ELITAC

Integrating Electronics into Textiles Specialised in Haptic Technology

PR Kit CES 2020

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Elitac Wearable Lab

Wearable Technology | Intelligent Textiles

Elitac develops wearables combining the integration of electronics and textiles, specialising in the development of haptic wearables. The Elitac Wearable Lab is an all-in-one showroom, experience centre and workshop area in which the internal multidisciplinary R&D team translates results from scientific research into practical applications.

The Elitac Wearable Lab offers research and development in technology that communicates with the user via touch or vibration. The wearables are aimed for professionals and consumers in the health, safety and sports sector, as well as for first responders. The Lab offers the possibility to develop wearables from concept to smart garment or device. The interdisciplinary team working at the lab can rapidly develop a client or partner's idea from concept to prototype rapidly, facilitating the co-creation process.

The Wearable Lab offers the following facilities to clients and partners:

I) **Workshops and Experiences:** The Wearable Lab contains a showroom in which the client can experience different wearables and prototypes. It is fully equipped with samples of materials and finishing techniques, as well as machinery for production that offer 3D printing, rapid prototyping and working with electronics amongst other tools and machines.

II) **Proof of Concept (PoC):** The Wearable Lab allows for fast feasible studies and demonstrators. It is a place to experience working products, feel material samples and construct prototypes often in a quick time span.

III) **Product Development:** Elitac's multidisciplinary team of researchers, designers, hardware and software developers deliver quick iterations and short development time lines, resulting in better integrated solutions developed in-house.

IV) **First Series Production:** The Lab contains all the machinery needed to produce small series of textile wearables. In this way, Elitac is able to quickly provide a number of products to test and evaluate with multiple end-users.

The vision of Elitac is to deliver aesthetic and function-driven product development, translating results from scientific research into practical applications.

"At Elitac we integrate electronics in textiles. We aspire to develop meaningful products that aim to better and enhance society.."

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About Elitac

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BalanceBelt

Feeling free with every step you take

Elitac unveils its latest project BalanceBelt, a belt for people with severe balance disorders, as one of the Dutch participants at CES Las Vegas from the 7th - 10th of January 2020.

The Elitac BalanceBelt helps people with severe balance disorders such as Bilateral Vestibular Loss to eliminate the need for help from a person, walking stick or wheelchair. The belt enables the patient the ability to walk again. It gives off vibration signals to the user about the body position. The wearer of the belt intuitively reacts to the haptic feedback of the body position. By helping patients to keep more control over their balance, the belt improves their daily lives, provides instant relief and confidence whilst strengthening their physical fitness, and increases their overall quality of life.

How it works
The BalanceBelt helps with BVL (Bilateral Vestibular Loss) or a balance disorder, by providing insight into the position of the body. It continuously measures in which direction the user is leaning and gives feedback by means of vibrators. The belt is activated by the press of a button, making it extremely easy to use. It is worn around the waist and includes small vibration motors that release a vibrating alert if the patient's body is at risk of being thrown off balance. The haptic technology developed by Elitac encourages the wearer to subconsciously correct their posture themselves. The belt can be easily stored, and is chargeable as well as washable.

Partners
The BalanceBelt is a result of a fifteen-year clinical study conducted by Prof. Dr. Herman Kingma of the Maastricht UMC+ and Maastricht University. According to Prof. Dr. Kingma, more than 6 million patients suffer from severe BVL and 188 million elderly experience disabling vestibular loss. This indicates an enormous potential the BalanceBelt can add to the lives of many who suffer from these conditions. With Elitac's expertise in the use of haptic feedback, usability and wearable electronics, the BalanceBelt is an exemplary product in which the multidisciplinary R&D team of Elitac was able to translate results from scientific research into a slim, comfortable, practical and cost-effective application.

For media images and additional information please contact: press@elitac.nl

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NeuroShirt

Haptic feedback for Neurosurgeons

Another example of a medical product developed by Elitac is the NeuroShirt. It guides Neurosurgeons during the drilling task, in order to prevent drilling through critical structures such as veins and nerves. Utilising the NeuroShirt aims to contribute to a safer and more efficient neurosurgery procedure.

The cognitive load of a Neurosurgeon is very high during long surgeries (up to 12 hours). The surgeon continuously needs to switch between microscope and NeuroNavigator (visual load) . Furthermore, he is in constant communication with other operating theatre personnel as well as beeping sounds regarding the state of being of the patient.

