VITALIDI distinguished with several international and national awards

Developed by Ana Fred and her team from the Pattern Image and Analysis group at IT in Lisbon, Vitalidi is a research project with an ambition to go out of the lab. Looking at the recent feedback from the industry it may do just that, as Vitalidi was recently distinguished with several entrepreneurship and innovation awards.

Over the course of a single month Vitalidi was elected as winner out of 6500 applicants, at the 2013 edition of the Acredita Portugal awards, which recognize ideas and business opportunities with outstanding growth potential; it was ranked in the top 10 of the most promising innovations in Europe by the European Young Innovators Forum at their annual competition, organized in collaboration with the European Parliament and European Commission; and was awarded with the Best Startup (1st prize) and Best Pitch awards at the Venture Day Lisbon promoted by the IE Business School & by Beta-i.

VITALIDI is a patented technology that uses the electrical signals of the heart to make biometric recognition practical and easy-to-use in everyday scenarios. Up until recently, cardiac signals were measured with chest mounted sensors, gel or conductive paste, but this technology enables the same signals to be acquired at the hands with dry electrodes, so it can be integrated in virtually any object with which the person interacts with, such as the steering wheel of a car or a game station controller.

According to Ana Fred “Vitalidi has gone to great lengths to get to this point, however, this is just the beginning”.

URL: http://vitalidi.com/

Editorial

As you may already know the time has come to prepare a new and important proposal that, according to FCT, will define IT core and strategic funding for the period 2015-2020.

Preparing such a far-reaching proposal faces considerable difficulties. First and foremost the political and financial crisis created an uncertainty in funding incompatible with the long term planning required for a realistic proposal. Secondly the rate at which FCT is (or rather is not) paying the current basic funding consumes precious management efforts. Thirdly and finally, FCT has been requesting for new proposals, at an alarming rate (new doctoral degrees, FCT researchers, exploratory projects, R&D infrastructures), while at the same time it pays little attention to the most valuable human resources (new PhD and post-doc scholarships).

It is of no use crying over spilled milk so IT has to stand up to the challenge and prepare an excellent proposal. All of you should be available to help in this endeavor since your R&D future is heavily dependent on its outcome.

Meanwhile enjoy your holidays and make sure to come back full of energy, plenty of good ideas and, mostly, the will to help drafting the best possible proposal.

Carlos Salema

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Supporting applied research and development activities in the GNSS area.
José Sanguino.
The COST Office has recently approved a new COST Action on AAPELE that was proposed by Nuno M. Garcia, Assistant Professor at the University of Beira Interior and Researcher and Coordinator of the Assisted Living Computing and Telecommunications Laboratory of the Instituto de Telecomunicações (IT) branch in Covilhã. Ambient Assisted Living (AAL) is an area of research based on Information and Communication Technologies (ICT), medical research, and sociological research. AAL is based on the notion that technology and science can provide improvements in the quality of life for people in their homes.

URL: http://www.cost.eu/domains_actions/ict/Actions/IC1303

This Action gathers around 40 researchers from 20 European and COST countries, and its first meeting should occur in September 2013.

New COST Action launched
Architectures, Algorithms and Platforms for Enhanced Living Environments (AAPELE)

PROJECT SNAPSHOT
IT GNSS Monitoring Station

The IT GNSS Monitoring Station is a research facility that is being developed by the Radio Systems Group (RS-Lx) of the Instituto de Telecomunicações in Lisbon, on the top of the North Tower, with the main purpose to support applied research and development activities in the Global Navigation Satellite Systems (GNSS) area.

Currently the station can monitor all satellites from the GPS and GLONASS constellations. It is foreseen to expand the station receiving capabilities to monitor also the satellites of the future Galileo system being developed by the European Union (EU) and European Space Agency (ESA).

The data, continuously acquired by the station, includes the satellites ephemerides, as well as pseudoranges, carrier phases, and Doppler measurements, and is available through the web. In the case of the GPS system, this data is available from two L1/L2 double frequency receivers, as well as from two additional L1 single frequency receivers. The receiving antennas are installed on the corners of the IST North Tower roof. Apart from this fixed setup, especially useful for the development of high precision relative positioning algorithms, the station includes a set of L1 receivers, more compatible with the implementation

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A smart environment is a physical space (e.g., the human body, vehicles on a road, buildings or urban areas) populated by sensors, actuators, embedded systems, user terminals and any other type of communicating devices, which cooperatively pursue given tasks by exchanging information from their services and applications and share all types of resources such as radio spectrum or energy.

An energy self-sustainable wireless sensor network (WSN) formed by nodes with energy scavenging capabilities is one of the main research challenges in the field of smart environments. Energy harvesting can increase significantly the lifetime of wireless healthcare and body monitoring systems, and eliminate or reduce the need for battery replacement, reducing costs and failures of sensors.

The PROENERGY-WSN (PTDC/EEA-TEL/122681/2010) FCT project is a 3-year partnership between Instituto de Telecomunicações (Covilhã and Aveiro) and Unidade de Investigação e Desenvolvimento Materiais Têxteis e Papeléiros (UBI) that started in January 2012. The comparison of several energy harvesting strategies and circuit optimization is envisaged having in mind the design of highly efficient innovative DC power generation from diverse sources (including Radio Frequency energy sources), based on the characterization of the services, energy harvesting device circuits and the requirements for the WSN monitoring hardware. The design and optimization of the Medium Access Control (MAC) and routing protocols consider modeling and simulation approaches, complemented by their actual implementation in real nodes for hardware verification.

Hybrid energy storage systems are here of fundamental importance, where energy harvested from single or dual band wearable antennas, operating either at GSM (900/1800 MHz) or UMTS/WLAN frequency bands, may be smartly stored in a supercapacitor operating in close cooperation with a rechargeable battery. These contributions are serving as feedback loop to the process of dimensioning the scavenge circuit devices, facilitating their improvement and optimization.

URL: http://www.e-projects.ubi.pt/proenergy-wsn/