29th Annual Cork Mechanical, Manufacturing & Biomedical Engineering Exhibition

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

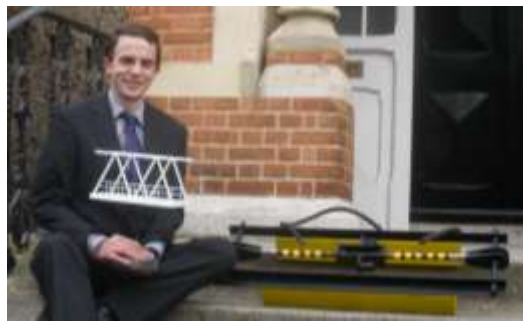
Ireland and Europe's Largest Educational Engineering and Innovation Event

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

200 Stands in Total in 2015 Event

Thursday April 30th 2015

Nexus Courtyard, Student Centre, Cork Institute of Technology



Design, Innovation and Ethical Engineering

2015 Exhibition Theme

Engineering Design - Eureka!

CIT Engineering Innovation and Entrepreneurship

Thursday April 30th 2.00 p.m. to 8.30 p.m. Admission Free

Venue: Nexus Courtyard, Student Centre, Cork Institute of Technology

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For more details, please contact Exhibition Organiser:
Senior Lecturer Sean F. O'Leary
School of Mechanical, Process & Electrical Engineering
Tel: (021) 4335425 Email: seanf.oleary@cit.ie

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No.	Title of Stand	*Industrial Partner*
Centre Piece Stand	***Engineering Design - Eureka!*** ***CIT Engineering Innovation and Entrepreneurship***	**Centrepiece Exhibit 1**
Centre Piece Stand	***World Skills Brazil 2015*** ***Training Equipment Development***	**Centrepiece Exhibit 2**
Stand 1	***"PyraAid™ Wheelchair Enablement Device Design and Development"*** ***John Roberts*** ***Mechanical Engineering*** ***Cork Institute of Technology***	***European Student Innovation Awards Innovact 2014 Reims France European Campus Student Innovator of the Year 2014 First Place and Outright Winner***
Stand 2	***"Medication Capsule Thermoforming Process Improvement and Electrostatic Analysis"*** ***Shane Fogarty*** ***Mechanical Engineering*** ***Cork Institute of Technology***	***International Medical Engineering Finals Westminster London 2014 JRI Prize for Best Undergraduate Medical Engineering Project Exhibition and Poster Presentation First Place and Outright Winner***
Stand 3	***"Drone Compatible Medical Transportation Pod Design, Development and Testing"*** ***James King*** ***Mechanical Engineering*** ***Cork Institute of Technology***	***Engineers Ireland Innovative Student Engineer of the Year 2014 Level 8 National Award sponsored by Siemens First Place and Outright Winner***
Stand 4	***"An Analysis into Wind Induced loading Effects on a Ship-to-Shore (STS) Crane and Investigation into Design Optimisation in conjunction with Liebherr Container Cranes"*** ***Brian Hand*** ***Mechanical Engineering*** ***Cork Institute of Technology***	***CADFEM Ireland and Ansys Users Conference EI HQ Dublin Best Presentation Paper (2014)***
Stand 5	***"The Design and Development of an Assistive Technology Music System for Sufferers of Cerebral Palsy in conjunction with SoundOUT"*** ***James Fogarty*** ***Biomedical Engineering*** ***Cork Institute of Technology***	***International Medical Engineering Finals Westminster London 2015 Vicon Prize for Best Medical Engineering Undergraduate Project First Place and Outright Winner***
Stand 6	***"Incinerator Scrubber System Analysis and Optimisation in conjunction with GlaxoSmithKline"*** ***Damien McAuliffe*** ***Mechanical Engineering*** ***Cork Institute of Technology***	***MEETA Asset Managers Association EI HQ Dublin National Student Award 2014***
Stand 7	***CIT Innovative Product Development Laboratories*** ***Bachelor of Engineering (Honours) in Mechanical / Biomedical Engineering*** ***First in Europe*** ***First in Ireland*** ***First in Innovation***	***2013 Think Outside the Box Finals Galway*** ***Three Major Awards Winners were announced for Cork Institute of Technology*** ***First Place Student Entrepreneur of the Year 2013 - €10,000*** ***Most Technologically Innovative Product 2013 - €5,000*** ***Think Outside the Box Award of Merit - €1,500***
8.	Gladium Medical™ Medical Device Design	Multi-Discipline Start-Up Innovation Team
9.	Grease Lightning™ Electronic Applicator Design	Multi-Discipline Start-Up Innovation Team
10.	PyroScape™ Safety System Design	Multi-Discipline Start-Up Innovation Team
11.	Target Drilling Products™ Precision Drilling Design	Multi-Discipline Start-Up Innovation Team
12.	Votive Solutions™ Medical Recovery Device Design	Multi-Discipline Start-Up Innovation Team
13.	RAS TestDrive™ Recovery Assessment Device Design	Multi-Discipline Start-Up Innovation Team
14.	B3 Medi-Aids™ Enablement Device Design	Multi-Discipline Start-Up Innovation Team
15.	Quick Injection Solutions™ Medical Device Design	Multi-Discipline Start-Up Innovation Team
16.	Chainsaw Safety Solutions™ Safety System Design	Multi-Discipline Start-Up Innovation Team

