DISCUSSION - The Incredible World of Fashion Tech

• E-Textiles
• Fabrics
• Smart Clothing
• Digital Couture
• Anti-Counterfeit
• Designer Fashion Tech
• COVID Fashion Tech
Fashion
E-FASHION
SMART FABRICS

• Smart fabrics—also called electronic textiles, e-textiles, smart garments, and intelligent fabrics—have some type of digital component embedded in them.

• The technology is incorporated into the fabric through various methods, such as conductive fibers and multi-layer 3D printing.
# E-TEXTILE – ABC’S

<table>
<thead>
<tr>
<th>Always Means an E-Textile</th>
<th>Can Mean an E-Textile</th>
<th>Can Be Used to Make an E-textile</th>
<th>Can Be Made of an E-Textile</th>
<th>Does Not Mean an E-Textile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Circuit</td>
<td>Smart Textile</td>
<td>Printed Electronics</td>
<td>Smart Clothing</td>
<td>Wearable Clothing</td>
</tr>
<tr>
<td>E-Textile (Electronic Textile)</td>
<td>Functional Fabric</td>
<td>Conductive Ink</td>
<td>Wearable Technology</td>
<td>Wearable Fabric</td>
</tr>
<tr>
<td></td>
<td>Smart Fabric</td>
<td>Conductive Thread</td>
<td></td>
<td>Wearable Fashion</td>
</tr>
<tr>
<td>Ultraflexible Circuit</td>
<td>Technical Textiles</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source - loomia.com
SUPERSUIT MATERIAL - Self-Organized Framework on Textiles (SOFT)

SOFT e-textiles can protect soldiers and medics


sensing applications ranging from real-time gas detection in wearable systems, to electronically accessible adsorbent layers in protective equipment like gas masks.
SMART FABRIC

Flexible and Robust Biomaterial Microstructured Colored Textiles for Personal Thermoregulation

**COLD TEMPERATURE**

The fabric is made of freeze-spun silk and chitosan, a material from the hard outer skeleton of shellfish, into coloured fibres with porous microstructures. Pores in the fibres are filled with a material that becomes liquid when cold and solid when cool. A layer around the fibres prevents the liquid leaking.

When the wearer’s skin is cold, the polyethylene glycol (PEG) solidifies. This makes the structure rigid and it lies flat to the wearer’s skin, trapping body heat and keeping the person warm.

**HOT TEMPERATURE**

Body heat escapes

When the person wearing the material is warm, the material trapped in the smart material’s fibres becomes liquid and the structure is flexible. This provides space between the skin and the fabric and allows body heat to escape, keeping the wearer cool.

Body heat liquifies

PEG solidifies

Fibres liquify
Global smart clothing market

The global smart clothing market is set to reach $5.3 billion by 2024, up from $1.6 billion in 2019.

Source: "Smart Clothing Market by Textile Type, Product Type, End-User Industry And Geography - Global Forecast to 2024," MarketsandMarkets, 2019
TECH-ENABLED YOGA

The Nadi X experience lets you practice yoga on your own terms. Our patented technology with integrated sensors and haptic feedback (vibration) helps you improve your yoga. Nadi X is good for pre and post workout at home and wherever you go.

https://www.wearablex.com/pages/how-it-works
e-skin Sleep & Lounge is smart apparel for the wellbeing and health monitoring of elderly people. CES 2020 Innovation Award Honoree.
Heated Jacket – E-Textile

OUR TECHNOLOGY

Circuit boards power the world but are built for hard goods. LOOMIA makes a new form-factor of circuit—a soft circuit (e-textile) system—that can be used to power soft goods. From automotive to apparel, our soft circuit systems can be used when standard PCBs (Printed Circuit Boards) aren’t up to the task—bringing heating, lighting, and sensing to car seats, medical apparel, outdoor gear, and more.

Three years of research went into developing the LEL technology, resourcing Stanford’s SNSF lab for analysis and characterization. The resulting, patented technology can be designed to execute a wide range of functionalities.

