

BUILT FOR BETTER AGEING: A REUSABLE WEARABLE FOR SAFER LIVING



Project title: **Smart wearables for fall detection in older adults**

Investigators: Dr Shanmuga Sundar Dhanabalan, Dr Andrew Tucker, Prof. Aniruddha Desai, Prof. Prakash Veeraraghavan, Prof. Irene Blackberry, Dr Tshepo Rasekaba

Timeline: January to December 2025

Location: Victoria

Partners: Sleepтите Pty Ltd



CONTEXT

Australia's population is ageing rapidly, with 4.2 million people aged 65 and over—currently 16% of the population—a proportion expected to grow to 21–23% by 2066. This demographic shift is increasing pressure on aged-care services and highlighting the need for innovative healthcare solutions. Among the most serious health risks for older adults are falls, which often result in severe injuries, hospitalisations, and a loss of independence. Smart wearables present a proactive approach by offering continuous monitoring, early fall detection, and real-time alerts to caregivers or emergency responders. These devices support safer, more independent living, reduce healthcare costs, and provide peace of mind for families. In 2020 alone, falls among older Australians cost the healthcare system over \$2.3 billion, and as the population continues to age, smart wearables play a vital role in promoting healthy, secure ageing.



APPROACH

Building on their successful collaboration, Sleepтите and La Trobe University researchers are developing discreet, privacy-preserving technologies to remotely monitor aged care residents while addressing their individual health and support needs. Their latest project focuses on a low-cost, efficient, and reusable wearable device designed to prevent and detect falls. The device is evolving into a consumer co-designed wearable device that analyses movement patterns, detects falls, and alerts carers in real time. By promoting reuse and repair, the design helps reduce electronic waste and supports more sustainable consumption habits. Through advances in wearable sensor technology and real-world testing, this research–industry collaboration is delivering practical solutions to key challenges in aged care.



OUTCOMES

The smart wearable reduces the need for constant visual checks, easing staff workload and enabling faster responses to high-risk situations. Its intelligent alert system detects likely falls or unusual movement activity, helping carers prioritise attention where it's most needed. This leads to more efficient delivery of care and improved safety for older adults. By eliminating the need for cameras the device enhances privacy and comfort, resulting in a more dignified and less intrusive care experience in both residential and home settings. The wearable's soft, flexible design improves user comfort and supports long-term use. Importantly, the technology is scalable and cost-effective, making it suitable for widespread adoption. Beyond aged care, the platform has potential for broader medical applications, including chronic disease monitoring and rehabilitation.

"Sleepтите is committed to supporting ongoing research and development into innovative assistive technology to improve safety and wellbeing in aged and disability care."

Dr Andrew Tucker, Director Sleepтите





E: ceri@latrobe.edu.au
W: <https://www.latrobe.edu.au/research/ceri>



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