S4M

LAAS CNRS

INTEGRATION OF PATCHS FOR HUMAN HEALTH MONITORING

Team Smart Sensing and SyStems Monitoring

Technology & Instrumentation for the Monitoring of Complex Systems

OBJECTIVES

> Smart systems - Monitoring of behavioral signals with wireless wearable/embedded devices
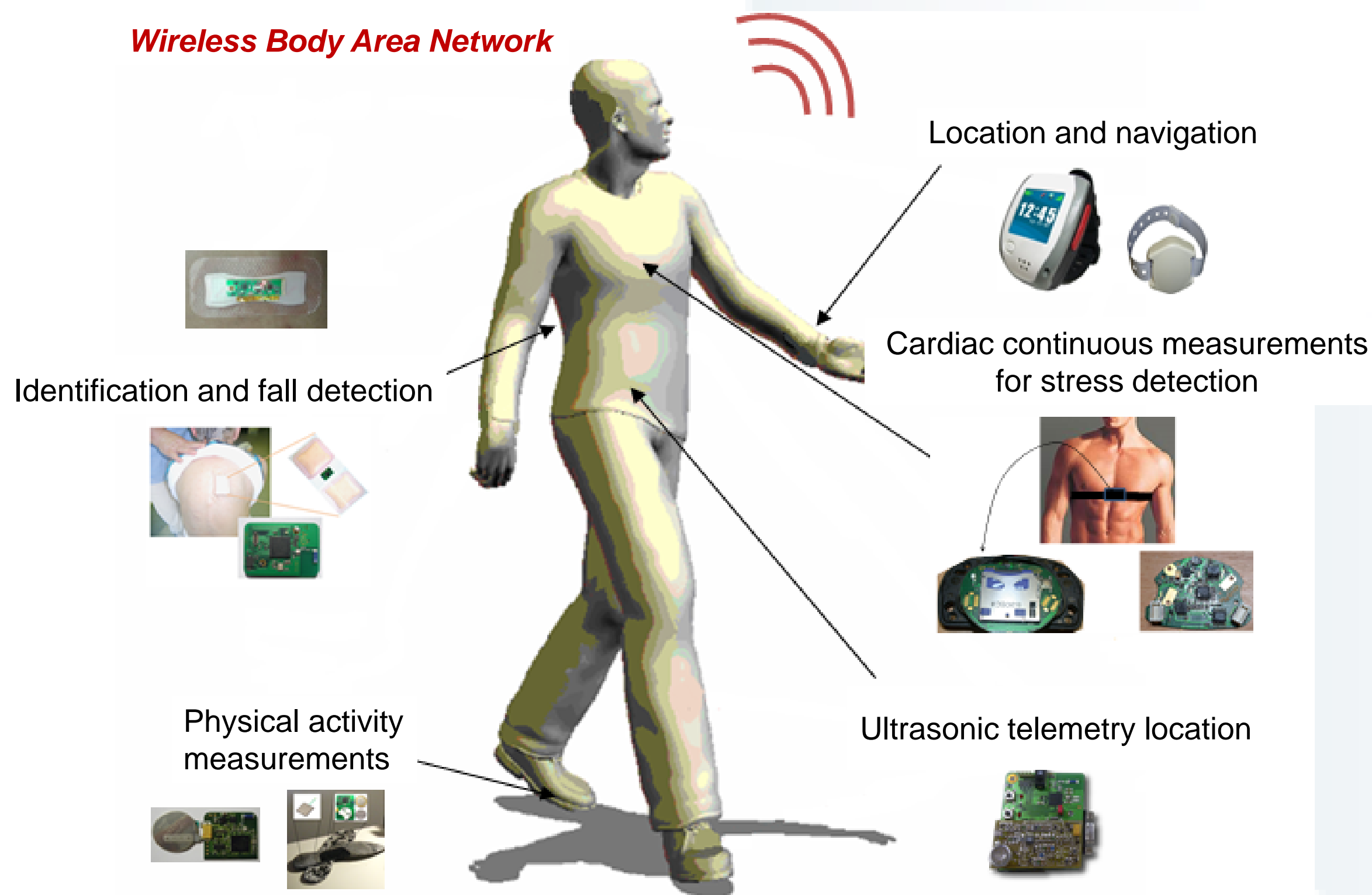
> Integration of autonomous sensing/actuating patches

CHALLENGES

> Non-invasive and non-obtrusive instrumentation

> Low power architecture on individuals or objects

> Identification of changes in the signals (biomechanical, physiological, material...)

