

# SHS Smart Hospital System

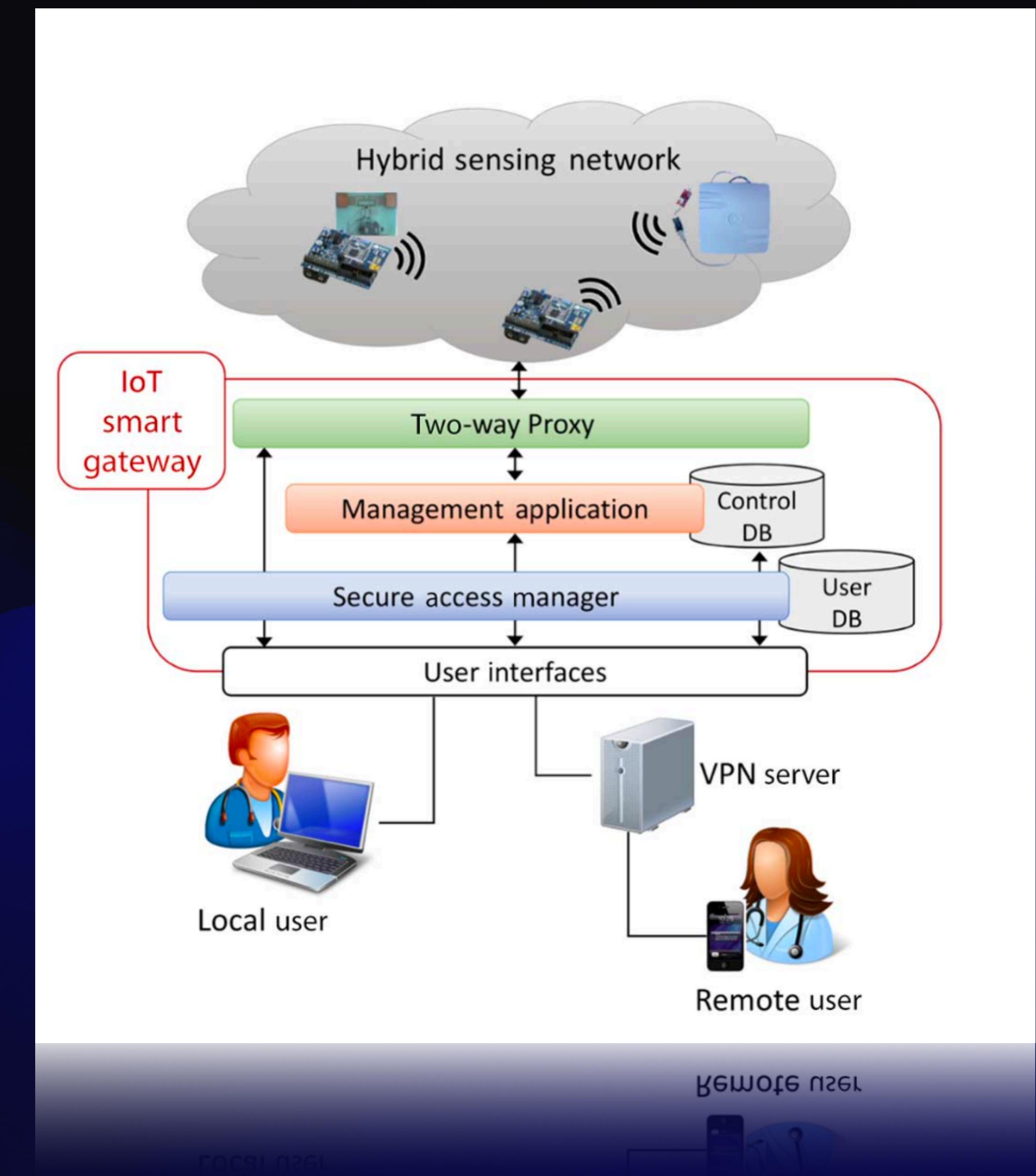
## An IoT-Aware Architecture for Smart Healthcare Systems

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# Introdução

Aproveitamento dos recentes avanços das tecnologias IoT (Internet das Coisas) e de redes para desenvolver um ambiente hospitalar completamente integrado

