

*Education correspondent
Kieran Dineen found out about
some of the cutting-edge
research taking place in Cork
Institute of Technology*



Forget to turn off lights? Solution's on the way

IMAGINE being able to turn off your washing machine while in your office through the internet — or even to log on and make sure the lights are off and the burglar alarm is on. Research being conducted in CIT at the Technologies for Embedded Computing (TEC) Centre, means this will be a reality. Dr Dirk Pesch, head of the Nimbus Centre for Embedded Systems, said in the next five years, machines — including everyday household equipment such as a washing machine — will be connected in the same way as people are online. He said the space we are in now is “the internet of things”. “That is what we are working on fundamentally. The internet is a huge network of computers, with people exchanging messages and so on. Now you connect through a mobile device, but it is still largely people. Though some machines are interacting with it the physical environment is still largely disconnected from the internet, such as a washing machine or fridge. Sitting in the office and checking what the temperature settings are at home should be possible or checking if the washing machine is finished its cycle. All these require embedded systems.” The team at CIT is currently working with other European Union partners on a project to make driving safer and more efficient through developing an early warning system based on embedded technology. Dr Pesch explained that the idea is to make cars able to communicate

with people and with other vehicle in a bid to avoid accidents. If a car ahead was in a collision or being driven erratically then an oncoming car could be signalled beforehand through the technology, cutting down the risk of a crash. CIT is playing a leading role in Ireland in research into embedded systems and, said Dr Pesch, the possibilities are limitless as the technology is everywhere — from airbags and steering to medical devices and dictaphones. “If we were to switch off all the embedded computers then the world would stop as we rely on them so much,” he explained. In the shorter to medium term, the centre is engaging with a number of companies to improve their product output or to create new inventions. Brian Lee, centre manager of TEC, said an example of this was a wireless sensor system for weighing beer kegs for Grafico Ltd. The system enables the weighing of beer barrels in situ for stock-taking purposes which will make it easier to monitor the usage of beer. It is currently being used in one pub in Cork on a trial basis. The potential is huge, as it will allow, for instance, a bar owner to see how much beer has been used at a certain time through a smart phone or via the Internet and remove the need to physically weigh the kegs. The technology, said Mr Lee, also has the potential to be used in the pharmaceutical industry. Another example of how their technology is being used is a new wireless underfloor heating system they have created.

CIT means business with research fund

SMALL and medium sized companies are getting the benefit of cutting-edge research in Cork Institute of Technology due to a Government funded initiative.

Through Enterprise Ireland, a business can apply for a sum of €5,000 to be used on research into product enhancement or to do a technological audit.

Dr Hugh McGlynn, head of the Department of Biological Sciences which oversees the Bio-Explore Research Centre, explained that the fund in effect bought part of a researcher's time.

He explained: “Small companies come to us with problems through the scheme. They don't employ scientists to do R&D but through the process they can enhance their business.”

Through the fund, Cork companies get immersed in the culture of research and end up adding to their output.

An example, he said, was the Cork company Delicious who they were able to help extend the shelf-life of their confectionery products through research done at the Bio-Explore team.

This, in turn, said Dr McGlynn, led to the company being able to export more and in doing so grow the business and employ more people.

Dr McGlynn oversees the Bio-Explore research group who



Members of the Biological Science Department at work in UCC. Businesses are now getting the benefit of the Institute's research experience, thanks to a new Enterprise Ireland initiative.

have had a number of successes including finding a way to kill MRSA which is currently being patented.

He said they were able to make major breakthroughs like this by being very specific on areas they targeted through their research and by ensuring they have an end goal.

Dr McGlynn said helping the small and medium term businesses helped in this regard, as it gave the Institute's researchers experience in helping industry and the knowledge gained in helping SMEs.

This also made the researchers better equipped to tackle longer term projects.

Industry and academia link up to create hi-tech economy

A BETTER ‘ecosystem’ between industry and academia needs to be developed so the most is made of the technologies created in Irish research centres.

That's according to Dr Dirk Pesch, head of the Nimbus Centre for Embedded Systems Research in Cork Institute of Technology.

“It is important investors go around and look for opportunities — Silicon Valley in the United States is much better at that than we are. There academics and investors need to get together more often, and there is a real ecosystem — that is something we need to build here with investors coming around to look at what is going on.”

“We in the technology side are screaming out for partnerships — to create success we need to have that business person and that is something we need to develop better here in Ireland.”

Dr Pesch said he welcomed the Innovation strategy announced by the Taoiseach, which will encourage more venture capitalism, but said we need that culture to come about here much quicker.

Dr Brian Lee said the bankruptcy law in Ireland did not help either, as it was not conducive to risk taking which was what was needed to start new businesses and get new innovations up and running.

He also said that the lack of finance in the country generally was another roadblock.

However, Dr Lee added that over the last two years, since the recession began, businesses have been looking to upgrade their product offerings due to a fall off in trade. This, he said, while unfortunate for businesses has led to more interaction with research centres.

Dr Pesch said there were huge opportunities for Ireland, however,

in the technological sector — but the trick was getting our young people interested in the area.

“Young people in the last few years have not gone enough into technology yet there are lots of opportunities now as Irish institutions have developed world-class capabilities. Jobs are out there and companies cannot get enough good people for high value jobs and end up employing from outside the country because Irish people decide to do something else. We need more electronic engineering graduates and computer science graduates.

“The trouble is maths and problem solving skills. Yet people love gadgets and everyone loves an iPhone. More people should be encouraged to learn how it works or do something clever with it, or to develop a new one, but up to now they have been reluctant to get into the sector.

Vibes & Scribes Lee Swim 2010
Saturday, July 24, 2010

Start: Irish Distillers, North Mall at 3pm
Finish: City Quarter, Lapps Quay



Viewing areas:

- North Gate Bridge
- St. Patrick's Bridge
- Brian Boru Bridge
- DeValera Bridge
- City Quarter, Lapps Quay (music, food & craic)



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