EXPERTISE: DEVELOPMENT OF SMART DEVICES FOR SENSING/ACTUATING

Wireless Body Area Network

Location and navigation

Cardiac continuous measurements for stress detection

Identification and fall detection

Physical activity measurements

Ultrasonic telemetry location

Reservoir (Top side) | Electronic circuit (Bottom side)
Battery (Top side) | P Micro-pump (Bottom side)

Smart patch for actuating drugs
- Integration
- Physical Modelization
- Experimental trials

Amount of drug (µg/cm²)
Time (Minutes): 180 150 120 90 60 30 0
Current (mA): 0 0.25 0.5 0.75

Stride detection
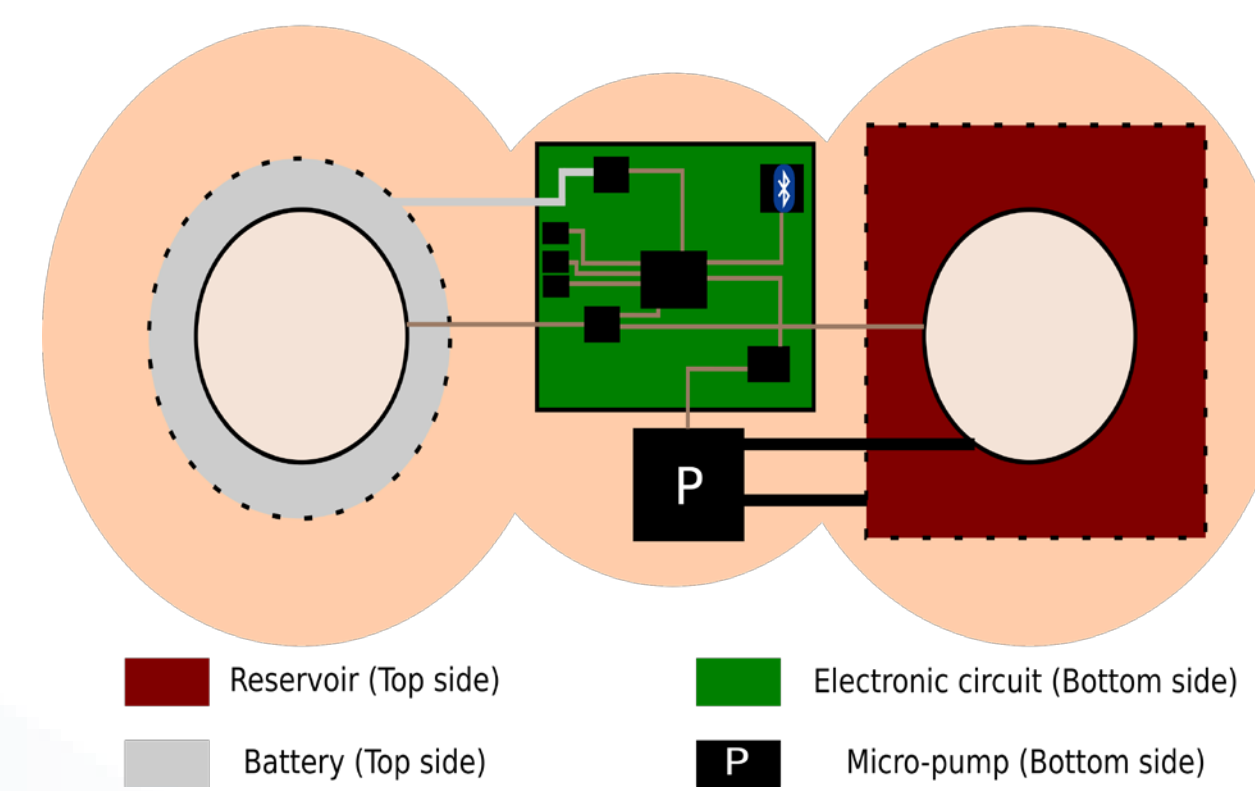Samples @ 100Hz

Smart insole for frail people
- Activity parameters
- Autonomous and integrated
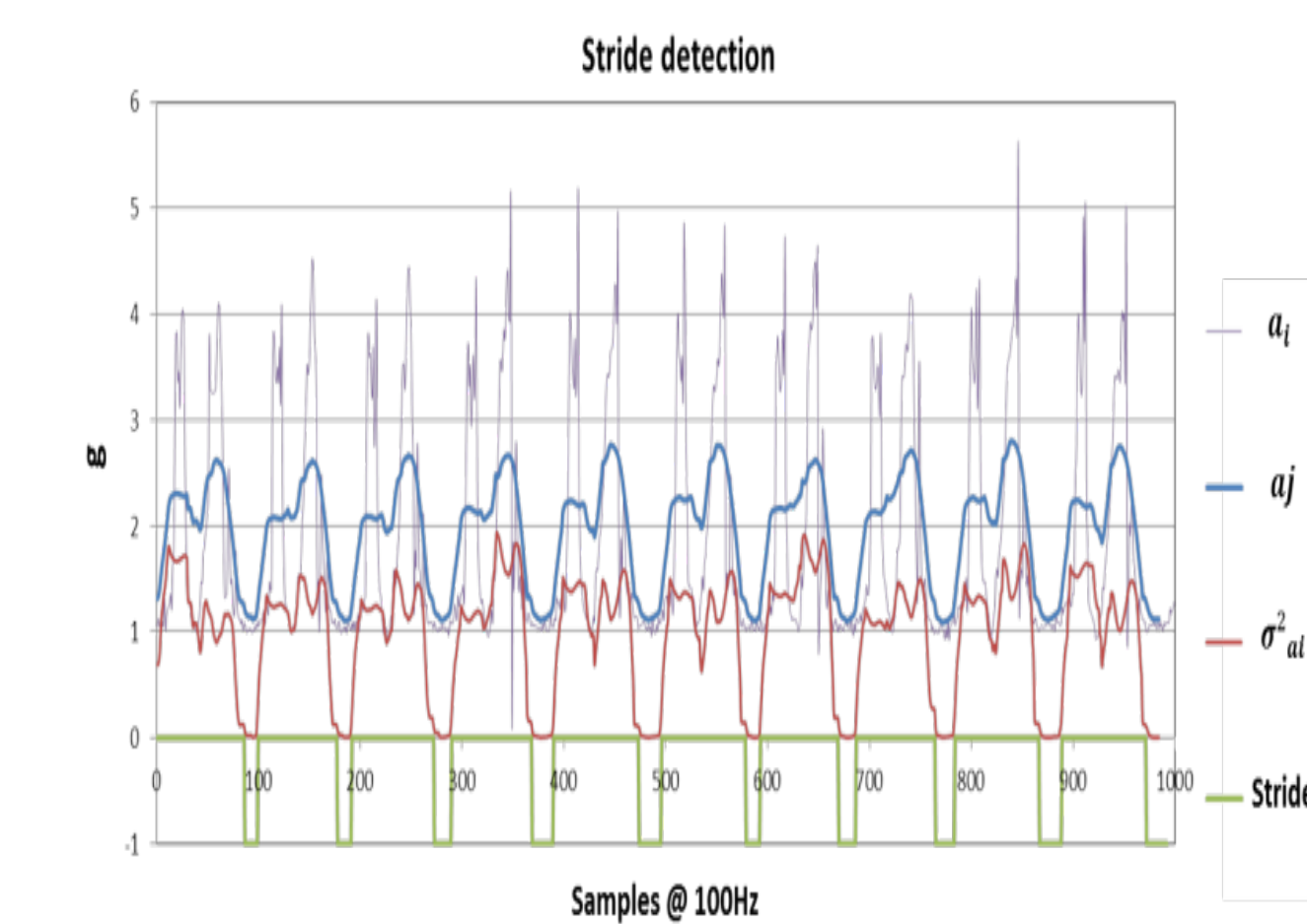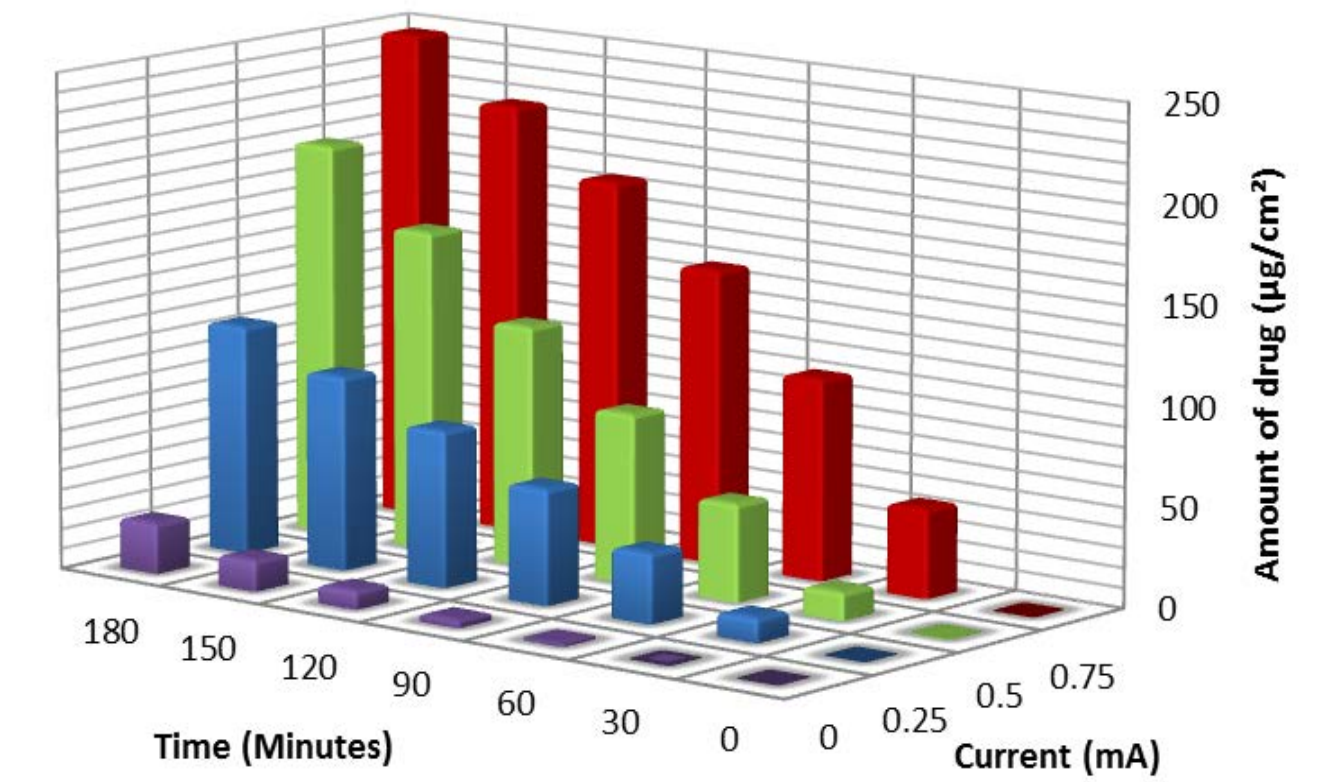
Medical patch
- Fall detection
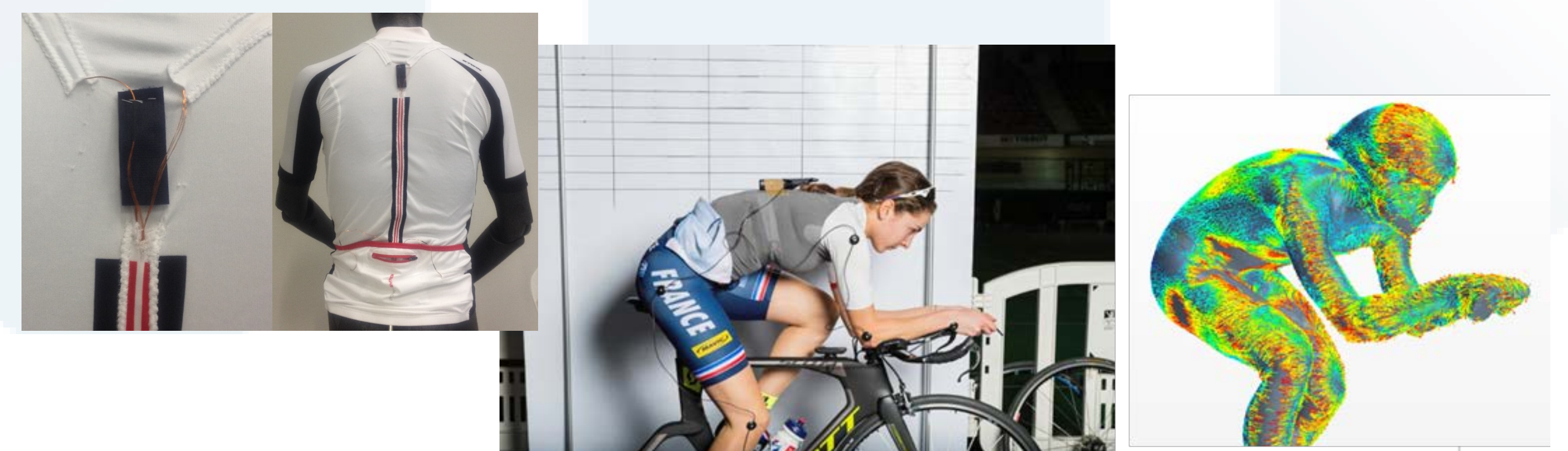- Geolocation and alert

