A. PIAU, Y. CHARLON, E. CAMPO, F. NOURHASHEMI. ***A smart insole to promote healthy aging for frail elderly.*** *Gerontechnology 2016;15(suppl):115s*; doi:10.4017/gt.2016.15.s.654.00 **Purpose** Older individuals frequently experience a reversible 'frailty syndrome', increasing the incidence of disability. Although interventions may delay functional decline, there are difficulties in implementing them and performing seamless follow-up at home. Very few technology solutions attempt to address this challenge and improve individual participation. The purpose of this study is to follow, over time, key parameters of frailty to promote healthy aging and perform a seamless follow up at home. **Method** The criteria of Fried et al.[1] are generally used to identify and follow frail subjects: gait speed, poor muscle strength, exhaustion, sedentariness, involuntary weight loss. To encourage frail elderly people to practice walking, we have developed an economically viable smart shoe insole to measure some of these parameters during subject's daily life (*Figure 1*). Continuous automatic measurements are made when the subject is walking at home and outdoor. This wireless insole transmits information to the subject touchpad and to a remote database which can be controlled via a secure internet connection in real time. **Results & Discussion** Our minimally invasive device accurately assessed gait speed, distance covered and daily activities. Preliminary living lab results including nine elderly showed a good acceptability and technical reliability of this solution[2]. We are now testing our solution in real life setting with end user's feedback. Our solution could support preventive strategies in primary care by empowering the patient without increasing the health professional's workload.

References

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Figure 1. The smart insole used in the living lab experiment; LEFT: First laboratory tests showed good reliability measures and also a good acceptability by the users[2]; RIGHT: the printed circuit board includes the following elements: a low-power 3-axis acceleration sensor, a microprocessor unit and a transceiver, a flash memory card and a nano-powered time keeper to activate scheduled data-logging modes.