Hydrogel-Based Environmental Sensor Device

Tech ID: 34171 / UC Case 2019-914-0

BRIEF DESCRIPTION

A novel sensor device leveraging hydrogel and metallic structures for passive, wireless environmental monitoring.

FULL DESCRIPTION

This technology introduces a sensor device that includes an inner hydrogel layer sandwiched between two planar metallic structures, all encased within a protective layer. It operates by receiving environmental stimuli and responding with changes in capacitance within the hydrogel, which in turn modifies the device's resonant frequency and generates an electrical response. This sensor is designed to operate passively, without the need for integrated batteries or micro-electronics, making it ideal for continuous, long-term environmental monitoring in various settings.

SUGGESTED USES

- Healthcare monitoring, including tracking of biomarkers and physiological parameters.
- Environmental sensing for detecting toxins, drugs, proteins, ions, and carbohydrates.
- Wearable technology for non-invasive medical diagnostics and wellness tracking.
- Integration into the Internet-of-Things (IoT) for smart, responsive environments.

ADVANTAGES

- Passive operation without the need for batteries or micro-electronics.
- Flexible and small form factor allows for deployment in diverse environments.
- Capable of monitoring a wide range of environmental stimuli.
- Long-term stability and continuous monitoring capability.
- Wireless functionality enables remote data collection and monitoring.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	2022025535	08/11/2022	2019-914

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OTHER INFORMATION

CATEGORIZED AS

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

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