Tratamento de dados centralizados(enfermaria)



# Tecnologías exploradas

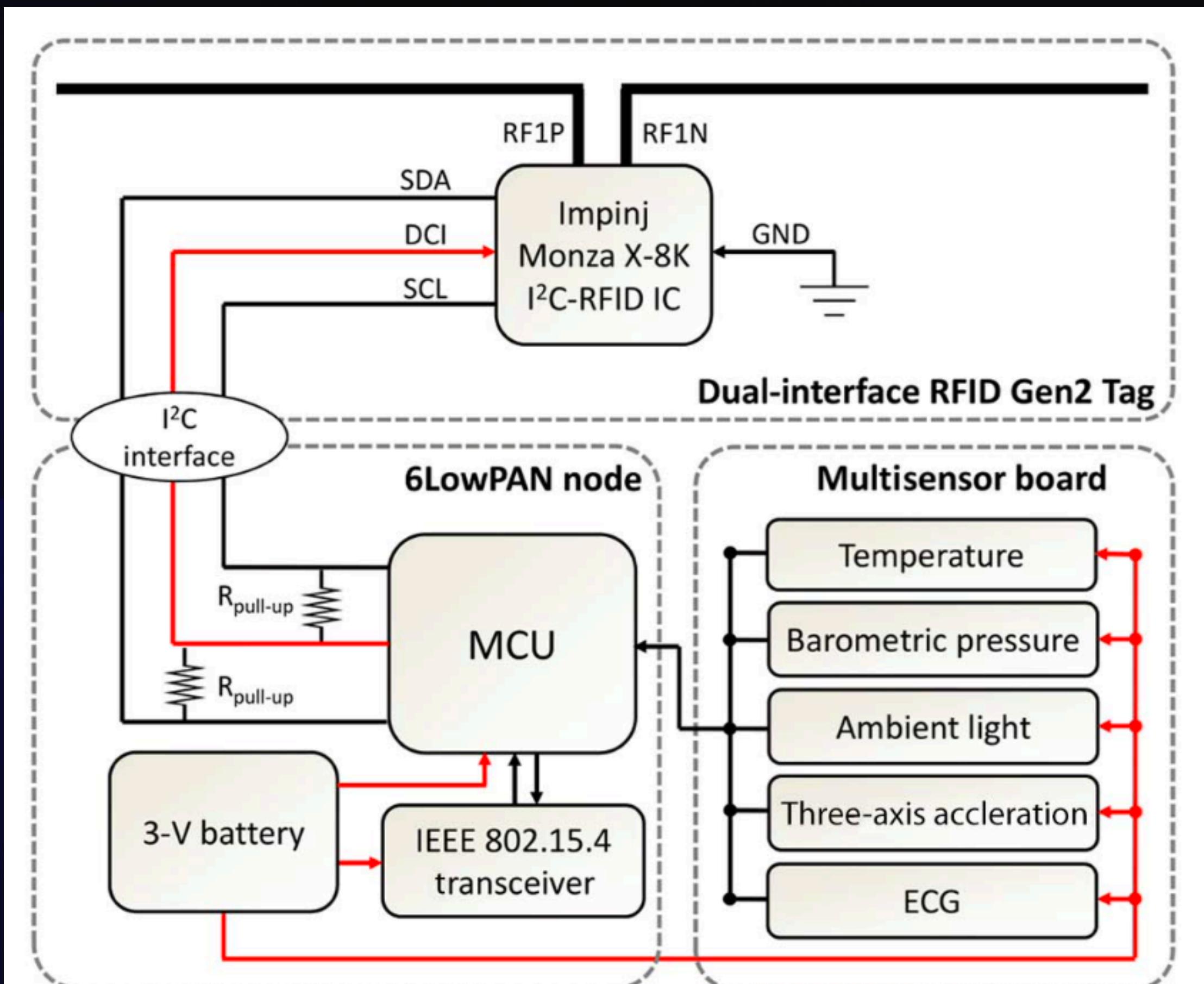


Fig. 3. HT node architecture. Red connections show how the on-board power is routed to the functional blocks.