Stand 17	***Bachelor of Engineering (Honours) in Mechanical Engineering International / National Achievements***	**Centrepiece Exhibit 3** ***Think Outside the Box CIT Engineering Innovation and Entrepreneurship***
18.	Solar Powered Milk pasteuriser for Use in Developing Countries Design and Development	Start-Up Innovation Project
19.	Automatic Flood Defence Barrier Design and Development	Start-Up Innovation Project
20.	Automatic Quick Hitch Hose Attach System for Front loader Applications Design and Development	Start-Up Innovation Project
21.	Hydraulic Cattle Tipping Mechanism Design and Development	Inspect4
22.	Unmanned Search and Rescue Vehicle (USARV) Design and	The Naval Service
23.	Marine Training Application Motion Platform Design and Testing	The Naval Service
24.	Equatorial Mount for a Radio Telescope Design and Manufacture	Halpin Research Centre, National Maritime College of Ireland
25.	Heated Wristband Design and Development	Mycro Sports
26.	Capper Bowl Unplanned Downtime Reduction Investigation	GE Healthcare
27.	CIP Optimisation	Biomarin International
28.	Hydrocarbon Service Failure Analysis on a Pipe to Flange Weld	Phillips 66
29.	Laser Nitriding to Medical Grade Stainless Steel Investigation	Stryker Instruments
30.	Motorsport Use Wankel Engine - Investigation of Inlet and Exhaust Port Optimization	CIT Engine Development Centre
31.	Hard Drive Scanning Process Automation	EMC
32.	Debarking Machine Wooden Logs Feeder Mechanical System Design and Development	Nyhan Fencing
33.	PrintInspector™ Incorporation and Application into a Weber Machine Design, Manufacture and Commissioning	Crest Solutions
34.	Wind Tunnel Performance Quantification and Redesign	Research and Development
35.	Cell Optimization through Process Improvement and Machinery Validation in Post Process TFA Cell	Stryker Orthopaedics
36.	Impulse Turbine Rotors Under Variable Loading Conditions Fluid Structure Interaction Study	Research and Development
37.	Trailer Design for Manufacture and Assembly Study	Lynch Trailers
38.	Nikken 120ax 5-Axis Attachment on Bridgeport VMC800xp Accuracy/ Repeatability Test Procedure Design	Research and Development
39.	Automated Counting and Bagging Machine Design and Development	Stryker Orthopaedics
40.	Modelling of Ceramic or Quartz Heater	Research and Development
41.	Condition Based Monitoring in Gantrez Plant Suitability Investigation	GlaxoSmithKline Cork
42.	Leg Holder and Platform Redesign	Inspect4
43.	Dual-Use Maritime Environment Sensor Platform Design and Development	Halpin Research Centre, National Maritime College of Ireland
44.	Biopharmaceutical Facility – Implementation of an Energy Management System based on the ISO50001 Standard	Biomarin International
45.	Plastic Welding Investigation and Optimisation	Containment Service Providers
46.	Animal Clamping / Support Device Design and Development	Inspect4
Stand 47	***Bachelor of Engineering (Honours) in Biomedical Engineering***	**Centrepiece Exhibit 4**
Stand 48	***Medical Engineering Design and Innovation Centre (MEDIC) – Cork Institute of Technology Enterprise Ireland Applied Research Enhancement Centre***	**Centrepiece Exhibit 5**
49.	Split Mould Stent Security Machine Reliability Improvement	Abbott Vascular
50.	Clubfoot Correction Device Design and Development	Research and Development
51.	Automated Masking Inspection System Development	Depuy Ireland
52.	Toe Alignment Device to Improve Backswing Research and Development	Research and Development
53.	Catheter Architecture Characterisation Model Development	Stryker Neurovascular
54.	Self-Balancing Support Base Design and Development	Research and Development
55.	Lower Leg Callipers Natural Walking Gait Device Design and Development	Research and Development

