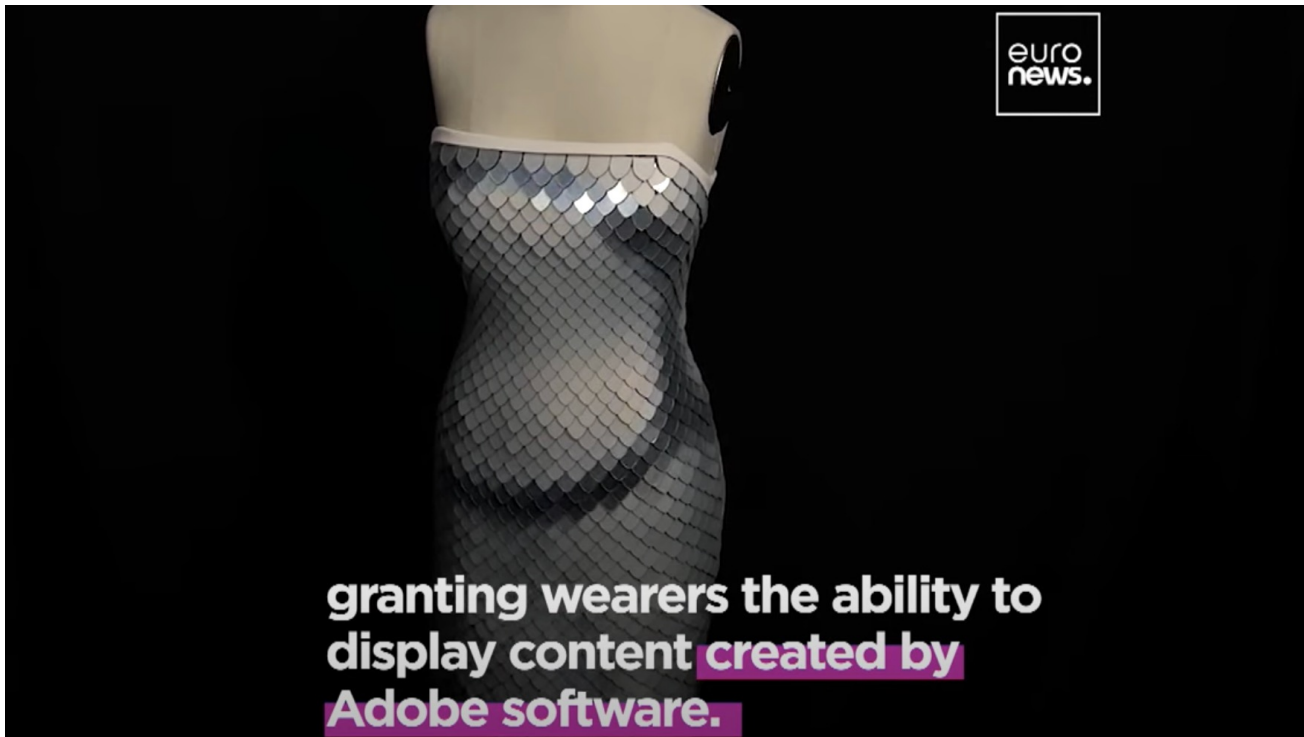
02 WEARABLE TECHNOLOGY

03 WEARABLE Technology

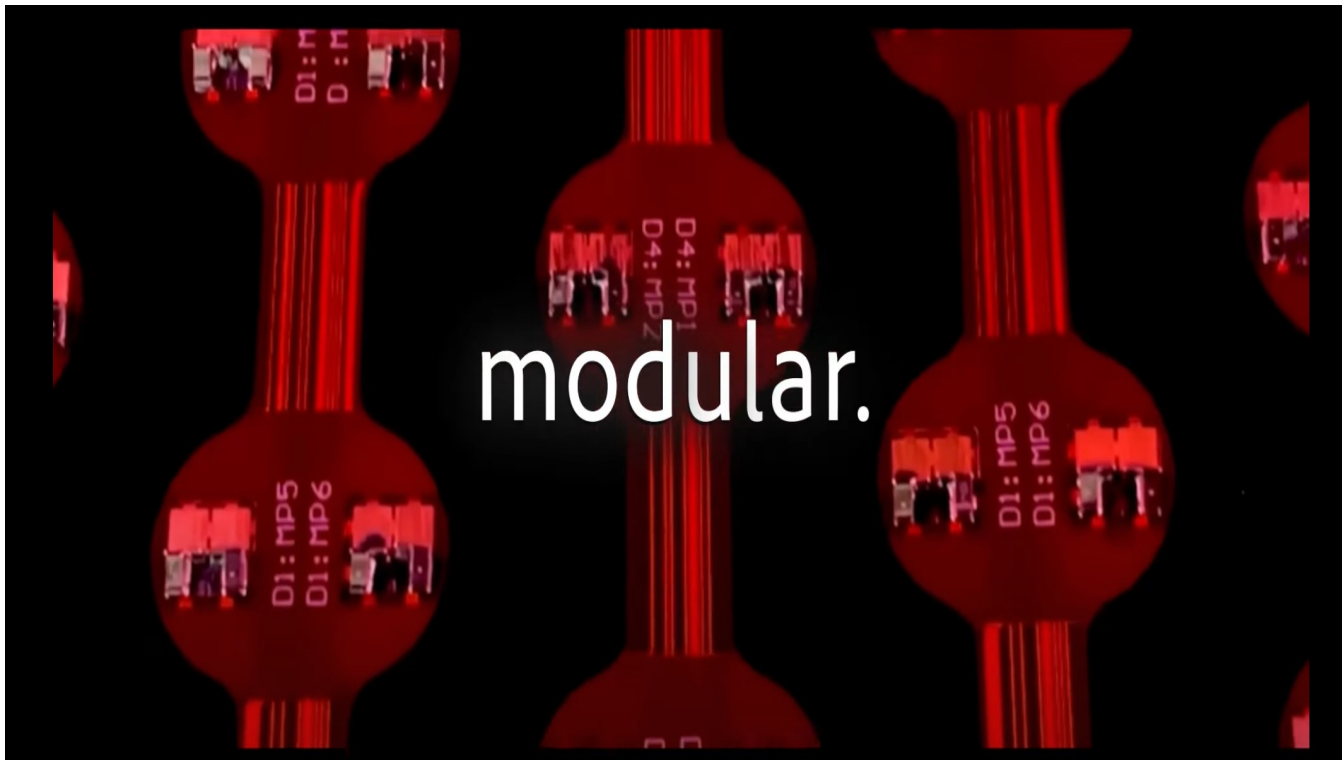Project Promise by Adobe x Christian Cowan

03 WEARABLE TECHNOLOGY

Project Promise by Adobe x Christian Cowan

granting wearers the ability to display content created by Adobe software.

Video Link

03 WEARABLE TECHNOLOGY

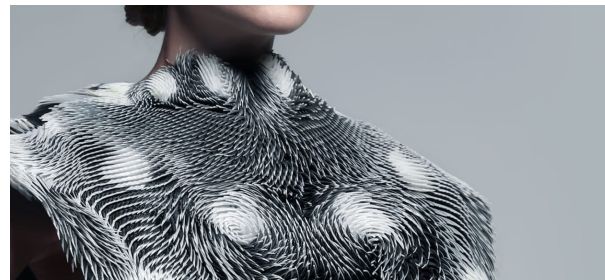Project Promise by Adobe x Christian Cowan

04 WEARABLE TECHNOLOGY

Richard Nicoll's Collection Spring/Summer 2015 show at London

05 WEARABLE TECHNOLOGY

Video Link

EMERGING MATERIAL
And construction

06 EMERGING MATERIAL (STEAM example)

Kunihiko Morinaga
森永邦彦

Video Link

06 EMERGING MATERIAL (STEAM example)

Anrealage Autumn/ Winter 2023 Collection

07 EMERGING GARMENT ENGINEERING (STEAM Example)

Iris Van Herpen

07 Emerging Garment Engineering (STEAM Example)

Iris
Van
Herpen

Video footage courtesy of
Iris van Herpen
Safi Graauw and Robbert Doelwijt Jr.

[Video Link](#)

07 Emerging Garment Engineering (STEAM Example)

Iris Van Herpen

a film by XINIX FILMS

Video Link