Docket #: S19-292

Stretchable multi-sensor tag for wearable electronics

Stanford researchers at the Bao Research Group have developed a second-generation stretchable multi-sensor tag technology for detecting physiological signals.
Based on patented stretchable antenna concepts disclosed in US Patent 10,635,868 and Stanford docket S17-441, this invention integrates multiple sensors inside one sensor tag enabling more accurate readings. Currently, conventional wearable sensors include a serial tag consisting of antennas and only one sensor. This invention enables multiple sensor as well as analog sensor integration into one sensor tag. Analog sensors can analyze additional physiological data such as body temperature, increasing the utility of BodyNet sensor system described in Stanford docket S17-441.

Stage of Development

- Proof-of-concept

Related Technologies
Stanford Docket S17-441 "BodyNet: Sensor System for wearable electronics"
Stanford Docket S19-032 "Coupling Insensitive compact reader for fully-passive sensors"

Applications

- **Wearable sensor** that can monitor human physiological signals
- **Bed-side and point-of-care** health monitoring and sensing
- **Food safety,** where sensors can be designed to contain information about how well the product is handled or stored in transportation

Advantages

- **Batteryless, chipless and wireless** on-skin sensor tag for wearable electronics
- Enables **multiple sensor integration** inside one sensor tag
- Enables **analog sensor integration** into one sensor tag
- Analog sensors can read additional physiological data such as body temperature
- **More accurate readings**

Publications

- Niu, Simiao, Naoji Matsuhisa, Levent Beker, Jinxing Li, Sihong Wang, Jiechen Wang, Yuanwen Jiang et al. "A wireless body area sensor network based on stretchable passive tags." Nature Electronics (2019): 1-8.

Patents

- Published Application: 20210390273
- Issued: 11,281,874 (USA)

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