Project titel:	PhysioFib
Partner:	FELS Kunststofftechnik GmbH Myant, Inc.
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Univ.-Prof.
Prof. h.c. (MGU)
Dr.-Ing. Dipl.-Wirt. Ing.
Thomas Gries
Direktor

Jeanette Ortega
Wissenschaftlicher Mitarbeiter

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Mission Statement

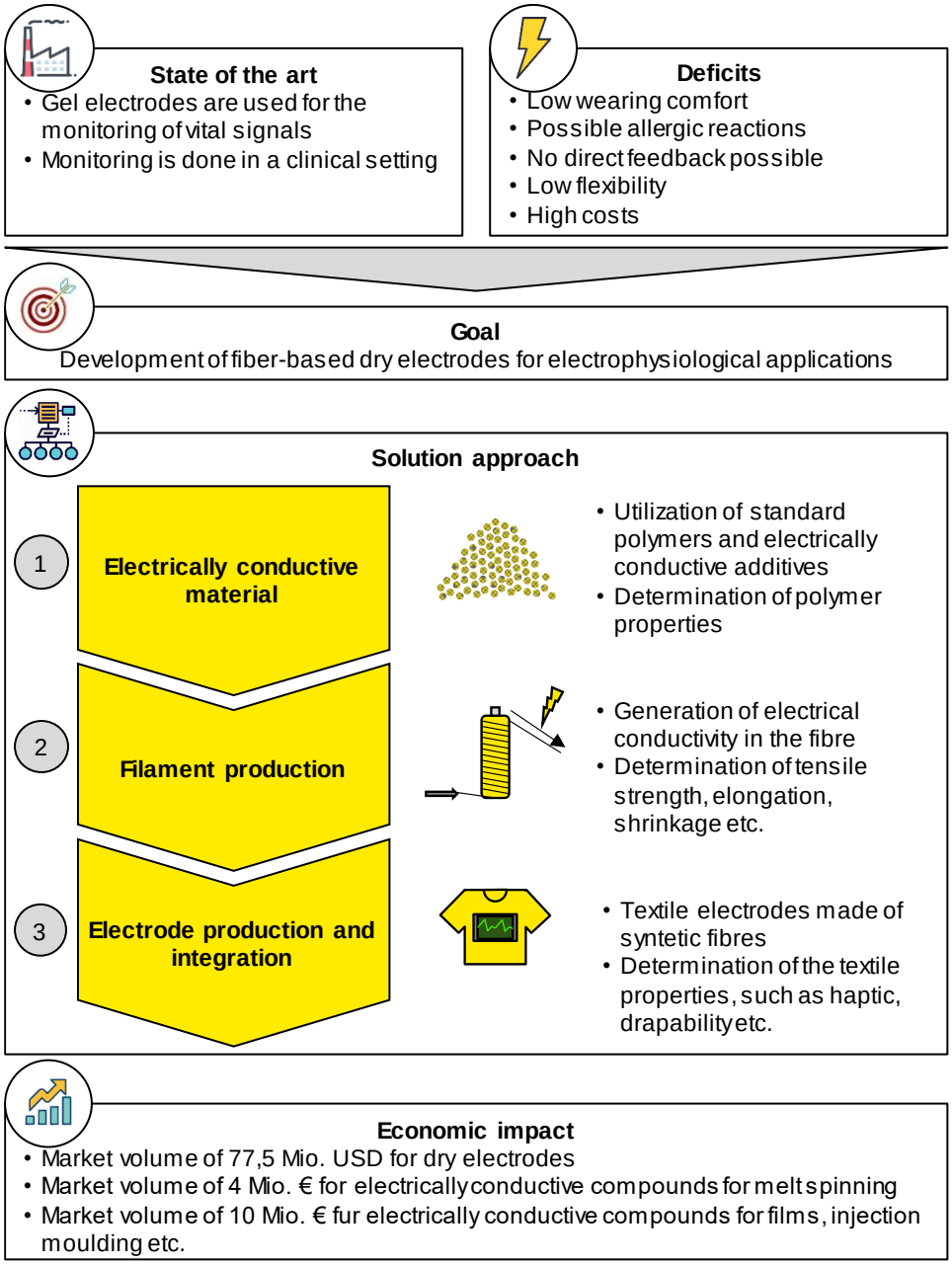
Today intelligent textiles contribute to the new trend to extend the daily monitoring of vital signs in the hospital everyday life to professional activities, entertainment and domestic activities. These intelligent garments are worn close to the skin and create a bi-directional, proactive and continuous medium between our body and the world. They therefore offer many possibilities to detect environmental influences on our body and the body behavior itself through sensor technology in the textiles. These sensors must be thin, flexible, washable and resistant. However, conventional sensors, such as gel electrodes, do not fulfill at least one of these requirements. A textile dry electrode that meets these requirements is currently not available.

These portable electrodes to be developed are inexpensive and enable continuous support, for example during rehabilitation after or examination of heart diseases of seniors. Especially considering the megatrend of the aging society, the demand for such sensors is increasing because this risk group is growing strongly.

But the sensor can also be used for other risk groups, such as premature babies. Doing without gel-based electrodes reduces the allergy potential and enables a wide range of applications, e.g. in the prevention of sudden infant death, which still kills almost 20,000 (EU and USA) babies every year.

Approach

In this project, functionalized polymers (thermoplastic elastomers with electrically conductive fillers) are processed into compounds (FELS) and investigated. In the following step, these are spun into fibers by melt spinning (ITA). An electrode is made from the fibers, which is integrated into a textile as a sensor in order to process it into a smart textile (Myant). In addition, a test methodology is developed to characterize biosignal recognition (SAPL). The development will be evaluated by comparison with existing gel electrodes. At the end of the development, a material flow analysis will be carried out by all partners in order to identify and implement opportunities for reuse and recycling.



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Contact

Jeanette Ortega, M. Sc.
E-Mail: jeanette.ortega@ita.rwth-aachen.de
Telephone: +49 (0) 241 80 - 22101

Felix Krooß, M. Sc.
E-Mail: felix.krooss@ita.rwth-aachen.de
Telephone: +49 (0) 241 80 - 23270