The NeuroShirt is intended to decrease the visual load of a Neurosurgeon by using the sense of touch to give information on the location and distance of critical structure. This allows the surgeon to switch less between visual tasks and still receive accurate feedback.

How it works
Using vibrating actuators on the torso, the NeuroShirt augments the NeuroNavigator by warning the Neurosurgeon when he or she is about to hit critical structures. The shirt connects through the UMCU EVADE software with the NeuroNavigator system. Through vibrations, the surgeon is able to receive clear information. The Neurosurgeon is able to focus on the microscope view and less frequently needs to check the NeuroNavigator images to localise the surgical instrument relative to the critical structure.

Partners
The NeuroShirt has been under development in collaboration the Utrecht University hospital (UMCU) since 2017.The NeuroShirt is developed with financial support from the European Union and 'Kansen voor West'.

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In collaboration with:

UMC Utrecht

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CyclingShirt

A smart shirt for effective training

A collaborative project in which fashion and technology merge, the CyclingShirt was developed by Elitac and Dutch fashion label ByBorre. It showcases another field Elitac operates in: the sports sector. This smart shirt is intended for passionate cyclists who would like to enhance their training on an effective and productive level.

The Cycling Shirt gives the cyclist information about the heart rate by means of haptic feedback. The shirt is specifically used for interval and endurance training, in which the cyclist needs to stay within specific heart rate zones.

How it works
The cyclist's heart rate is measured and the shirt - by using the actuators - lets the cyclist know if he/she is within the targeted heart rate bandwidth. It lets the cyclist know whether there is a need to slow down or speed up in order to train more effectively. The electronics move and flex with the fabric which results in a comfortable shirt. With the special developed HapticApp and a heartrate monitor, the cyclist can set up a simple interval training and receives haptic feedback on their heartrate during training.

Partners
The project is a collaboration with Dutch textile innovation studio ByBorre, who designed and knitted the shirts. The role of Elitac was to integrate the feedback actuators (vibration motors) and electronics to connect to a mobile phone that runs the software application.

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In collaboration with:

BYBORRE

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Sentaz

Tactile navigation

Sentaz specialises in the field of Tactile Navigation in vehicles. By offering intuitive communication of navigation instructions, vibration patterns in car seats and motor cycle seats allow for more focus for first responders. In Sentaz, the knowledge, expertise, experience and network of Elitac and Teijin have been combined.

TNO research has shown that the use of tactical signals results in a reduction in reaction time and mental exertion. Tactile signals are haptic signals that can be felt all over the body. Elitac has developed an innovative extension of a turn-by-turn navigation system, focused on the European market.

How it works
Sentaz uses vibrations in the chair, near the legs, to make the signals haptic. The intuitive vibrations reduce the need of the driver to navigate visually and/or auditory. Once they are used to the system, they come to trust the signals without relying on the visual/audio display. This means their eyes and ears are available for other vital tasks. The system of Sentaz is linked to third-party software. In case of vehicle navigation, this can be software like TomTom or Garmin.

Partners
Sentaz is a joint venture between Elitac and Teijin Aramid. Teijin (Tokyo Stock Exchange) is a technology-driven worldwide group that offers advanced solutions in the field of environment; safety, security and emergency response; and demographic change and increased health awareness.

For more information please visit: www.sentaz.nl and/or contact: press@elitac.nl

In collaboration with:

TEIJIN

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Mission Navigation Belt

Intuitive haptic navigation for soldiers in the field

The Mission Navigation Belt (MNB) is designed for hands-free and intuitive haptic navigation for soldiers in the field. It provides fast information flow and increases agility through haptic sense, simultaneously reducing the load on hands, eyes and ears.

How it works

The MNB works under all circumstances, also if the movement direction changes quickly e.g. in moving vehicles or when maneuvering through difficult terrain. The belt is waterproof, resilient and durable, as well as light-weight and easy to use. It is compatible with various soldier equipment. The MNB is powered by existing soldiers' navigation system (e.g. C4i systems) and doesn't need its own battery. Soldiers can keep eyes, ears and hands free and there is no emission of sound or light when navigating.

Partners

The MNB is developed by Elitac in close cooperation with the Royal Netherlands Army as part of the new and innovative soldier's outfit project (VOSS). Currently the belts are being tested by the Royal Netherlands Army and will be commercially available in the course of 2020.

