PURDUE INNOVATES | Office of Technology Commercialization

Self-Calibrating Electro-chemical Sensors for Wearable/Implantable Sensors

Self-calibrating electrochemical sensors deliver accurate analyte readings in wearables, implants, water, and agriculture.

Researchers at Purdue University have developed self-calibrating electro-chemical sensors for wearable or implantable applications. While traditional electro-chemical sensors work well in laboratory conditions, they fall short in real-world applications where they face changing environments and cannot be regularly calibrated. Purdue's approach uses a sensor configuration that decouples environmental changes from the analyte measurements. This results in a sensor that is both more accurate and self-calibrating. Applications of this technology include uses in wearable/implantable technology, water monitoring and treatment, and agriculture.

Advantages

- Self-calibrating ion-selective sensors

- More accurate in real-world conditions

- Low cost

Applications

- Wearable/implantable technology

- Agricultural production

- Industrial production

- Water monitoring and treatment

- Pollution monitoring

Technology Validation:

This technology is in the concept stages and has been validated analytically with ML and signal modelling.

Technology ID
2021-ALAM-69324

Category
Agriculture, Nutrition, & AgTech/Ag Robotics & Automation
Digital Health & Medtech/Wearable Health Tech & Biosensors

Authors
Muhammad A Alam

Further information
Parag Vasekar
psvasekar@prf.org

View online

TRL: 2

Intellectual Property:

Provisional-Patent, 2022-12-29, United States

Utility Patent, 2023-12-27, United States

Keywords: Electrochemical, implantable, Implantable Devices, Measurement, self-calibrating, sensing and measurements, sensor, wearable, Wearable Devices