IoT Enabled Elderly Monitoring System

Role of privacy preservation frameworks in e-health applications

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Healthcare IoT | Remote vitals monitoring | Security and privacy

Paper snapshot

Presented work

“IoT enabled elderly monitoring system and the role of privacy preservation frameworks in e-health applications”

The paper frames Healthcare IoT as an e-health paradigm where biosensors capture body vitals and transfer data through wireless infrastructure to a data center.

Core keywords: HIoT, interoperability, e-health, access control, authentication.

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Why this work matters

Remote care is becoming essential

Elderly patients and people with chronic or degenerative conditions need continuous observation outside hospital settings.

Healthcare IoT offers the backbone

Wearable and home-based biosensors can monitor temperature, heart rate, blood pressure, glucose, oxygen and movement patterns.

Privacy decides adoption

Health data is sensitive. Trust depends on authentication, access control, secure transmission and clear governance around sharing.

From home vitals to clinical response

Proposed HIoT monitoring flow

1 Sense
Vitals from biosensors

2 Transmit
Wireless gateway + network

3 Consolidate
Cloud / data center storage

4 Act
Doctor, caregiver, alerts

Privacy preservation framework: what must be protected

The paper positions security and privacy as a core design requirement, not an add-on after deployment.

Authentication	Verify devices, users and care providers before access.
Access control	Grant data privileges based on role, consent and need.
Secure data flow	Protect sensor-to-cloud transmission and storage.
Interoperability	Enable safe data exchange across devices and systems.

A useful structure for presenting the paper

Research contribution

01

Overview of HIoT trends

Summarises how IoT supports e-health sensing, communication and data delivery.

02

Privacy preservation focus

Discusses security issues around healthcare data and connected devices.

03

Architecture proposal

Introduces a framework for monitoring vitals of differently abled or chronic-care patients.

Use-case scenarios explain how components interact in real care situations.

Use-case scenarios and expected outputs

Scenario	Trigger	Output
Routine monitoring	Vitals stay within range	Daily trend dashboard and care summary
Anomaly alert	Sudden change in vitals or fall signal	Immediate alert to caregiver/doctor
Clinical review	Doctor checks patient history securely	Role-based access to relevant records
Emergency escalation	Critical threshold crossed	Priority notification and response workflow

Core message: accurate sensing is only valuable when the data flow is trusted, secure and useful to caregivers.

Presentation summary

A conference presentation on designing trusted Healthcare IoT systems for elderly and chronic-care monitoring.

1. HIoT connects biosensors, communication networks and care providers.
2. Privacy preservation is a core requirement for adoption.
3. The architecture supports monitoring, alerts and secure clinical review.

Thank you

Anubha Parashar