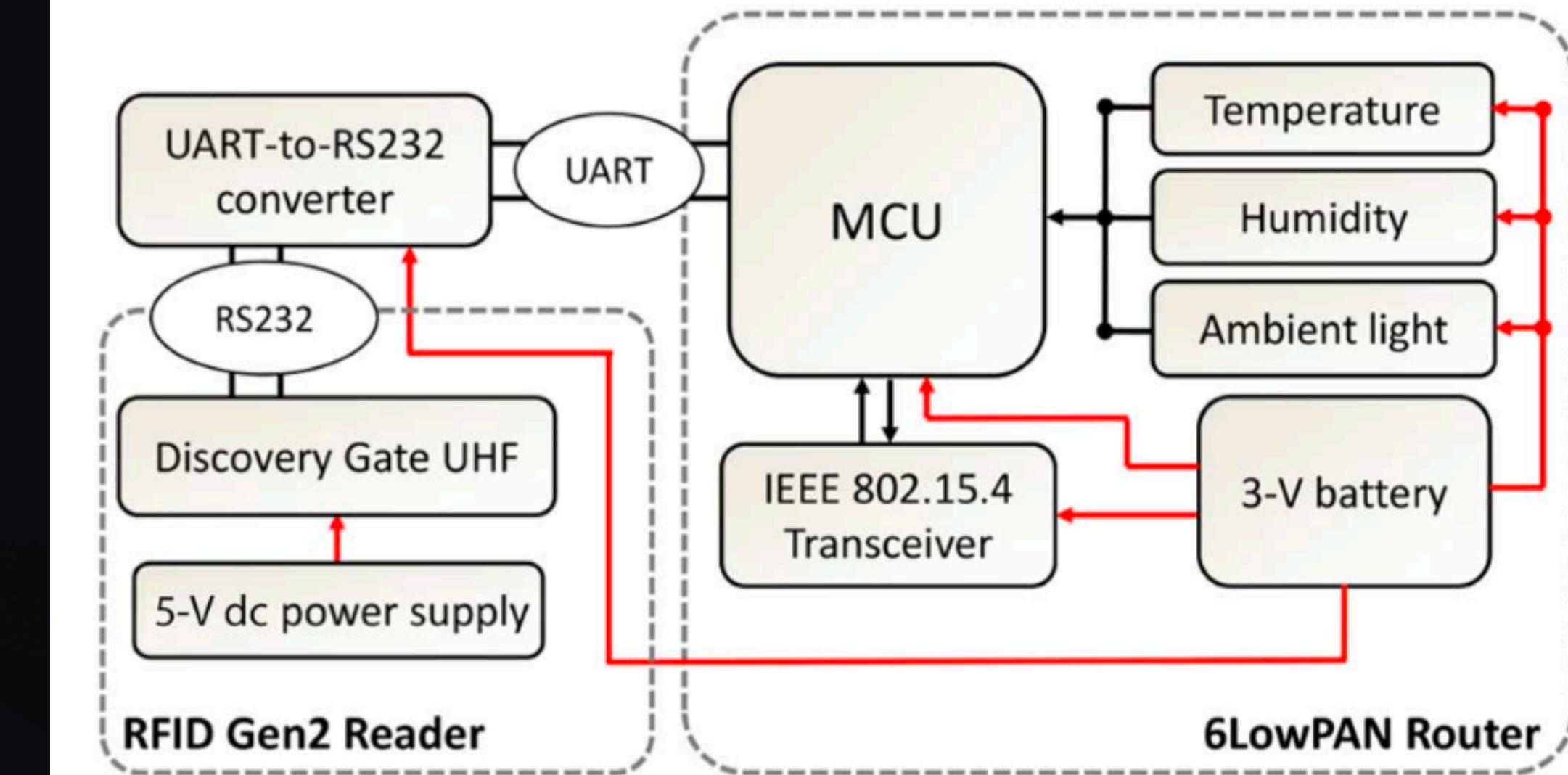


Fig. 2. 6LRR (6LowPAN Router Reader) architecture. Red connections show how the on-board power is routed to the functional blocks.

Protocolo CoAP/IPV6.

