Project title:	Textile-based sensor technology for human machine interface to operate orthosis and exoskeletons.
Partner:	**HEXAR HUMANCARE CO.,LTD**
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Mission Statement

In the joint lighthouse project "ExoSense" for international technology development, Korean and German partners are devloping textile-based, flexible, and adaptive sensor technologies for controlling orthoses and exoskeletons. This can enable precise,efficient and intuitive medical rehabilitation in the case of serious illnesses or after operations.

Currently, a major limitation in the field of exoskeletons and robotics for rehabilitation applications is the lack of performance of the sensor systems available today. Additionally, there is lack of the operation of the devices by the actual user or patient. Currently, the established rehabilitation systems are controlled by a therapist or operator. However, this limits the patient's control over their own movement. The new technology developed in ExoSense is designed to be scalable and will also form the basis for controlling complex exoskeletons in the future which applies to both the upper and lower extremities. For example, in rehabilitation applications, the force difference required to lift the knee can be measured and the support force can be regulated during therapy.

Approach

In Germany, the textile-based, adaptable sensor technology and the associated production process are being developed; on the Korean side, the sensors are being integrated into innovative, intuitively controllable rehabilitation devices and exoskeletons of the next generation. The system will also be embedded in a cloud solution to monitor patient data and therapy progress. The new technology platform is scalable and will also form the basis for controlling more complex exoskeletons in the future.

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