Patent: WO2016075013, 2016-05-19
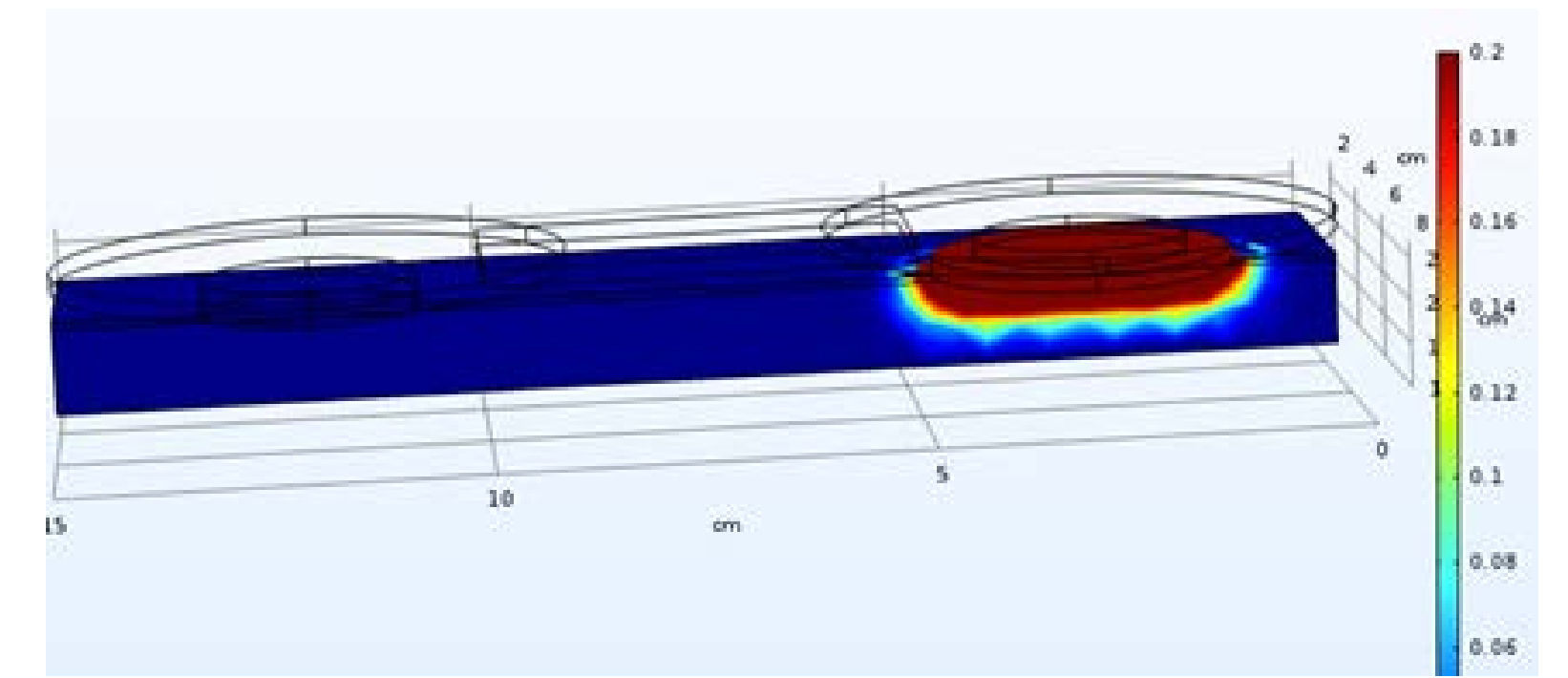
Cyclist Monitoring
- 3D motion analyser
- Performance improving
- Textile integration

PARTNERS & FUNDINGS

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ACTIA | FÉDÉRATION FRANÇAISE DE CYCLISME | La Région Occitanie Pyrénées - Méditerranée | TOULOUSE TECH TRANSFER
ADVEEZ | LES PÔLES DE COMPÉTITIVITÉ MOTEURS DE CROISSANCE ET D'EMPLOI

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- B. Hajjine, C. Escriba, D. Médale, J.Y. Fourniols. Design, integration and characterization of a tracking patch: application to elderly monitoring. E-Health Telecommunication Systems and Networks 3 (5), p. 57-74 (2016)

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