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Wearable and Implantable Epidermal Paper-based Electronics

Low-cost, moisture-resistant, paper-based wearable or implantable epidermal electronics enable high-throughput manufacturing of breathable medical monitoring devices.

Current manufacturing methods and materials for epidermal electronics are complex and expensive, which prevent their adoption as single-use medical devices. Researchers at Purdue University have developed a low-cost, omniphobic, paper-based wearable or implantable epidermal electronic to monitor health status. Whereas current metallic based skin-mountable or implantable devices are not breathable and short-circuit in high humidity situations, this porous, paper-based technology is not impacted by moisture changes and is highly breathable. Furthermore, this technology makes epidermal electronic devices accessible to high-throughput manufacturing technologies to allow the fabrication of a variety of wearable medical devices at a low cost.

Advantages:

-Breathable

-Not impacted by moisture

-Low-cost

Potential Applications:

-Wearable or implantable epidermal electronics

TRL: 5

Intellectual Property:

Provisional-Patent, 2019-04-19, United States | PCT-Patent, 2020-04-08, WO | Utility Patent, 2020-04-08, United States

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implantable electronic, high-throughput manufacturing, moisture-resistant sensor, health monitoring wearable