

Contactless Sensors Integrated into Textiles

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Keeping constant track on physical functions may be useful for all sorts of reasons. In the most ideal situation the person in question doesn't even notice that it is happening. In the CONTEXT project six organisations are collaborating to develop a monitoring system that makes this possible. The project focuses on the development of contactless sensors and conductive textile substrates for the purpose of measuring muscle activity and psychological stress of the wearer. Such a monitoring system, a vest with sensors and electronics as an inseparable component of the fabric, will allow an optimum degree of comfort and generate uncorrupted data. The possible applications are countless.

Present-day EMG sensors always have to be in direct contact with the skin in order to collect data. Since plastic materials, wires and glue are needed to keep sensors attached to the skin, they are a discomfort to the wearer. In the CONTEXT project, galvanic processes, weaving and digital printing technologies are being investigated for the production of the conductive substrates. These technologies have the key benefits of low production cost, high production speed and substantial design freedom. In terms of garment design, account has to be taken of the requirements of the user and the specific situation in which the garment is used – the need for flexibility, robustness, cleaning resistance and aesthetically pleasing design, among other things.



Besides application in the prevention, monitoring and treatment of RSI, there are many other possibilities. For example in the medical field, a sensor shirt with a warning function for patients with a high health risk. In sports, for instance, clothing that measures muscle activity during training. Together with an ‘application forum’ of experts in the field of EMG measuring, textiles and (wearable) electronics, ideas for new applications will be generated. This will be a valuable input for further development of the technologies and for the development of an attractive business scenario.