

2012 Award, France



Spectroscopy 2.0

Mejdî Nciri

Theme

Technological Innovation and chronic diseases

Chronic illnesses are long-term, progressive illnesses which are often associated with a handicap and the risk of serious complications. In France, they concern almost 15 million people, the vast majority of whom are seniors. The challenge relating to chronic illnesses is both a medical challenge - to reduce the number of sufferers and limit the typical chronic effects - and a public health challenge - to succeed in maintaining a quality and egalitarian healthcare system. This prize is presented in recognition of an innovative technological project which has dealt with one or more of these concerns:

- Organise: "optimise the healthcare circuit and favour interactions between healthcare professionals and the patient"
- Diagnose: "towards an earlier and more reliable diagnosis"
- Treat: "relieve and limit the manifestations of the disease, its secondary effects and their evolution"
- Compensate: "orient innovation towards greater autonomy"

Laureate

Spectroscopy 2.0

The Altran Foundation for Innovation in France awarded Mejdî Nciri, a 25-year-old Parisian for his "Spectroscopy 2.0" project which advocated the development of an innovative spectroscope. It intended to improve the quality of life of people suffering from chronic diseases and who undergo regular examinations. Spectroscopy enables a medical diagnosis by revealing the chemical composition of a sample of blood, for example. The objective of the project is to develop two solutions to be used in clinical chemistry analysis: a spectrometer for automated clinical chemistry analysers and a portable clinical chemistry analyser for basic metabolic testing.

This spectrometer is based on a disruptive technology: Spectroscopy 2.0. This new technology, features a fast, low-cost, low-noise, low-maintenance and ultra-compact spectrometer for use in specific fields of absorption spectroscopy such as clinical chemistry analysis. Spectroscopy 2.0's main characteristics are an increased reliability for biochemical analysis, point-of-care testing and an affordable use for hospitals.

Thanks to this technology, the first portable clinical chemistry analyser may be possible, an innovation which will allow to frequently monitor patients at a very low price. It will be especially useful for patients suffering from chronic diseases or living in rural areas.

Altran's support

Altran's consultants focused their help on design review, training on embedded electronics knowledge and strategy.

Jury

Dr Sandrine Andrieu

Director of the research unit, INSERM 1027, Alzheimer disease specialist

Luc d'Auriol

Entrepreneur in biotechnologies

Marie-Thérèse Boisseau

State Secretary to people with disability (2002-2004)

Pr Jean-Yves Fagon

Head of service at the European Hospital Georges Pompidou

Francois Guinot

Honorary president of technologies' Academy

Francis Jubert

Delegate of Health Committee at Syntec Numérique

Dr Christine Roullière-Le Lidec

Health economist at Paris Dauphine University

Michel Simon

President of the "[im]Patients, Chroniques & Associés » association

Finalists

Rhepatch, the intelligent patch for the controlled administration of medication

Serge BISCHOFF, 64, from Mulhouse, presented a project facilitating the process of taking medicine for patients suffering from diseases of the nervous system. He is developing the Rhepatch project, consisting of an electronic patch using this technology to control the transdermal delivery of drug molecules.

AirSerenity, a system for improving the quality of indoor air

Arslane KECHKAR, 26, from Paris, is at the head of the AirSerenity start-up, a spin-off from Ecole Polytechnique which is developing innovative technology for improving the quality of indoor air by eliminating biological, physical and chemical pollutants. The project was born from an observation that we spend 80% of our time in closed and confined spaces where the air is between 10 and 20 times more polluted than outside. This pollution causes chronic respiratory diseases and certain cancers.

NaturalPad, the platform for therapeutic serious games

Antoine SEILLES, 27, from Montpellier, is developing a therapeutic serious games platform via the NaturalPad start-up designed to assist the rehabilitation of people suffering from chronic illnesses. The aim of this platform is to improve patient monitoring, treat the illness by means of appropriate physical activity and personalised coaching and offset the patient's isolation through online socialisation mechanisms.