RFID

WSN

Smart mobile

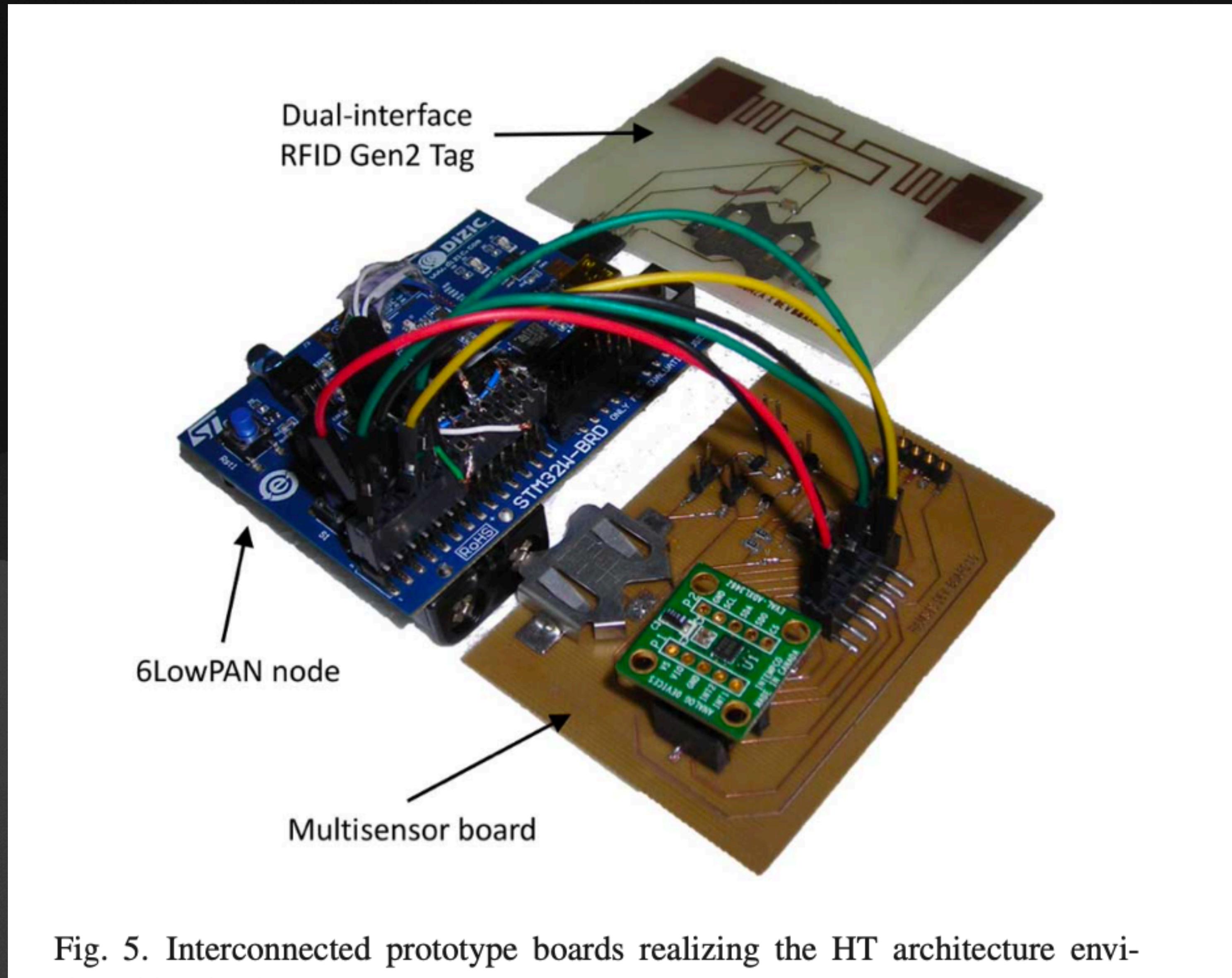


Fig. 5. Interconnected prototype boards realizing the HT architecture envi-

