

# PRoF Award abstract – Call 2015

## <FloorInMotion Care>

### 1. Research Outline

Acronym	<i>FIM Care</i>
Project name in English	<i>FloorInMotion Care</i>
Pitch (1 sentence)	Provider of qualitative and relevant information, coming from Connected Living Spaces, to Health- and Aged-care facilities, for them to better care of their patients/residents and improve their well-being
Executive summary (max. 10 lines)	<p>“<b>How could the floor generate value to their users ?</b>” is the starting point of this project.</p> <p>And, being leader in the healthcare segment with our flooring solutions, we have been <b>focusing first on the challenges and needs of the health- and aged care facilities in front of the population ageing :</b></p> <ul style="list-style-type: none"> <li>▪ how to reduce risk in case of incident (fall...) = be immediately alerted in case of incident ;</li> <li>▪ how to preserve the autonomy of the patient = get simple and relevant activities data ;</li> <li>▪ how to develop human and social well-being in the facilities = be better inform to provide better information.</li> </ul> <p>To answer these needs, we have developed a full <b>solution generating relevant information</b>, in real time, <b>coming from connected living spaces (bedroom, bathroom,...)</b> and providing to the facilities :</p> <ul style="list-style-type: none"> <li>• PERFORMANCE, thanks to <b>real time alert in case of incidents (fall...)</b>.</li> <li>• SERENITY, in <b>preserving the privacy and intimacy of residents</b>, and reassuring their families,</li> <li>• EASINESS, benefiting of qualitative and relevant information for their staff <b>without additional tasks</b></li> <li>• INTUITIVENESS, with plug &amp; play tools and design <b>for everyday use</b>.</li> <li>• FRIENDLINESS, helping <b>to improve the well-being</b> of residents or patients</li> </ul>

## 2. Cause and context of the research

The population ageing is a major challenge for most of the Western countries : how to improve the care of the senior people ? how to limit their loss of autonomy ?...

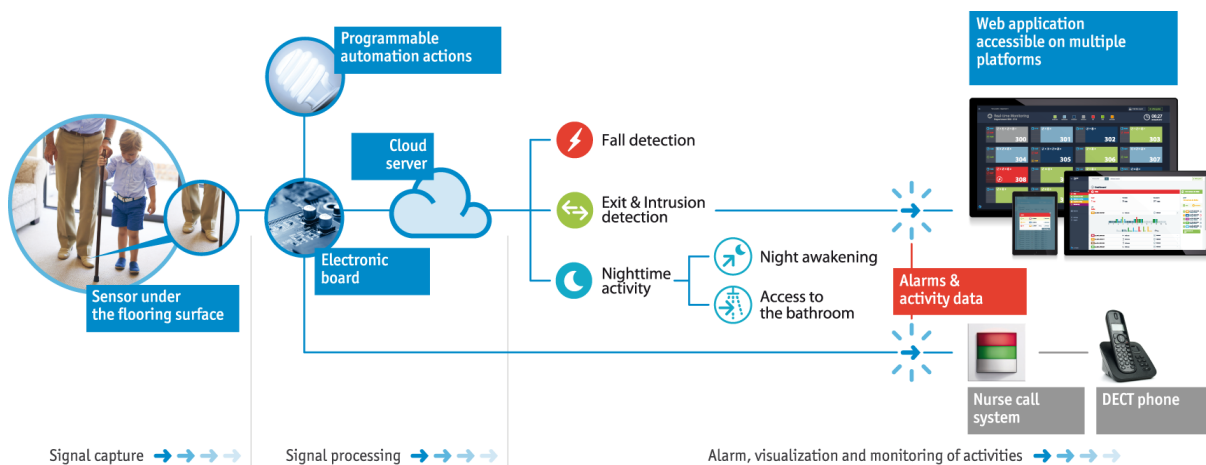
Better care, improved well-being, preserved autonomy of the seniors require a deeper understanding of their behaviors : current, changing, risky. This is the only option to protect their mental and physical capacities as long as possible.

One way to get part of this required understanding is to collect activities' data of the seniors, in real time, in their respective living spaces. These data would contribute to highlight behavior's change or risk (like sudden increase of night activities, of bathroom visits, ...), and initiate sometimes proactive medical investigation.

## 3. Innovation results achieved

FloorInMotion Care is a full solution connecting living spaces and providing a service of qualitative and relevant information to support the care, well-being and safety of the senior residents/patients in the health- and aged- care facilities :

- A connected device, being a sensor installed below the flooring, captures the signal of the resident/patient activities. This technology is requiring no energy, generating no electromagnetic field, and applicable in wet area including the bathroom (and its shower).
- The signals are sent to an electronic box dedicated to each connected living space, which processes them. The e-box is translating signals into qualitative information : fall, unexpected exit, intrusion, night activities, bathroom visits...



The Service will provide the following :

- 1 – in case of fall detection, the e-box is sending an alert directly and immediately to the nurse call system of the facility.
- 2 – home automation functions' management : during the night, if the resident/patient is stepping up, the e-box will switch on automatically a lighting path (LED wall base) to drive him/her safely to the bathroom for instance.
- 3 – all information are available on the monitoring system, 24/7, displayed on a touchpad screen (all in one), in an easy to understand dashboard design, with synthetic activities data per room, in real time, highlighting the last events and cumulative data.



#### 4. Link to the PRoF values

- o Performance and security : An immediate alert in case of incident (fall...) and no impact on its environment (no electromagnetic fields, no need of energy...)
- o Respecting the privacy and non stigmatising : An invisible solution discreet and non-intrusive, respecting the intimacy and privacy of the resident/patient (no camera, nothing to wear...).
- o Social responsible : contributing to patient/resident's well-being, demonstrating the qualitative care provided to the families, easing the staff working conditions
- o Modularity and flexibility : a “bespoke” installation and set up to create unique connected living spaces.

#### 5. Applicable IPR rules

With FloorInMotion Care, subscribe to a service at the cutting edge of new technologies:

- Available at any time without any additional expenses related to installation, maintenance and upgrading of infrastructure : Everything is included!

- Always benefit from the latest developed features, without any limitation and in line with the users needs.
- Updates of the web interface and hardware are done remotely by our staff, freeing facilities' internal or external IT department of a heavy workload.



## 6. Information on the partners

Potsdam University, Prof. Gerhard Lab, 6 month project (2013)

- Characterization and evaluation of the properties, the performances, the robustness, the durability of the EMFIT foam and foam-based sensors
- Definition of experimental protocols (incl. equipment's) for assessing sensor performances and quasi-piezoelectric materials

Strasbourg University, Prof. Knittel Lab, 4 month internship (2013)

- Understanding of the EMFIT sensor design and topology (connectors vs signal acquisition)
- First development of our signal treatment and algorithm strategies for fall detection

Cachan University, Prof. Vayatis Lab, consulting (2013)

- Validation of our sensor signal treatment and algorithm strategy for fall detection

Cap Gemini, L. Baumard - Enterprise Architect, consulting (2014)

- Validation of our deployment IT solution and our system architecture

## Addendum: Contact information

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