No.	Title of Stand	Industrial Partner
56.	Cataract Extraction Surgery Surgical Drape Support / Oxygen Supply Device Design and Development	Cork University Hospital
57.	New Ball Game - Ball Manufacturing Process Development	Research and Development
58.	Marine Environment Vibration Analysis and Monitoring	Research and Development
59.	Static Bike Frame Test Rig Design and Development	Research and Development
Stand 60	***Bachelor of Engineering (Honours) in Chemical and Biopharmaceutical Engineering***	**Centrepiece Exhibit 6**
61.	Optimisation of Drying Process during Final Isolation of Intermediate Product	Eli Lilly
62.	Relief System Design using AspenPlus	Research and Development
63.	Rheological Analysis of Xanthan Gum Fermentation Broth	Research and Development
65.	Identification of Root Cause Analysis of Downtime to increase Machine Productivity	Astellas
66.	Examination of Spherical Crystallisation Techniques	Research and Development
67.	Spray Dryers Bulk Density Performance Investigation	FMC Biopolymer
68.	Biodiesel from Algae	Research and Development
70.	Modelling Unit Operations using DynoChem	Research and Development
71.	Thermal Energy Assessment of Building 07	Roche
73.	Feasibility of Recovering Iridium Catalyst from Process X	Eli Lilly
74.	Assessment of Ireland's Municipal Solid Waste Management using INTRAWaste	Research and Development
75.	Process Control Case Studies using Aspen Dynamics	Research and Development
Stand 76.	***Centre for Advanced Manufacturing and Management Systems (CAMMS)***	**Centrepiece Exhibit 7**
Stand 77.	***Bachelor of Engineering in Mechanical Engineering Level 7***	**Centrepiece Exhibit 8**
78.	Observatory Dome Roof Door Automation	Blackrock Castle Observatory
79.	Walking Frame for Gait Laboratory	Research and Development
80.	Hurling Sliotar Launcher Design and Development	Mycro Sports
81.	Chair Lift - Uprighter for Occupier	Research and Development
82.	Bubble Detection in Patient Intravenous Line	Cork University Hospital
83.	Solar Tracking Germination	Research and Development
84.	Motorsport - Wankel Engine Installation	CIT Engine Development Centre
85.	Bale Sled Design and Development	Research and Development
86.	Steel Bin Lift Design and Development	Research and Development
87.	Sand Blasting Grader Design and Development	Research and Development
88.	Nozzle Cleaner Design and Development	Research and Development
89.	Robotic Welding Cell Safety Implementation and Development	Research and Development
90.	Gravel Grader Design and Development	Research and Development
91.	Recycling Reduction Development	Research and Development
92.	Robotic Arm Design and Development	Research and Development
93.	Steam Oven Development	Research and Development
94.	Servo Drive Application Investigation	Research and Development
Stand 95.	***Bachelor of Engineering in Biomedical Engineering Level 7***	**Centrepiece Exhibit 9**
96.	Paraplegic Boxing Exercise Apparatus Design and Development	Research and Development
97.	Anaesthesiologist Drape for Ophthalmic Patients Design and Development	Research and Development
98.	Epilepsy Seizure Warning Device Design and Development	Research and Development
99.	Pressure Sore Prevention Bed Design and Development	Research and Development
100.	Height Adjustable Wheelchair Design and Development	Research and Development
101.	Removable Car Seat for Patients with Disabilities	Research and Development
102.	Piglet Mortality Reduction	Research and Development
103.	Biofilm Characterisation	Research and Development

