



Offerings for Smart Home and Ambiance Assisted Living

**Institut Carnot LSI – Software and Intelligent Systems
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Institut Carnot LSI - Software and Intelligent Systems

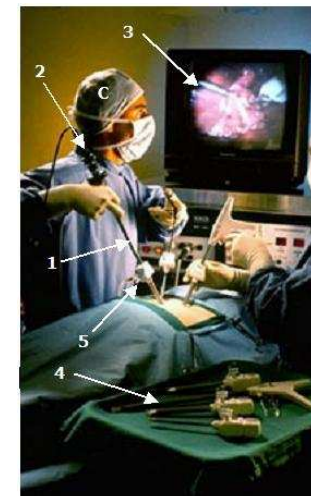
- LSI Carnot is led by 2007 Turing Prize winner Joseph Sifakis
- A.M. Turing Award: the « Nobel Prize for computing »
 - ▀ Prize awarded for pioneering work in developing automated « Model Checking »
- The first time a French researcher has been awarded such a prestigious award





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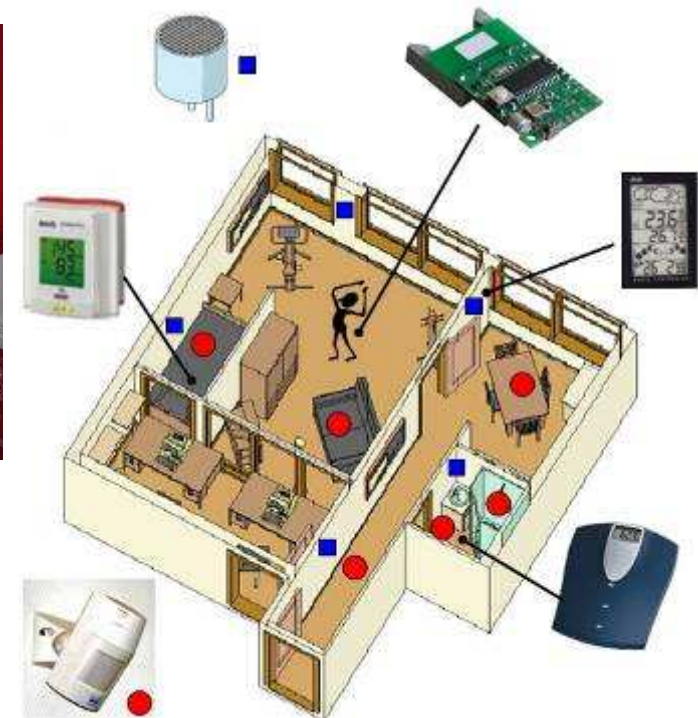
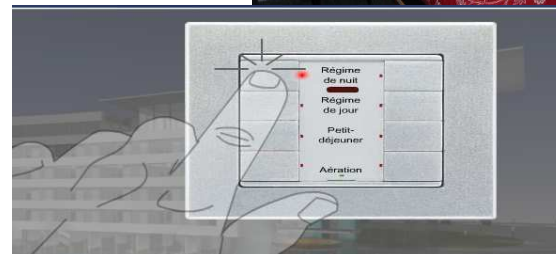
- ❑ World leader in the development of **Embedded software** and **Augmented Interventions in Medicine**
- ❑ Participant in 50 European projects : 6th PRCD (IST), Eureka Clusters (ITEA, MEDEA), COST Program, NoE ARTIST and ARTEMIS Co-ordinator
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- ❑ Collaboration with Research Centers, Major Industrial Companies, SMEs, University Hospitals, Technological innovation centre CIC-IT
- **has resulted in over 50 patent families**
- **17 start-ups since 1995**





Smart Home – Ambient Assisted living - Health

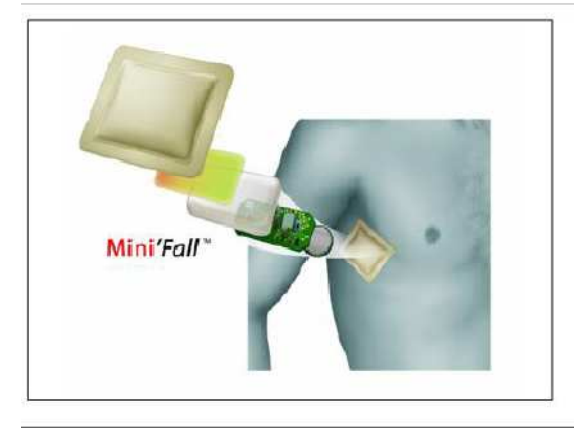
- Comfort
- Interaction
- Monitoring
- Decision support systems





