

### THE PROBLEM

With rising life expectancy, more elderly individuals live alone, often facing risks like falls or disorientation due to aging or chronic conditions. This growing trend strains families and communities, as emergencies frequently go unnoticed, amplifying their stress and delaying critical responses.

### BENEFICIARIES

Informal caregivers, typically family members, shoulder the emotional burden of constant vigilance, overwhelmed by daily responsibilities and lacking reliable ways to stay informed about their loved ones' well-being. Elderly individuals, especially those with conditions like dementia or limited mobility, strive to preserve their autonomy but feel constrained by alert systems that are either overly invasive or fail to meet their needs.



### COMPETITORS

Current solutions like smartwatches, emergency wearables and home surveillance often lack caregiver focus, feature complex interfaces and raise privacy concerns. They also struggle with indoor tracking and false alarms. Who?Cares offers a caregiver-centric design, proactive alerts, precise indoor localization via sensors and a privacy-first approach.

# **OUR GOALS**

- Context-Aware Alerts: To catch critical changes like falls or wandering early, enhancing safety through intelligent routine monitoring.
- Privacy-First Design: To protect user dignity and trust by keeping all data secure within the home.
- **Edge Processing:** To empower caregivers with fast, reliable updates, reducing their constant worry and oversight.
- Caregiver Confidence: To prioritize urgent needs with clear, actionable alerts, easing stress and uncertainty.





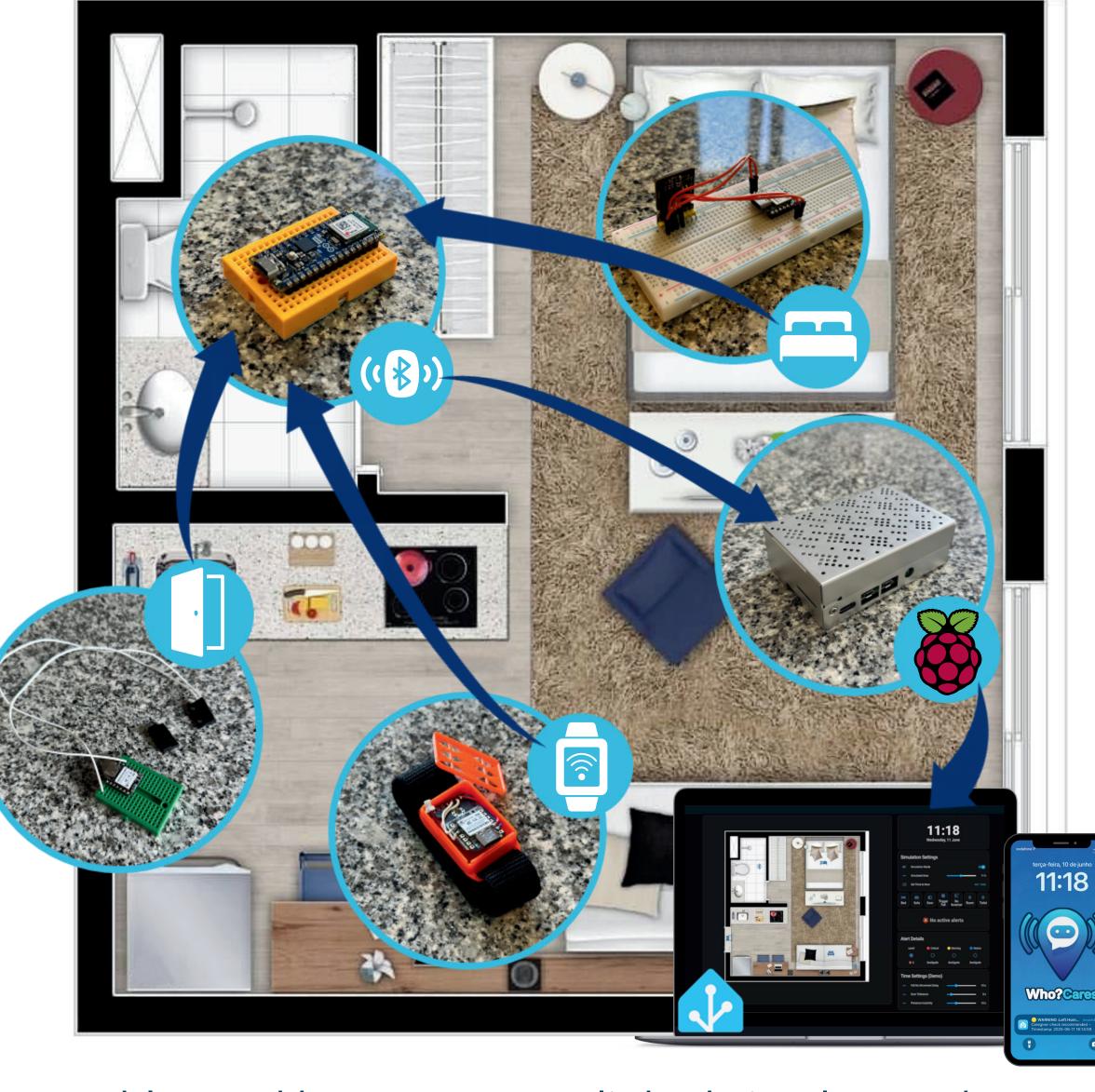
You Do. We Help.

## A Smart Home Monitoring System

that seamlessly integrates a wearable, sensors and beacons for precise in-home tracking and smart alerts. A local Raspberry Pi hub offers real-time insights via a dashboard, ensuring timely notifications with minimal false alarms. This way, we empower caregivers to take care of their elderly loved ones living alone while providing them with peace of mind.



### SYSTEM ARCHITETURE



Wearables and home sensors, linked via Bluetooth to a Raspberry Pi, enable real-time safety monitoring for the elderly

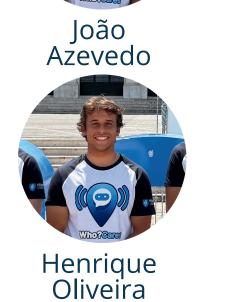
# RESULTS Sensor Accuracy Critical Warning Presence Sensor Door Sensor Notice Pall No Movement Sensor Accuracy Fall No Movement Bathroom No Movement Night Bathroom No Movement Day No Return Bathroom No Movement Day No Bed Overnight Fall Detected Notice Presence Sensor Wearable (fall+move) BLE BLE Beacons

# **OUR TEAM**





Monteiro





(O)

Gonçalo Barbosa

Group 13

Advisor: Prof. Luís Caldas de Oliveira
Co-Advisor: Tiago Lourinho

# FUTURE ENHANCEMENTS

- GPS tracking and health sensors for broader monitoring
- Machine learning for personalized, proactive alerts
- Al companions for emotional support and routine guidance

For More Information:

