ILLUMINATING DEVICE HAS DESIGNS ON SAFETY

A new road traffic control innovation, which principally aims to make crash sites safer for emergency services personnel, has been developed by a DIT graduate in consultation with members of Dublin Fire Brigade. Report by Sorcha Corcoran.

The Enhanced Emergency Lighting Barrier (EELB), invented by a product design graduate from the Dublin Institute of Technology (DIT), is now open to companies for licensing purposes via DIT Hothouse.

The product has a unique retractable design, is lightweight and has a highly reflective surface and embedded LED lights. It is portable and can be quickly deployed in any situation where there is a requirement to direct traffic away from roadworks or the scene of an accident.

Potential users include the emergency services, the Gardaí, construction industry, festivals and street parades and public transport such as bus and taxi services. Viewed as a significant improvement on existing emergency warning systems for road traffic collisions, a prototype has been developed and successfully trialled by two DFB crews on the northside.

Ian Burnell developed the invention as part of his final-year project in DIT and has the support of DIT Hothouse, the Institute’s Technology Transfer Office.

The EEL Barrier reached the semi-finals of the 2012 James Dyson International Design Awards (it ranked in the top 50 designs from all entries worldwide).

The invention also achieved the Best Undergraduate Award in the DIT, IT Tallaght and IT Blanchardstown Inventor Competition 2013.

final year project

“For my final year project in product design I was tasked with designing something that would be ready to go to market. Initially I started looking at road traffic collisions and equipment for stabilising a vehicle after it’s crashed, to make sure all movement is taken out
when emergency services personnel start extracting victims," Ian Burnell explains.

After doing more research into the market the 24-year-old says he realised there were a lot of products in this area and not much of a gap existed. "Working still within the realms of road traffic collisions, I went to the Dublin Fire Brigade (DFB) with the idea of a new product for use when setting up the 'fend off' – the safe working area after a crash."

The standard way to set up a 'fend-off' is to use the fire truck as a barrier to block oncoming traffic. The cones and lights are usually placed 200 metres away from the truck to divert traffic away from the accident.

FIRE BRIGADE CONNECTION
Burnell's father Greg is a DFB district officer and he helped Ian to get his foot in the door there. "Because of my background Ian wanted to see if he could identify a problem in the emergency services and find a solution for it. He met with two crews [around 18 firefighters] in both Swords and Finglas stations, and did a number of focus groups.

"He came to talk to the guys several times and to hear their opinions. Having looked at the reflective sign used to set up the 'fend-off' he reckoned this could be greatly improved. We thought it was a good idea and gave him a few pointers – it had to be light, pliable, work as a barrier and be illuminated," recalls Greg Burnell.

"The crews felt that Ian took their suggestions on board in the design of the product and they incorporated the prototype into their drills instead of the reflective signs. Overall, they were impressed with how it worked and felt it made the area of the incident much safer," he says.

EASY DEPLOYMENT
As a result of his research Ian Burnell found that a lot of firefighters he spoke with viewed the 'fend-off' as the most dangerous part of their job. "Particularly in winter on dark roads they often don't feel safe walking towards oncoming traffic with only high-vis vests to make them visible."

He says their feedback showed that they found deployment of the EELB very easy. "They felt safer walking towards oncoming traffic. They also thought the product would be good in cases where there is not sufficient notice for traffic to stay out of the way.

"From the moment of impact there is a 'Golden Hour' to get patients from the scene to hospital; after that their chances of survival are limited. Sometimes it can take the crew a while to get to the scene. The EELB allows them to let traffic know it is dangerous when there isn't enough time to set up a proper 'fend-off'."

The product has a unique retractable design, is lightweight and has a highly reflective surface and embedded LED lights. It is portable and can be quickly deployed in any situation where there is a requirement to direct traffic away from roadworks or the scene of an accident.

"Currently there are rechargeable batteries housed within the barrier itself, but a long-life battery would ideally be incorporated into the design after licensing," says Burnell.

INDUSTRY PARTNERS
After Ian Burnell approached DIT Hothouse with his idea, the team there led by Paul Maguire agreed to support him. They have since assisted him in developing it to the point that he is now in a position to attract a suitable industry partner and bring the EELB to market.

Maguire says this meant DIT Hothouse put in place a commercialisation strategy for the EELB. "DIT Hothouse has lodged a US patent application for the barrier and has secured European design rights for the system providing immediate protection."

This entailed establishing a product development roadmap, identifying and contacting potential partners both in Ireland and overseas; organising product demonstrations and gathering and collating potential stakeholder insights.

"The most recent demo we held in August went very well. A number of interested people from government organisations, established distributors and potential business partners with a background in the road traffic control sector attended. We received some invaluable feedback on the innovation, including new applications and possible routes to market," says Maguire.

DIT HOTHOUSE SUPPORT
DIT Hothouse has been supporting the emergency services for a number of years now through technological innovations that aid worker safety and enhance patient care.

As well as building his career in product design, Ian Burnell works part-time as a rock climbing instructor. He hopes to create his own design job by joining the company that decides to license out his invention.

This, he hopes, will help develop it for production and explore its suitability for potential users such as other divisions of the emergency services, the Gardai, the construction industry, festivals/ street parades and public transport.