



Institute of Technology

Ciência sem Fronteiras / Science Without Borders

Postgraduate Project Template

Institution:	Cork Institute of Technology
Title of Postgraduate Opportunity: (include level of study)	Research in the area of networked embedded systems Masters or PhD
PI Name & Contact Details:	Dr. Dirk Pesch, Head of Centre, dirk.pesch@cit.ie Dr. John Barrett, Head of Academic Studies, john.barrett@cit.ie Nimbus Centre, Cork Institute of Technology
Department/School:	Faculty of Engineering and Science
Research Centre /Group:	Nimbus Centre for Embedded Systems Research
Research Centre/Group website:	www.nimbus.cit.ie
Brief Summary of PI research / research group /centre activity <p>Embedded systems are the hidden sensors, computers and controllers that underpin our entire technological world. The next phase of embedded systems technology is networked embedded systems (NES) where embedded systems communicate to form networks of distributed intelligence from the local scale such as smart buildings, to massively networked systems, e.g. energy management on a national scale, wireless sensor networks and the Internet of Things. Research on this topic in CIT is carried in the Nimbus Centre for Embedded Systems Research, Ireland's only research centre devoted to the field of networked embedded electronic systems. Nimbus is housed in a custom-built facility on the CIT campus with state-of-the-art facilities and equipment for embedded systems research, development and application. NIMBUS, and its sixty five researchers and engineers, is managed by CIT staff with extensive international research, industry collaboration and education experience. We also collaborate with researchers in areas such as computing, energy, water, manufacturing and architecture.</p>	
Brief Description of Masters or PhD Project <p>Nimbus offers a range of masters and PhD research opportunities in the field of networked embedded systems, including wireless networking, embedded hardware and software, data visualisation, and applications. We take a multidisciplinary "whole system design" approach to embedded systems and we address a wide range of applications including energy management, smart buildings, smart objects and environments, water systems management, and the "Internet of Things".</p>	

Key Attributes of Project for Brazilian Postgraduate Students

The Nimbus Centre is unique in its multidisciplinary “whole system” approach to networked embedded systems and in the range of application areas that it addresses. Its state-of-the-art research building is itself a living experiment as it is extensively equipped with wireless sensor networks for building and energy management and, in the energy management area, the Nimbus Centre is a national testbed for Smart Grid technologies. Nimbus also has extensive links with industry in Ireland ranging from small start-ups to industry giants such as Intel and United Technologies and postgraduate students at Nimbus are given, where possible, the opportunity to work on industry-linked projects in addition to their individual research projects. There may also be opportunities for industry placement. Nimbus has extensive national and international project links with academic institutes and industry and Nimbus researchers are active participants in EU research programmes. Nimbus researchers also collaborate with researchers in a wide range of other disciplines including computing, energy, water, manufacturing and architecture.

Postgraduate researchers in Nimbus are typically integrated with a project team and gain valuable practical experience of teamwork and of contributing to a larger project or application development. There may also be opportunities for international presentation of research. Nimbus postgraduates also receive training in generic skills such as research methodology, project management, oral and written communication, technical paper writing, IP management etc.

Name and contact details for project queries, if different from PI named above:**Please indicate graduate disciplines which are eligible for application:**

Electronic/electrical engineering, Telecommunications, Wireless, Computer Science (networking, embedded software, data visualisation), Energy, Mechanical Engineering, Mechatronics

Alignment with Science Without Borders Priority Areas:

Please indicate the specific programme priority area under which the proposed postgraduate project fits – choose only one (tick box)

Engineering and other technological areas	X
Pure and Natural Sciences (e.g. mathematics, physics, chemistry)	
Health and Biomedical Sciences	
Information and Communication Technologies (ICTs)	X
Aerospace	
Pharmaceuticals	
Sustainable Agricultural Production	
Green Chemistry	
Oil, Gas and Coal	
Renewable Energy	X
Minerals	
Biotechnology	
Nanotechnology and New Materials	
Climate Change	
Biodiversity and Bioprospection	
Marine Sciences	
Productive Inclusion and Social Technologies	
Housing and Sanitation	