

Successful R&I in Europe 2025: 12th European Networking Event

Hyperspectral Imaging-Based Personalized Health Monitoring

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Hyperspectral Imaging-Based Personalized Health Monitoring



Overview: Exploring hyperspectral imaging (HSI) and artificial intelligence (AI) for personalized and public health management.

Prototype Concept:

- Wearable/portable device using HSI for analyzing subdermal tissues, oxygen levels, and blood flow.
- Provides precise health insights and real-time AI-driven health recommendations.

Public Health Initiative: Conceptualizing a platform for public health authorities to utilize anonymized data for:

- Early detection of infectious diseases.
- Pandemic management and preparedness.

Impact: Laying the groundwork for innovative, data-driven healthcare solutions.



Future Research Goals

- Advanced wearable technologies with integrated HSI sensors for real-time subdermal imaging.
- AI algorithms for personalized healthcare analytics and predictions.
- IoT-driven platforms for public health insights and disease outbreak monitoring.
- Cross-disciplinary innovation for precision medicine and early disease detection.



Bewell's Expertise



Ongoing Projects:

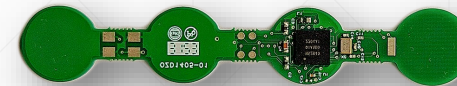
- **AICom4Health:** BLE-enabled air quality monitoring systems with MQTT cloud integration.
- **DAIsy:** Vital sign monitoring wristbands with BLE gateways and cloud dashboards.
- **R-PODID:** BLE-based IoT systems with AI-driven predictive maintenance solutions.
- **TiDiT:** 3D visualizations and simulation for Digital Twin platforms.

Technological Capabilities:

- Sensor-to-cloud system architecture.
- Advanced AI and machine learning development.
- IoT device prototyping and BLE communication.



Air Quality Sensor Board



Custom-designed Bluetooth Module



Bewell Gateway

Needed Profiles

- Development of hyperspectral imaging sensors for healthcare applications.
- AI specialists for healthcare analytics and real-time recommendations.
- Manufacturers for wearable and portable health devices.
- Clinical research institutions for validating device concepts and conducting pilot studies.
- Public health authorities for data-driven healthcare policy alignment.
- Data security experts for anonymized data handling and compliance with GDPR.

Thank You

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