Mini'Fall - Miniaturized wearable fall detection device for the elderly Collaborative Project FP 7

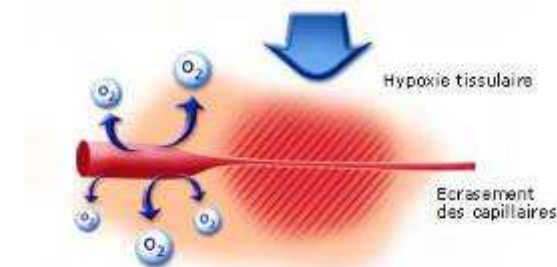
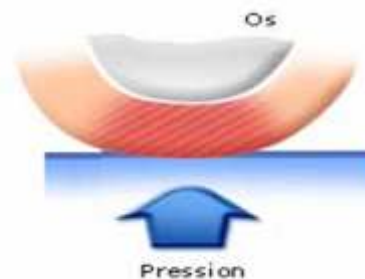
- ❑ Accelerometers and microcontrollers, Multi Chip Module (MCM) multilayer (3D) structure design to be applied
- ❑ Research adaptation of the phonocardioscope method for heartbeat frequency
- ❑ Miniaturized and low power consumption device
- ❑ Proper alarm control algorithms to be developed (study of a particular house environment to collect relevant data related to a fall)
- ❑ Partnership with Vigilio SA





Vigi-Sore, a wireless, embedded, pressure-sore-prevention device

- ❑ Prevents the formation of pressure sores in older adults and patients with spinal cord injuries (paraplegia, or tetraplegia sufferers)
 - 300,000 people currently suffer from pressure sores in France
- ❑ Its underlying principle aims at supplying the user with supplementary sensory information regarding his or her correct seated posture to prevent excessive local pressure

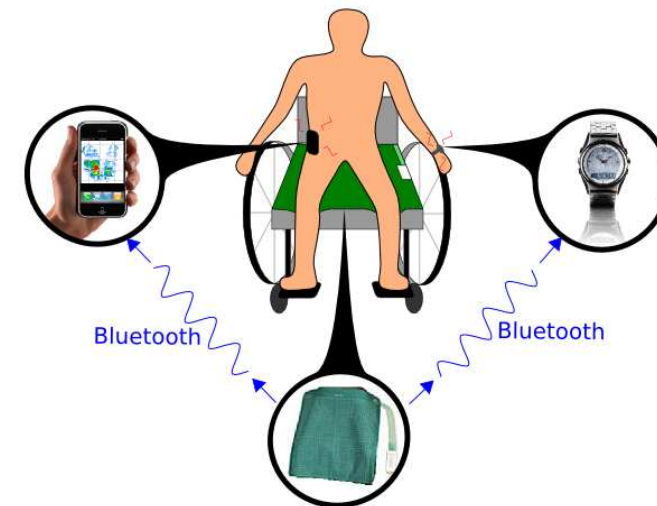




Vigi-Sore, a wireless, embedded, pressure-sore-prevention device

□ Two tactile feedback systems have been developed :

- (1) mechanical vibrators maintain constant contact with the skin on the patient's wrist by means of a watch
- (2) tactile output device placed in the patient's mouth like an orthodontic retainer (device features microelectronics, antenna and battery)





Clinical research, usability study and social acceptability

- ❑ clinically validated :
12 patients and 12 healthy subjects at CIC-IT
- ❑ ergonomically validated
(user-centric methodology) : 13 patients
by User Lab Multicom (iC LSI)





Identification of suitable partners

- Vigi-Sore tactile output device (for mouth) : We are seeking partners to co-develop the miniaturization of this technology**
- Vigi-Sore mechanical wrist-watch vibrators: licences are available**
- We are actively seeking partners to co-develop certain projects : SmartNeedle, SpinRef, Homeostasy (the elderly), Alzheimer disease Detection, Orgar, other projects in AAL and AIM areas**
- We offer User centric Platforms targeting the Design and Evaluation of interactive medical devices**
- Contact : mt@floralis.fr**