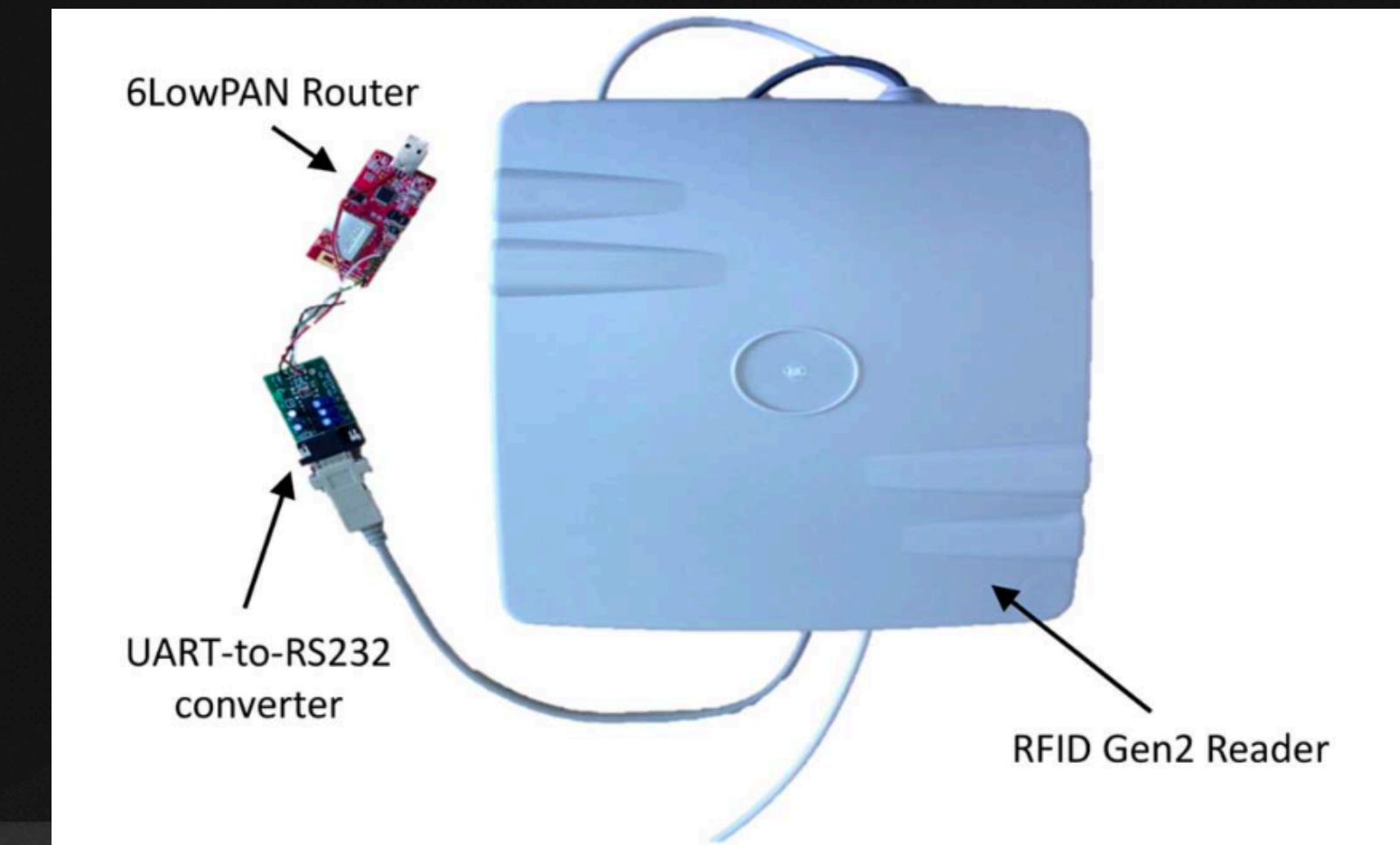


Fig. 4. Interconnected boards and devices realizing the 6LRR architecture envisioned in Fig. 2.