Stand 104	***Bachelor of Science in Advanced Manufacturing Technology Honours Level 8***	**Centrepiece Exhibit 10**
105.	Lean Redesign of Engineering Department	Ceramicx
106.	Rheumatoid Arthritis Sufferers Cutlery Design and Development	Research and Development
107.	Automation of Part Bending Rig	Stryker Ireland
108.	Multi-Function Walking Stick Design and Development	Research and Development
109.	Build Palte Part Removal	Stryker Ireland
110.	Ergonomic Analysis of Crutches	Research and Development
111.	Wheelchair Users Club Throwing Rig Design and Development	Research and Development
112.	World Skills Brazil 2015 Training Equipment Development	Research and Development
113.	Exercise Bike Energy Capture and Use	Research and Development
114.	Bicycle Frame Test Rig Development	Research and Development
115.	Bicycle Fitting Rig Design and Development	Research and Development
116.	Automated Farm Gates Design and Development	Research and Development
117.	Slurry Gas Meter and Alarm Design and Development	Research and Development
118.	Water Harvesting for Farms Analysis	Research and Development
119.	Multi-Functional Bale Trailer Design and Development	Research and Development
120.	Manual Work Station Setup	Research and Development
121.	Heat Treatment Test Rig Design and Development	Research and Development
Stand 122	***Bachelor of Science in Process Plant Technology Honours Level 8***	**Centrepiece Exhibit 11**
123.	Sports Bath Tub Design and Development	Research and Development
124.	Assembly Method Analysis	Euro-Access
125.	Automatic Pet Feeding System Design and Development	Research and Development
126.	Beer Keg Storage, Stack and Change System Development	Research and Development
127.	Refrigeration Demonstration Rig Design and Development	Research and Development
128.	Pneumatic Gantry Crane Soft Motion Analysis	Research and Development
129.	Agriculture Agitating System Design and Analysis	Research and Development
130.	ABB Robot Cell Cutting Station Development	Research and Development
131.	Retrofitting of Diesel Particulate Filter to Pre 2007 Diesel Cars	Research and Development
132.	Logic Control in Heating Systems	Research and Development
133.	Manufacturing Process Simulation and Optimisation	Research and Development
134.	MRP Software Demonstration Design	Research and Development
135.	Mass-Spring Damper Test Rig Design and Development	Research and Development
136.	Shaft Alignment Rig Design and Development	Research and Development
Stand 137	***Bachelor of Engineering in Building Services Engineering Honours Level 8***	**Centrepiece Exhibit 12**
138.	Primary Energy Evaluation of the ZERO2020 Building	Research and Development
139.	Investigation into the Data-Integrity of the ZERO2020 Wireless Data-Logging System	Research and Development
140.	CO2 Environmental Monitoring of Lecture Rooms in CIT	Research and Development
141.	Assessment of Energy Modelling Capability of REVIT MEP using the ZERO2020 Building as a Case Study	Research and Development
142.	Performance Evaluation of Ventilative Cooling Applications using a Statistical Approach	Research and Development
Stand 143	***Bachelor of Engineering in Sustainable Energy Honours Level 8***	**Centrepiece Exhibit 13**
144.	Thermal Energy Storage Refrigeration	Ontario Solar
145.	Environmental Impacts of Wind Farms Assessment	Research and Development
146.	Heating, Ventilation and Air Conditioning Energy Use	GE Healthcare
147.	Shrouded Wind Turbine Design	Research and Development
148.	Refrigeration System with Heat Recovery Development	Em3
149.	Harvesting Power from Traffic	Research and Development
150.	Process Water Cooling by River or Well Water	Tyndall Institute
151.	Optimum PHE Ration of Milk Cooling	Research and Development

