Wearable haptic-feedback navigational assistance for people with dementia: Preliminary assessment

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**Abstract:** BACKGROUND: Alzheimer’s disease (AD) progressively impairs individual’s wayfinding ability. For older adults with AD, the decline of sensory acuity due to ageing and the deterioration of cognitive domains worsen their sense of direction. OBJECTIVE: This paper presents (1) a concept of wearable navigational assistance using haptic stimuli to help the individuals with AD for outdoor wayfinding and (2) its preliminary assessment. METHOD: A User-centered Design (UCD) with co-design methodology is applied through a survey that specifies the system requirements for the device. The survey is subcategorized into: (1) demographic of respondents, (2) acceptability, (3) wearability, (4) setting suitability, (5) usability, and (6) general concept. The respondents were the caregivers and clinical/medical experts of AD and dementia. RESULTS AND DISCUSSION: The proposed concept for the device is considered relevant mainly towards the early to moderate AD patients, due to the aspects of safety, uncomplicated functions, as well as unobtrusiveness and non-stigmatizing design features. However, this intervention should be followed by continuous practices for familiarization purpose. CONCLUSION: The gathered findings from this preliminary assessment encourage the implementation of a working prototype. Improved navigability allows the good performance of activities of daily living (ADLs) and maintains the good quality of life in older adults with AD.

**Keywords:** Older adults with AD, haptic/tactile stimuli, spatial disorientation, navigational assistance, wearable device

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