Augmented Telemetry from Body-Worn Passive Wireless Sensors

Tech ID: 34081 / UC Case 2021-703-0

BRIEF DESCRIPTION

A revolutionary approach to wearable sensors that significantly extends read-out distances and improves reliability without the need for microelectronics.

FULL DESCRIPTION

This technology introduces wearable wireless passive sensors that leverage coupled magnetic resonances to overcome traditional limitations such as short read-out distances and the trade-offs between sensor size and performance. By integrating secondary receiver coils into fabrics or directly onto the skin, this method enhances the telemetry of passive sensors, enabling them to monitor vital signs like respiration with greater accuracy and over longer distances, without electronic components.

SUGGESTED USES

- Body area networks for health monitoring and fitness tracking.
- Implantable biosensors for continuous health and vital signs monitoring.
- Wearable devices in sports and rehabilitation for performance monitoring and injury prevention.
- Integration into the Internet of Things (IoT) systems for enhanced environmental and personal monitoring.

ADVANTAGES

- Significantly extended near-field transmission range, improving the functionality of wearable and implantable sensors.
- Allows for smaller sensor sizes without compromising spectral performance, enabling more discreet and comfortable wearables.
- Enables decoupled co-readout of sensor distance and status, improving reliability during physical activity.
- Simple integration into existing wearable technologies, requiring minimal modifications.
- Eliminates the need for complex microelectronics, reducing costs and enhancing biocompatibility.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,352,608	07/08/2025	2021-703

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OTHER INFORMATION

CATEGORIZED AS

- **Medical**
  - Devices
- **Sensors & Instrumentation**
  - Analytical
  - Biosensors
  - Medical

RELATED CASES

2021-703-0

RELATED MATERIALS

» Hajiaghajani, A., & Tseng, P. (2021). Microelectronics-Free, Augmented Telemetry from Body-Worn Passive Wireless Sensors. Advanced Materials Technologies, 6.

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