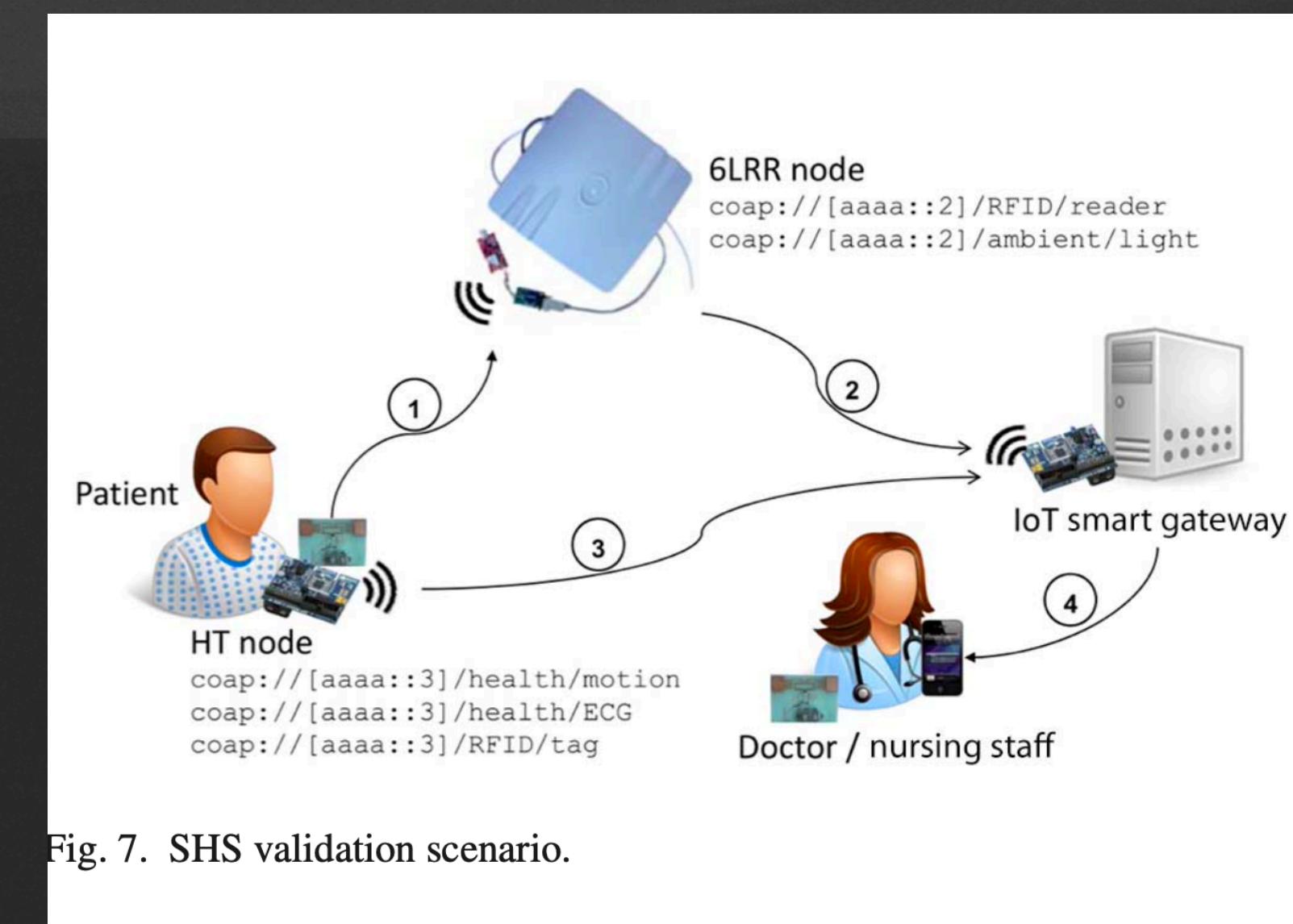


Fig. 7. SHS validation scenario.

