Project title: Remote Sensors for Wireless Body Area Networks measuring Vital Signs

Studentship Code: ECS2

Background to research and synopsis

This research will be related to design, prototyping and testing of novel non-invasive networked remote sensors for measuring vital signs of human beings. Two major research components under this PhD study are (1) The design of the sensor nodes (2) The networking among these sensor nodes to establish a Wireless Body Area Network (W-BAN). Each sensor node will include an Ultra-Low-Power Digital Signal Processing (DSP) core (supported by the expertise available at the Applied DSP and VLSI Research Group (ADVRG) of Department of Electronics Networks and Computer Engineering). ADVRG has successfully completed several industrially funded projects in the field of DSP, wireless communications, e-health and biomedical electronics as well as publishing several articles in these fields. This will be an interdisciplinary work and will bring together expertise from electronics and biomedical science. The design of the sensor prototypes will be done in assistance by a biomedical science expert and the electronic sub-system will be rectified with respect to the feedback received from the supervisor from the Department of Molecular and Applied Biosciences. The novelty will be an ultra-low-power, affordable, portable/wearable all-in-one vital sign monitoring system based on W-BAN. Considering the €7.5 Billion devoted by the European Union for Health, Demographic Change and Well-being under the current Horizon-2020 call, this research has a big potential to lead to or be merged with an EU funded project. Another potential external research funding opportunity is the interest of the Ministry of Defence (MoD) and EU in wireless BAN for monitoring the health parameters and vital signs of the soldiers in the field. This research falls under two themes of EPSRC which are ICT (with its various aspects from DSP to ICT Network and Distributed Systems) and Healthcare technologies (with enhanced prediction and diagnosis in real time and at the point of care). This project will enable the student to develop skills in Wireless Communications, Digital design and e-health. The student will be encouraged to attend relevant conferences, publish journal articles, involve in the preparation of project proposals for external funding, participate in the University of Westminster Graduate School training programme and have the opportunity to obtain a Postgraduate certificate in teaching and learning.

Recent publications relevant to the project

In the area of e-health and biomedical


In the area of wireless communications and DSP


Informal enquiries: Dr Adem Coskun, a.coskun@westminster.ac.uk

For details of how to apply: www.westminster.ac.uk/courses/research-degrees/research-areas/electronics-and-computer-science/research-studentships