LOOMIA

Source – Voguebusiness.com
HUGSHIRT + SOUNDSHIRT

The HugShirt
£250.00

The SoundShirt
£650.00

O Pro Software for SoundShirt
£350.00
HUG SOCIAL DISTANCING – (CUTECIRCUIT) HUGSHIRT

The HugShirt is a t-shirt that allows you to hug a friend over distance. The world's first haptic telecommunication garment, invented in 2002.
SMART SHIRT
Levi's Jacket

Trucker Jacket

Levi's®

Connected, not distracted. Iconic Levi's® Trucker jacket merges style with innovative Jacquard technology. Answer calls, play music, and take photos right from your sleeve.

Buy Now
SMART JEAN JACKET

JACQUARD

A new dimension of interaction

From the very first touch, Jacquard feels familiar. That's because our focus has always been to embed intelligence into everyday things without compromising their original form or function. Using Jacquard Threads, micro-electronics, and intelligent software, we create textiles and materials that can understand your gestures and communicate back using light and haptic feedback. Seamlessly integrated, our technology gives products you already know and understand a new layer of connectivity and interactivity. As more products adopt the Jacquard platform, you'll have new ways to interact with the things you love.
DIGITAL COUTURE
Is digital clothing the future of fashion?
The Fabricant

- Sustainable Fashion – Digital Only Clothing
- “SHOWING THE WORLD THAT CLOTHING DOES NOT NEED TO BE PHYSICAL TO EXIST”
The Fabricant-Video
DIGITAL ONLY FASHION?
Anti Counterfeit Fashion Tech
Blockchain

Crypto-Tags

Source
How a Blockchain Works

- **Transaction Requested**
  - User submits signed request
  - PKI Encryption

- **Transaction Broadcast**
  - Send to P2P Network

- **Network Validation**
  - Consensus

- **Block Generation**
  - Transaction is cryptographically recorded

- **Transaction Complete**
  - Blockchain is publicly verifiable
Blockchain-Supply Chain Management
BC and Fashion

- Tracing of unique valuable products from production to the final buyer;
- Proof of authenticity
- Personalized communication with customers, even after the sale
- Transparency on information regarding the supply chain and greater efficiency of processes along the chain
- Evaluation of the well-being of workers and sharing of information with the end customer, thus avoiding exploitation scandals that would otherwise be harmful to the luxury brand’s reputation
- Immediate transfer without geographical limits of the property, now also digitally (when represented by tokens), of fashion and luxury goods.

Source
REAL OR FAKE?
REAL OR FAKE?

New 2019 Men Boots Ankle Boots Lace Up with Original Box Bottes Hommes M#23 Fashion Shoes Mens Chaussures pour hommes Hot Sale Ankle Boots

Store-wide Discount: 50% OFF, 8 hours 34 mins left!

Discount Price: US $1.75 - 95.81 / Piece

Color: [Image of various shoe colors]

Size: [Select size]

Wholesale Price (Piece):
- 1 + US $2.40
- 3 + US $2.26
- 5 + US $2.16

Quantity: 1 Piece (Stock in: CN)

Shipping Cost: Free Shipping to United States Via ePacket* Estimated delivery time: May 26 and Jun 17, ships out within 4 business days.

Total Cost: The total price will depend on the final product features you select

Buy it Now | Add to Cart
Designer Fashion Tech
Fashion Patents – Not Always the fashion article that is Patented
Real-Time Fashion Development

Instantly visualize any number of variations, no matter how eccentric or experimental they may be after all, that's the beauty of Save As and Ctrl+Z.
Real-Time Virtual Sample - CLO

TRUST VIRTUAL SAMPLING

2D CAD PATTERN  CLO SAMPLE  MANUFACTURED SAMPLE
COVID COUTURE
Signs of Our Culture and Fashion

