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Wearable Epipen for AI based monitoring and administering for anaphylaxis

AI-powered wearable monitors anaphylaxis onset and auto-injects epinephrine instantly.

Researchers from Purdue University are developing an AI-powered wearable device designed to detect and treat anaphylaxis, a severe, potentially life-threatening allergic reaction that occurs rapidly after exposure to an allergen. This system integrates advanced sensors, AI-driven decision-making, and automated drug delivery to ensure rapid epinephrine administration. By using flexible CMOS electronics, microfluidics, and energy-efficient designs, the device aims to overcome current challenges surrounding current anaphylaxis treatment and other emerging wearables devices such as cost, comfort, accessibility, and timely intervention. The project also emphasizes manufacturability, security, and integration for scalability. The research team aims to push healthcare technology into the future of intelligent, autonomous systems.

Technology Validation:

The AI-powered wearable device for anaphylaxis was validated through sensor optimization, AI-driven decision-making, and automated drug delivery testing. Researchers tested microfluidic and spring-based injection systems, integrated power-efficient components, and ensured data security using encrypted communication networks. The system's functionality, reliability, and safety were assessed through real-world simulations, industry collaboration, and a figure-of-merit evaluation to optimize scalability and affordability.

Advantages:

-Multimodal monitoring

-AI-driven decision making

-Wearable and comfortable

-Energy efficient

Technology ID

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Category

Energy & Power Systems/Grid Modernization & Smart Grids
Artificial Intelligence & Machine Learning/Multimodal & Generative Visual AI

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Further information

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View online

-Uses commercial-off-the-shelf components

-Modular design

Applications:

-Emergency anaphylaxis treatment

-Wearable or implantable AI-driven drug delivery systems

-Remote healthcare and telemedicine

-Pediatric and school-based allergy management

TRL: 2

Intellectual Property:

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