The project

General objectives

The TEMIS project seeks to build a long-term cooperation network to supply **innovative technology** in order to measure a person's lifestyle, for personalised medicine and medical research.

Here, measuring someone's lifestyle **means supplying objective measurements to quantify and qualify several parameters describing the day the lifestyle of a person**, and particularly his physical activity.

Up until now, medical care has been based on standards defined by epidemiological studies performed on large cohorts. Medical research is currently moving towards a greater personalisation of healthcare for specific individuals. However, personalised medicine is only possible if precise information about the patient is accessible, in particular his individual and family medical history, his genetic profile but also his lifestyle and more generally his environment. The lifestyle includes among other things food habits and the type and quantity of physical activity. Medical research has shown that the lifestyle has a major impact on many diseases and in particular on chronic diseases, affecting both the risk factors and the progression of the disease. Up until now a patient's lifestyle was assessed based on an interview and questionnaires. These evaluations are therefore highly subjective and badly quantified.

Simple, innovative but inexpensive and widely accessible technologies are therefore needed to quantify and qualify a person's lifestyle in order to supply health indicators which can then be used for a more tailored form of medicine.

TEMIS proposes developing such technologies, testing them on healthy subjects and patients while also ensuring their transfer to industrial companies and service providers.

The proposed technologies may be used either in combination with one another or separately in order to tackle various medical conditions or illnesses. The proposed innovation is both medical and technical. The technologies proposed by TEMIS aim to make it possible to quantify and qualify physical activity or describe the movement of person's limbs. These technologies also combine the data processing necessary to define useful indicators both for the person and the doctor, in addition to the software platform to manage the data exchanged and to supply relevant indicators for the various possible users.

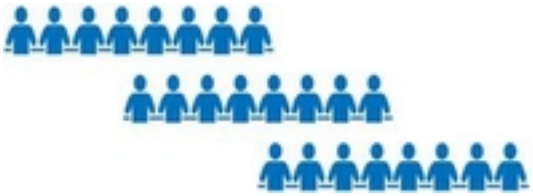
Main applications of the project

The R&D will be particularly targeting:

* An application using a Kinect sensor (a sensor associated with the Xbox gaming console) to describe the movements of the body's limbs for neurological diseases.
* A lighter solution to measure **physical activity** while on the move using a smartphone, possibly combined with an "intelligent T-shirt" supplying vital signs (breathing, heart rhythm, skin temperature, etc.)
* And finally, a software platform managing the exchange and processing of data and supplying associated services.

Evaluation

These technologies will be **evaluated with populations having varying levels of physical activity**:



* 40 healthy young people,
* 20 obese subjects,
* 40 elderly people
* and 30 Parkinson's patients, with subjects being recruited both in Portugal and in France.