

Sensors for Health Recording and Physical Activity Monitoring

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SHERPAN

Sensors for Health Recording and Physical Activity Monitoring







Région

BRETAGNE

LTSI - INSERM 1090 CASA - IRISA UMR 6074 M2S - CACHAN UR2 LAUREPS - CRPCC, EA 1285 CIC 1414

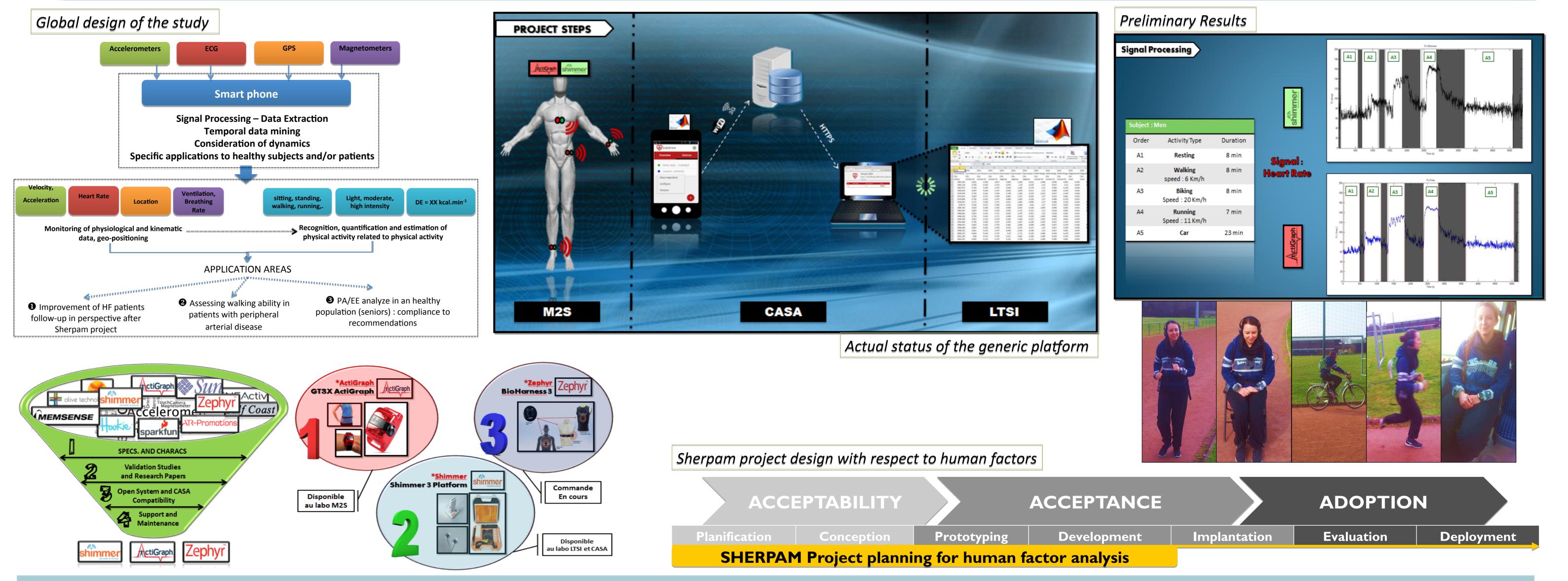
OBJECTIVES

Conceive, **implement**, and **validate** experimentally devices allowing biophysical data of mobile subjects to be gathered and exploited in a continuous flow.

Focused application domains:

- Heart failure patient's monitoring (HF).
- Outdoor assessment of functional limitations and community-based walking programs for rehabilitation in patients with peripheral artery disease.
- Physical activity recognition and energy expenditure estimation,

