D1.3 A Device and Mobile Application to Measure Gait Speed

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Introduction

Gait speed is highly correlated with survival in older adults and a good indicator of well-being and frailty. Gait speed can also be used as a rehabilitation assessment. The purpose of this project is to:

1. Develop a reliable, cost-effective mobile app and build a prototype device to measure gait speed;
2. Conduct focus groups of SMEs to test and refine usability;
3. Demonstrate the feasibility of this measure as a predictive tool to identify risk of functional decline in ambulatory, frail older adults with lower-body functional impairment.

GaitRate Device

- Developed wall-mount prototype to help clinician measure gait speed (images on right).
- Refined system based on focus group feedback to allow operation by large button and controlled from either direction.
- System has been tested against commercial GaitRite system for accuracy with 10 participants over 82 walks at Emory Brain Health Center, and currently under test with SMEs at Wesley Woods Health Center.
- On-going iterations for other variants:
  - Wall-mount IOT prototype consisting to allow automatic gait speed measure and logging.
  - Wireless wall-mount prototype with smartphone app as controller.

Mobile App

- Developed mobile app for clinical use.
- Allows measurement of gait speed on any course length and estimations of survivability and estimated life expectancy.
- Refining app to deploy to clinicians/therapists for feedback.

RERC TechSAge research is funded by the Department of Health & Human Services, Administration for Community Living (National Institute on Disability, Independent Living, and Rehabilitation Research, 90RE5016-01-00).