Futurewear Brand Debuts Face Masks at Paris Fashion Week Amid Coronavirus Spread

11:34 AM PST 2/27/2020 by Lindsay Weinberg

5 Photos From The Beijing Fashion Show That Make Surviving Smog Sexy

Michael J. Kelley 02/27/2020, 4:55 AM


## U.S. Intellectual Property Laws

<table>
<thead>
<tr>
<th>TYPE</th>
<th>WORKS PROTECTED</th>
<th>TERM</th>
<th>AUTHORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent</td>
<td>New, useful, and non-obvious processes, articles of manufacture, compositions, machines, and improvements thereof</td>
<td>20 years from date of filing</td>
<td>Express grant in U.S. Constitution</td>
</tr>
<tr>
<td>Design Patent</td>
<td>Ornamental Features</td>
<td>15 Years from date of issue</td>
<td>Express grant in U.S. Constitution</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>Secrets</td>
<td>No Limit</td>
<td>State Laws</td>
</tr>
<tr>
<td>Copyright</td>
<td>Authored works (expression of idea)</td>
<td>Life of author plus 70 years</td>
<td>Express grant in U.S. Constitution</td>
</tr>
<tr>
<td>Trademark</td>
<td>Word or logo indicating source of goods</td>
<td>Renewable 10 year periods</td>
<td>Indirect grant; Commerce Clause of U.S. Const.</td>
</tr>
</tbody>
</table>
CURRENTLY OUT OF STOCK
SIGN UP TO GET NOTIFIED WHEN WE HAVE NEW URBAN AIR MASKS 2.0

SIGN UP FOR WAITING LIST
An **N95 respirator** is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles. Note that the edges of the respirator are designed to form a seal around the nose and mouth. Surgical N95 Respirators are commonly used in healthcare settings and are a subset of N95 Filtering Facepiece Respirators (FFRs), often referred to as N95s.
Face Mask – Design Patent – D821,568

**United States Design Patent**

**Patent No.:** US D821,568 S

**Date of Patent:** Jun. 26, 2018

**Assignee:** Blueair AB

**Inventors:**

- Henrik Nilsson
- Pelle Karlsson
- Federico Sardi
- Jonathan Stiegler

**Classification:***

- International Classification: A41D 33/29
- U.S. Classification: 164/582, 164/591, 303/496

**Prior Art:***

- 3,853,630 A * Buehler et al. ___________ D901,568
- 4,632,970 S * Buehler et al. ___________ D901,568
- 3,853,630 S * Buehler et al. ___________ D901,568

**Claims:***

1. The ornamental design for a face mask, as shown and described.

**Description:***

1. A face mask having a nose piece;
2. A nose piece with an adjustable nose bridge;
3. A nose piece with an adjustable nose bridge and a seal strip;
4. The nose piece having a first portion and a second portion;
5. A nose piece having a first portion and a second portion and a nose band;
6. A nose piece with a flexible nose bridge;
7. A face mask having an adjustable nose bridge and an adjustable elastic headband;
8. The face mask with a nose bridge and a seal strip on the face mask.

**References Cited:***

- U.S. Patent Documents
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- Non-Patent Literature
  - Buehler et al. ___________ D901,568

**Other Publications:***


**Examiner Notes:***

- Secondary Examiner: Karen E. Kastner
- Assistant Examiner: Linda R. Fullmer
- Examiner: Angela D. Fair

**Correspondence:***

- Correspondence should be addressed to: Blueair AB, 123 Main Street, Stockholm, Sweden

**Disclaimer:***

- The information contained in this document is for educational purposes only and should not be considered as legal or medical advice.

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3D PRINTED FACE MASK

COVID-19 MASK v2 (Fast print, no support, filter required)
by lafactoria3D March 18, 2020

COVID-19 MASK v2
3D PRINTABLE

1-2 HOURS TO PRINT
NO SUPPORT REQUIRED

www.lafactoria3D.es
3D PRINTED FACE SHIELD

Easy 3D Printed Face Shield
by Hanool March 20, 2020

Printed in place sheet fixation
No tools required, no extra parts!
MAKERBOT 3D PRINTER

3D PRINTING SOLUTIONS FOR EDUCATORS

The leading 3D printers in Education offer the easiest setup experience with no tinkering required.

Get started right away with hundreds of 3D printing lesson plans.
FAQs on 3D Printing of Medical Devices, Accessories, Components, and Parts During the COVID-19 Pandemic

Coronavirus Disease (COVID-19)

- CDC Recommendation on Cloth Face Coverings for the General Public
- FAQs on Shortages of Surgical Masks and Gowns
- Emergency Use Authorizations for Personal Protective Equipment
Takeaways - The Incredible World of Fashion Tech

• E-Textiles
• Fabrics
• Smart Clothing
• Digital Couture
• Anti-Counterfeit
• Designer Fashion Tech
• COVID Fashion Tech
CONCLUSION