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## Advancing Well-being through Smart Wearables: User-centred Design for Healthy Ageing

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### Abstract

As populations age worldwide, ensuring well-being and independence in later life has become a pressing challenge. Wearable technologies hold promise for continuous health monitoring and proactive care, however adoption among older adults remains limited. Factors such as complexity, discomfort, and insufficient alignment with user needs often hinder engagement and sustainable use. The WEARCare project takes a user-centred approach to reimagine wearable health solutions for older adults. Through participatory design methods, including interviews and co-creation workshops with older adults and informal carers, the project explores which physiological monitoring needs are prioritised and how they can be integrated into garments and/or accessories that are comfortable, intuitive, and socially acceptable. Collaborative discussions with potential users inform interface preferences such as colour-coded alerts, vibration, and sound feedback, ensuring that technology enhances autonomy rather than imposing additional burdens. Beyond the technical aspects, WEARCare emphasises dignity, empowerment, and social inclusion. The project examines how thoughtfully designed wearables can strengthen communication with carers and family members, support personalised approaches to health management, and foster trust in technology. By placing lived experience at the centre of design, WEARCare demonstrates how interdisciplinary collaboration between designers, technologists, and older adults can create wearable solutions that are not only functional but also meaningful, compassionate, and responsive to the realities of ageing. This work highlights pathways for developing wearable technologies that respect user needs, support independent living, and contribute to a more inclusive, person-centred vision of healthy ageing.

**Keywords:** Ageing; Co-Creation; Dignity; Participatory Design; Wearable Health Technologies