# Cenários de validação

Casos de usos implementados para provar a SHS

Monitormaneto de Rotina

Queda de Pacientes por acelerómetro

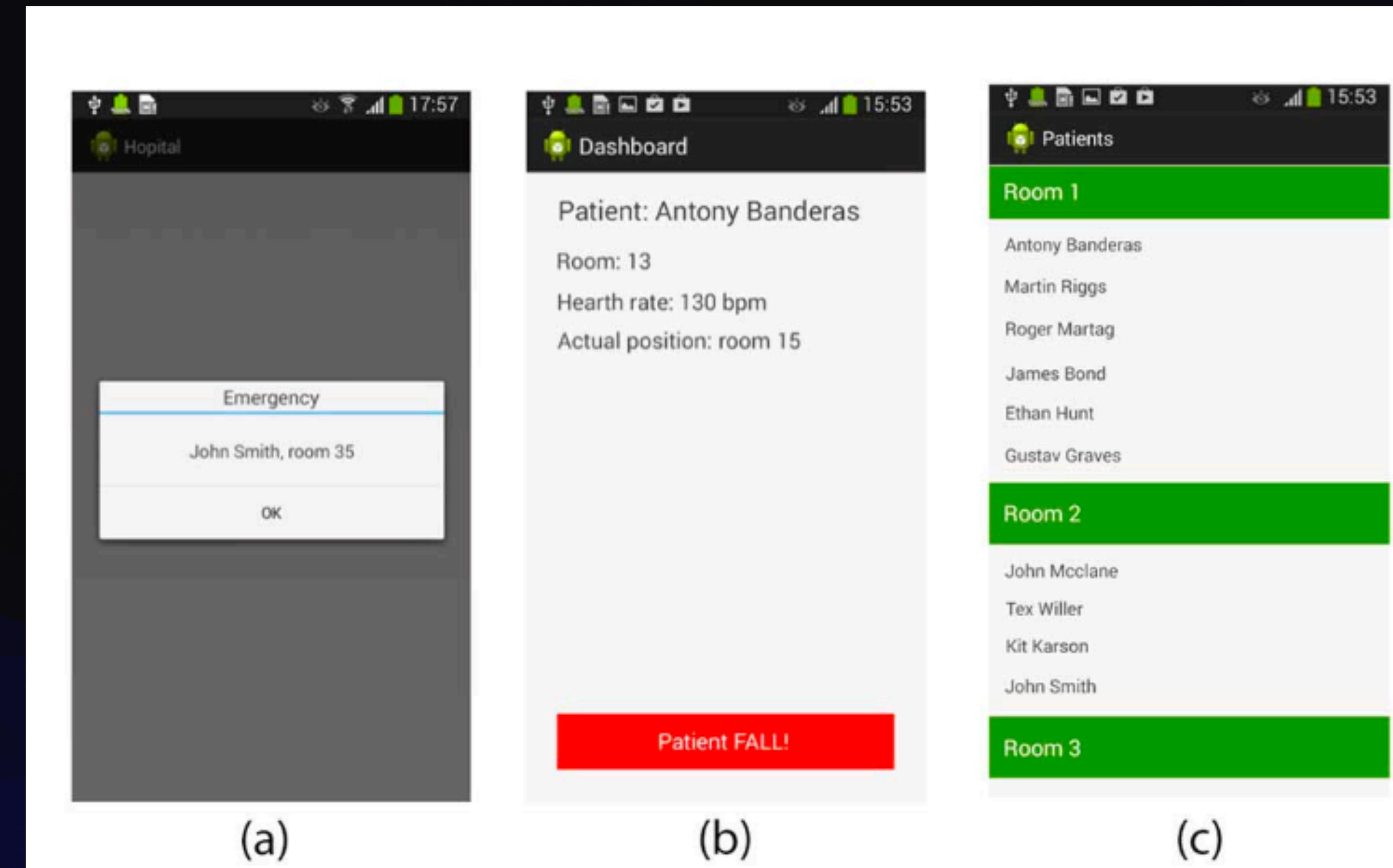


Fig. 9. Screenshots of the Medical App. (a) PN on the mobile phone. (b) Visualization of details about the emergency situation. (c) List of patients and their location.

TABLE IV  
COMPARISON BETWEEN THE PROPOSED SHS AND SIMILAR ARCHITECTURES PRESENTED IN THE LITERATURE

Reference work	Technologies			Services provided				IoT interoperability	
	RFID	WSN	Mobile	Patient Tracking	Staff Tracking	Remote Patient Monitoring	Alert Notification	6LoWPAN	CoAP
[1]		√	√	√		√			
[3]	√		√			√	√		
[4]	√			√	√				
[14]		√		√		√			
[15]		√	√			√		√	
[19]	√	√	√	√			√		
[20]	√	√				√			
Proposed SHS	√	√	√	√	√	√	√	√	√

# RESULTADOS

# Conclusão

"The achieved results demonstrate the appropriateness of the proposed system to perform not only identification and tracking of patients, nursing staff, and biomedical devices within hospitals and nursing institutes, but also to provide power-effective remote patient monitoring and immediate handling of emergencies."