

# Technical White Paper on Data Privacy Compliance for Users' Personal Care

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## Introduction

As an innovative leader in the field of smart healthcare, we are committed to providing safe and efficient health monitoring solutions. This white paper introduces our medical alert system based on the "edge computing + cloud intelligence" distributed architecture, highlighting its advanced features and reliability in real-time monitoring, intelligent analysis, privacy protection, and international compliance. It aims to help medical institutions, elderly care facilities, insurance companies, government departments, and research institutions gain an in-depth understanding of our technological advantages and market competitiveness.

## I. System Architecture: Integration of Edge Computing and Cloud Intelligence

The system adopts a four-layer architecture, which significantly enhances privacy protection and data processing capabilities:

- Edge-aware layer
  - Using a 60GHz millimeter-wave radar sensor, it collects physiological and behavioral data in real time without contact, and uploads only key feature parameters.
- Data processing layer
  - Comply with ISO/IEEE 11073 standard, standardize data processing, and improve data quality.
- AI analytics layer
  - Integrate DeepSeek V3 and RAG technology, combined with medical knowledge graph to achieve intelligent health analysis and trend prediction.
- App Service layer
  - Through RESTful API and WebSocket interface, real-time access and alarm push are implemented for multiple terminals.

## II. Global Data Privacy Compliance Implementation

The system is fully compliant with the following international and regional regulatory requirements:

- EU GDPR compliance
  - The principle of data minimization, only feature parameters are uploaded.
  - Perfect user consent mechanism, support for withdrawal at any time.
  - A dedicated Data Protection Officer (DPO) oversees the implementation.
- U.S. HIPAA compliant
  - End-to-end data encryption ensures ePHI data security.
  - Comprehensive administrative, physical and technical security measures.
- Regulatory compliance in China
  - Localized data centers store user data.
  - Compliant cross-border data transfer management.
  - Additional encryption and access control for sensitive data.

### III. Market Competitive Advantage Analysis

Feature	Our System	Market Similar Systems
data processing	Edge computing, transmission of characteristic parameters	The main cloud processing, the transmission of raw data
Privacy Protection	Minimal risk of sensitive data transmission	Higher risk of sensitive data
AI analytics capabilities	DeepSeek V3+RAG, precise intelligent analysis	Basic AI, limited analytics
Scalability	The distributed architecture supports global deployment	Rely on a single cloud and have poor scalability
Compliance	Fully compliant with GDPR, HIPAA and China regulations	Only partially HIPAA compliant

### IV. Future Technology Development Roadmap

- Federated learning technology enables cross-institutional AI model training.
- Expand multi-modal non-contact sensing technology and expand the monitoring range.
- Improve the transparency and explainability of AI decision-making.
- Ecosystem expansion to connect smart home and telehealth systems.

## Conclusion

With the advanced "edge computing + cloud intelligence" architecture, the health guardian system has reached the world's leading level of data privacy protection and intelligent health management, and has been widely deployed across the country and significantly improved user experience and medical efficiency. We will continue to innovate and work with global partners to promote the development of the smart healthcare industry.

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