SMART TEXTILES

SET OR NOT TO TAKE OFF?

ARE SMART TEXTILES SET TO TAKE OFF?

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The many different elements needed to make biometric or interactive smart clothes are slowly coming to market forming a new ecosystem of supplies spanning conductive fibers, sensors, connectors, batteries and more.

But though the pieces of the puzzle are now being made available, the question remains as to what consumers truly need or want.

This panel discussion will take a close look at existing technologies to draw a more precise picture of what's to come.

SPEAKERS

Philipp Schwarz CEO
Wearable Life Science

Andreas Röpert
CEO Interactive Wear

Sophie Bramel
Moderator

Steven Milner
SVP of sales
Noble Biomaterials Europe

Peter Bona
Hugo Boss
Head of Creative

MEETING CONSUMER EXPECTATIONS

AN ONGOING CHALLENGE?

Google Project Jacquard x Levi's

"80% of companies believe they provide an outstanding proposition to their customers, but only 8% of their customers agree."

IBM Watson executive Dirk Muehlenweg at the Wearable Tech conference held at ISPO in 2016.

POSITIVE PROSPECTS

THE NUMBERS GAME

Smart clothing shipments, for the most part fitness and running wear, are expected to represent 26 million units in 2016, surpassing other wearable devices, according to MarketResearch.com (January 2016).

IDTechEX estimates that sales could reach $3 billion by 2026, up from around $100 million in 2015 in its latest e-textiles market survey.

Smart payment concept jacket by Lyle & Scott

Smart clothing and body sensor shipments will rise to 92.7 million units between now and 2021 (totalling 190 million wearables) says Tractica. It anticipates that body sensors will represent 70% of the total market, with smart clothing accounting for about 30%.

Q&A PANEL DISCUSSION RÉSUMÉ

A few preliminary remarks before we start the discussion: Personally, I wrote my first article on the subject in 1999. That's close to 20 years ago. That said, the world we live in has changed a great deal. We now carry around sophisticated hand held computers that have changed, in many ways, how we interact with technology and it has, in a sense, made geeks of us all.

1. What strategy is Hugo Boss brand pursuing with regards to smart clothing?

Peter Bona: Innovation is in our DNA, it goes back years and some of the smart clothing concepts we have developed are already in stores. The waterproof jacket we have here has an NFC chip behind the label to communicate directly with our final customer. It is made in a single piece of fabric and is therefore also sustainable. We have also developed a waterproof jacket with a heating panel in the upper back that can be rolled up into the collar. The customer can choose to heat the upper back or the collar area. It can be connected to a battery pack. The jacket is washable.

Q&A PANEL DISCUSSION RÉSUMÉ

2. Tell us more about the Antelope suit, how you came to develop it and for what type of use/user?

Philipp Schwarz: Our smart suit is made with a compressive textile so that the sensors are placed close to the skin. It is connected to a phone app that operates the system which contracts the muscles. Electrodes are placed on all the major muscle groups. It can also be used for any type of sport, running, cycling, or other. It is a true sports garment with electrostimulation properties. The next step we are working on is the integration of sensors that monitor activity.

The challenges we faced was to develop a durable product that can be machine washed many times. Another challenge was to make the garment easy to put on and take off. Zippers have been placed to avoid having to pull the top over the head.

3. What recent developments have improved the performance, reliability, or ease of use of Circuitex products?

Steve Milner: The main functions of our smart textiles are to detect a signal, maintain data integrity, and transmit the signal. The challenge with conductive pathways is to maintain functionality throughout use, washing, wearing, sweating, etc.

To improve the performance of our pathways, we changed our production process. We grow silver crystals on fibers, fabrics and foams. We optimized our manufacturing process and products so that washing does not impede their performance.

We recently developed a product with Bemis. It is a one-step cut-and-integrate system that is delivered ready-to-use. They are made-to-measure to our customers' requirements. This system insulates and protects the conductive pathways and has withstood 100 commercial washings.

Q&A PANEL DISCUSSION RÉSUMÉ

4. What recent developments have simplified the integration of electronic components in garments at Interactive Wear?

Andreas Röpert: We have been working in this area for many years, always looking to simplify the integration of electronics into clothing. We have developed a standardized set of heating panels. Typically, a kidney heating panel produces 8.5 watts which is enough to offer comfortable heating powered by a slim power bank.

One of the main advantages of this product is that we can scale up production with our embroidery partner Forster Rohner, based in Switzerland. We are now producing 1000 to 5000 pieces. When we reach 10,000 pieces, we will be able to reduce the price by about 30%, and when we reach 100,000 pieces by another 30%. This will make these products commercially acceptable for mid-range brands.

5. When you began to develop the Antelope suit, did you find any ready-made components?

Philipp Schwarz: When we first developed our suit, there were no off-the-shelf solutions. We developed the yarn, the fabric, the electrodes, everything from scratch. We worked with Interactive Wear and Forster Rohner. We were grateful to find these experts, because we are new to textiles.

Q&A PANEL DISCUSSION RÉSUMÉ

6. Standards don't yet exist for this product category. Is this something you are thinking about/working on/involved in?

Peter Bona: As there are no standards, we test each garment extensively to make sure it works in everyday conditions.

Andreas Röpert: When possible, we use standardized existing components such as standard USB plugs, NFC chips, and low-energy Bluetooth modules.

7. Many people are talking about the conductive properties of graphene, do you see it as a potential game changer in smart textiles?

Steve Milner: Noble Biomaterials specializes in silver, a material that we have been working with for more than 20 years. Its properties are proven and we can obtain very high conductive properties.

Andreas Röpert: We are working a research project on pressure sensors with the University of Aachen and are testing carbon black, carbon nanotubes and graphene to find the best material to make sensors. We are also contributing to the European Union's graphene flagship project, which is working on using graphene for energy storage, maybe develop a kind of textile battery. The results of this research platform could come to the market within the next 5 to 10 years.

QUESTIONS FROM THE AUDIENCE

a. How can a company ensure that these products are not just gimmicks? How does one develop smart products that consumers will want to buy?

Peter Bona: We think a lot about final customer needs. A heating function in a jacket can be very useful, it can make the wearer very comfortable. It is important to develop products that are easy to understand by the final customer.

Andreas Röpert: The product Philip Schwarz has created with the Antelope suit will not function without electronics. He has created a product that meets certain demands for training, and which requires smart electronic components.

b. Do you see smart wearable clothing replacing smart watches?

Peter Bona: If the watch already exists, a jacket wouldn't need to have similar functions. We can link the watch and the jacket to offer other features that the watch does not provide.

Andreas Röpert: We see the possibility of direct interaction, such as haptic feedback, to help orient people. If you need to train for a very specific type of movement, the garment may be able to correct your position. These are new user experiences.

Philip Schwarz: I think smart textiles are more useful than smart watches. Today smart watches mainly connect to a smartphone. But if you want to go running without your smartphone, you may want the garment to provide music or sensory data. Textiles are a great interface to provide other functions or to operate devices.

Steve Milner: We have one customer that is creating clothing for emergency situations. It is designed to replace the bulky chest piece firefighters wear under their uniforms. This enables them to be tracked throughout an operation. The next step is to integrate these functions into a garment. That is one possible direction that would be a very useful wearable device.

THANK YOU

FOR YOUR ATTENTION