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What is haptic technology?

Haptic technology is a form of technology based on the sense touch. It approaches the sensitivity of the skin as an interface to transfer knowledge. It replaces the information that someone would usually gather by using vision or hearing. The full potential of our senses is underused due to the increasing amount of visual information we receive on a daily basis in various aspects of our life and society. This often leads to sensory overload. By providing haptic information Elitac is able to stimulate a natural and complete experience which leads to better performance in daily life, work environments, sports and in safety.

What is the Elitac Wearable Lab?

The wearable lab is a physical place located in the Netherlands where Elitac focuses on the complete process of research and product development in wearable technology. It includes:
– One stop shop for wearable development from concept to proof of concept (PoC) to functioning products.
– Quick and dirty prototype for a fast flow in PoC and user feedback.
– A showroom and workstation to experience working products, feel material samples and construct prototypes.
– A multidisciplinary and passionate team of researchers, designers, hardware & software developers.
– All the machinery needed to produce small series of textile wearables.

What services does Elitac offer?

Elitac develops creative and feasible solutions in the form of wearables. Due to its multidisciplinary team Elitac offers all in-house expertise in the development of: concept development, software, hardware and product design and concept development. Elitac is able to come up with coherent, functional and aesthetic solutions due to its full-service approach. The services include:
– Wearable research and development for various partners and clients from differing fields such as sports, safety and health.
– Translating results from scientific research into practical and functioning applications.
– A transparent and agile process in which Elitac is continuously in close contact with clients.
– Bridging the gap between textile and electronics.
– Helping to take prototypes to the next level by ensuring they are production ready.
– Rapid and functional prototyping within one month.

What does Elitac not offer?

Elitac is not a distribution partner nor can it offer large scale production. Elitac acquires partners for the projects that are production ready such as the BalanceBelt. Elitac has a large network of distribution and production partners due to the continuous look-out for these facilities which enables the wearable tech company to help in this part of the development of a functioning product.

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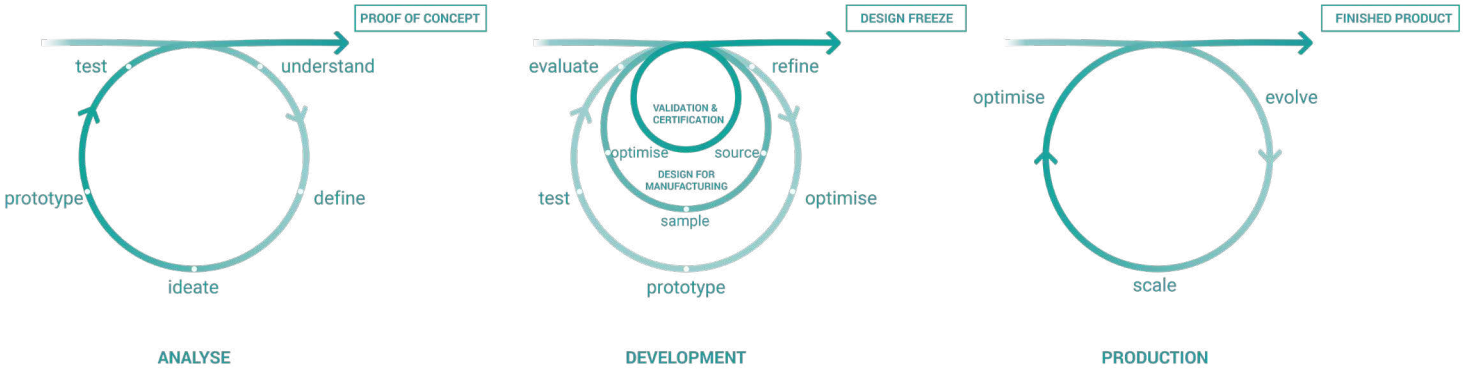
What are the various disciplines Elitac has in-house?

Concept development, research, software, hardware, industrial design, product design, textiles and fashion design.

How does the design process look like when going from idea to functioning product?



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For BalanceBelt images please download:

Image1
Image 2
Image 3
Image 4

Credits
Filmmaker: Steven Elbers
Model: EvD Agency
MUAH: Parshia Keywanshokouh

For additional images and video please contact: press@elitac.nl

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