Scientists to develop electronic noses to track down body odors

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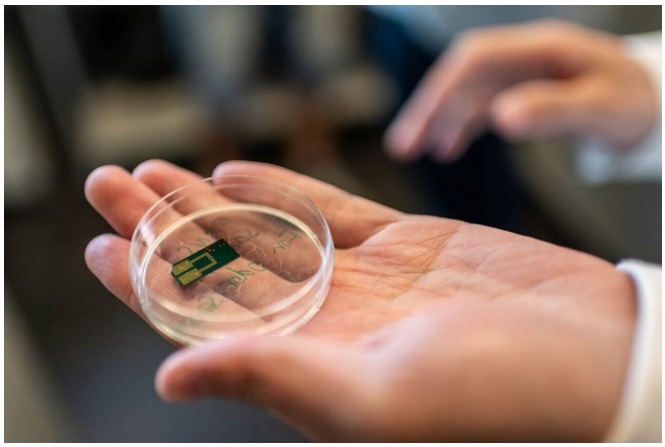

Smellodi Project. Credit: Antonie Bierling, TUD

In April 2022, the project "Smart Electronic Olfaction for Body Odor Diagnostics"—SMELLODI for short—started with the kick-off meeting. The objective of the seven partners from Germany, Israel and Finland is to develop intelligent electronic sensor systems that can distinguish between healthy body odors and those altered by disease and transmit them digitally. Over a period of three years and with funding of almost 3 million euros, the technology developed is to pave the way for the digitization of the sense of smell.

Electronic noses can also help people in everyday life, since body odors play a subtle but crucial role in many social situations. They influence our attraction to our partner, create a sense of belonging in the family, and allow us to draw conclusions about the feelings or illnesses of our fellow human beings. Therefore, the inability to perceive one's own body odor and the body odor of others is described as one of the most serious impairments for people with olfactory disorders.

The technology envisioned in SMELLODI thus has the potential to become a rapid, immediate, and non-invasive diagnostic tool. With the advent of inexpensive, environmentally friendly, and biocompatible sensor systems, health monitoring of body odors can transform laborious or painful procedures that currently can only be used in facilities specialized for this purpose into a technology for individuals to use anywhere, anytime. An electronic olfactory device that responds to changes in body odor can be used to facilitate implants and assistive devices for patients with olfactory disorders and improve their quality of life.

In addition, there are many other applications for the technologies developed in SMELLODI. In the future, an electronic sense of smell could also shape the next-generation smart home (e.g., with refrigerators that monitor food quality), improve industrial processes (e.g., through the use of robots that detect malfunctions of production plants), and facilitate safety and environmental (e.g. by measuring ammonia in air) monitoring.

Provided by Dresden University of Technology

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