GENERAL ARCHITECTURE OF THE PROJECT

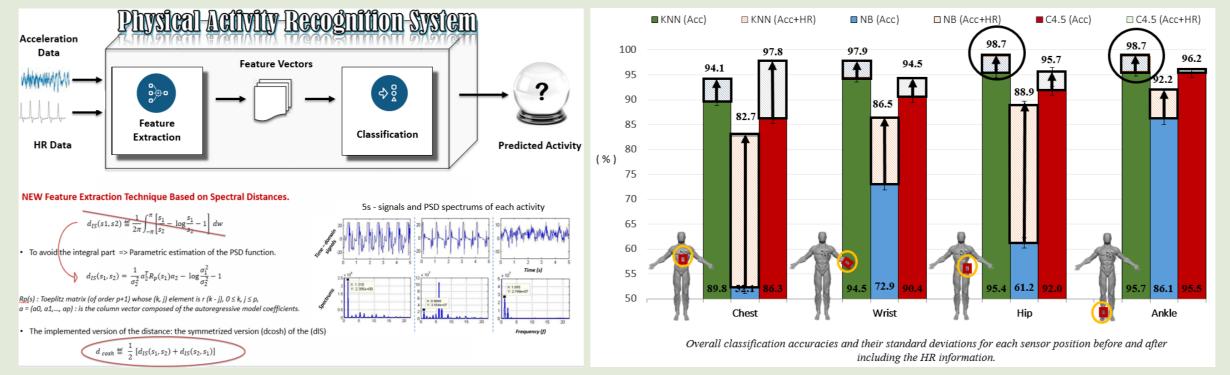


IRISA-CASA

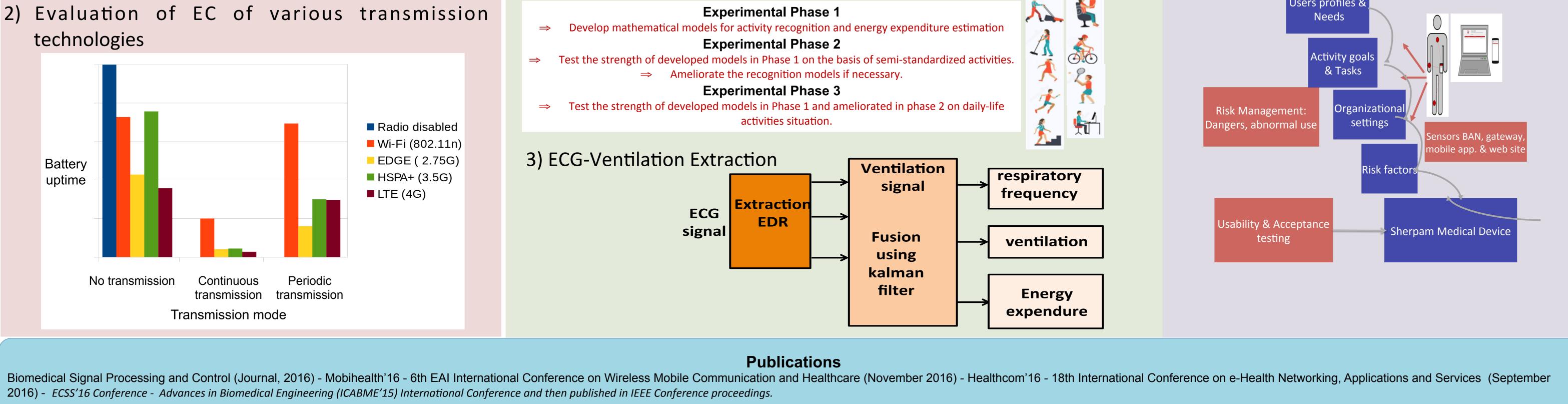
- 1) An open platform dedicated to mobile monitoring built around four criteria :
 - Versatility : to accommodate to a large variety of off-the-shelf sensors
 - Extensibility : to add new sensors and embedded processing easily
 - Confidentiality : to ensure the privacy and the \bullet non-disclosure of the data
 - Dependability : to work everywhere by limiting \bullet the energy consumption (EC) and by provding a resilience to network disruption
- 1) A plugin approach for both sensors and embedded algorithms to personalize the platform for each patient and his/her condition
- technologies

LTSI/M2S

- 1) Develop signal processing tools to :
- Recognize and classify five ambulatory and sedentary activities (cycling, walking, running, sitting, car-riding) using heart rate and acceleration data fusion.



2) Develop a new experimental protocol for daily-life activities recognition and energy expenditure estimation:



LAUREPS-CIC-IT

- 1) Context of Sherpam use understanding
- 2) User's profiles and requirements
- 3) Authentication of primary functions and risks of sensors/gateway/mobile app. /web site use
- Review wearable sensor acceptance and 4) usability