No.	Title of Stand	Industrial Partner
152.	The Potential for Solar PV in Rural Africa	Solaris
153.	Anti-Gravity from Centrifugal Force	Research and Development
154.	Landfill Gas Tri-Generation	Cork City Council
155.	Waste Water Harvesting and Treatment	Research and Development
156.	Purified Water Operational Factors	GlaxoSmithKline
157.	Anaerobic Digestion Potential in the Emerging Irish Economy	Research and Development
158.	Anaerobic Digestion of Pharma Waste	Janssen Pharmaceutical
159.	Feedstock Pre-treatment for Anaerobic Digestion	Research and Development
160.	LPHW Heating Systems for Commercial Buildings	EMC2
161.	Investigation of Barriers to the Adoption of Electric Vehicles	Research and Development
162.	Energy Savings through Efficient Lighting	Boston Scientific
163.	Repowering Wind Farms	Research and Development
164.	Water Usage Reduction for Biopharma Plants	MSD
165.	Small Scale Hydro Turbine Development	Research and Development
166.	Pharma Plant Energy Performance Analysis	Novartis/Geneu
167.	Energy Security in Ireland and Poland	Research and Development
168.	Reduction of Energy Wastage in Food Manufacturing	Spice o' life / AHAC
169.	Retrofitting Passive Standard for Commercial Buildings	CIT ZERO2020 Building
170.	Optimisation of GMP HVAC	GlaxoSmithKline
171.	Biogas as a Transport Fuel	Research and Development
172.	Heat Recovery Methods Investigation	Astellas
173.	Anaerobic Digestor (Agricultural Group)	Research and Development
174.	Solar PV Potential in Commercial Buildings	Tipperary Energy Agency
175.	Feasibility of Community Owned Wind Energy Developments	Research and Development
176.	Algae as a Renewable Energy Resource	NIMBUS Centre
177.	Solar PV in Developing Countries Feasibility Investigation	Research and Development
178.	Sustainable Energy Projects for CIT	Research and Development
179.	District Heating in Ireland	Research and Development
Stand 180	***Engineers Ireland***	**Centrepiece Exhibit 14**
181.	Abbott Vascular Ireland	Research and Development
182.	Janssen Pharmaceutical	Research and Development
Stand 183	***Vintage and Classic Vehicles of Yesteryear Display CIT Mizen to Malin Fund Raiser Drive for Suicide Aware***	**Centrepiece Exhibit 15** ***The CIT Staff and Student Mizen to Malin Vintage Car Rally for Suicide Aware supported by MunsterRugby, raised over €17,000***
Stand 184	***Institution of Mechanical Engineers***	**Centrepiece Exhibit 16**
Stand 184-200	***International / National Awards in Engineering Innovation, Design & Entrepreneurship***	**Centrepiece Exhibit 17**

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International / National Awards in Engineering Innovation, Design & Entrepreneurship

National Prize-Winners in Engineering Innovation, Design & Entrepreneurship Innovative Product Development Laboratories include:

Eleven Engineers Ireland Innovative Student Engineer of the Year Awards sponsored by Siemens (2014 L8, 2013 L8, 2012 L8, 2011 L7, 2009 L7, 2008 L8, 2007 L7, 2006 L8, 2005 L8, 2004 L8, 2003 L8)
Five Enterprise Ireland I.Mech.E Speak Out for Engineering Awards (2014, 2013, 2007, 2006, 2004)
Five MEETA Asset Management and Maintenance National Awards (2014, 2013(x2), 2011, 2006)
One CADFEM Ireland and Ansys Users Conference EI HQ Dublin Best Presentation Paper (2014)
Two Enterprise Ireland / Invest Northern Ireland Young Entrepreneur of the Year First Place Award (2013, 2007)
Four Cruickshank Most Technologically Innovative Project First Place Award (2013, 2009, 2008, 2007)
Seven Enterprise Ireland / Invest Northern Ireland National Awards of Merit (2013, 2012, 2010, 2009, 2008, 2007)
One GradIreland Graduate Employee of the Year First Place Award Mansion House Dublin (2012)
One NCBI Inclusive Technology Showcase Grand Prize Wood Quay Dublin (2012)
Three Abbott Ireland Intern of the Year Awards (2012, 2011, 2009)
Two Enterprise Ireland / Invest Northern Ireland Academic Innovation Awards (2012, 2009)
One Engineers Ireland Excellence Awards - Inaugural " Best in Class " Engineering Education Award (2011)
One Engineers Ireland Excellence Awards - ESB Award for Outstanding Contribution to Engineering (2011)
One Engineers Ireland Excellence Awards - Chartered Engineer of the Year (2011)
One Inaugural Enterprise Ireland / Invest Northern Ireland Young Entrepreneur of the Year Solving Problems for Industry €7,500 Award (2009)
Two HP Invent Awards for Best Science/Engineering/IT project in Ireland
Three William Eccles Institution of Production Engineers National Awards

International Prize-Winners in Engineering Innovation, Design & Entrepreneurship Innovative Product Development Laboratories include:

Nine First Places and Seven Runner Up Finalists in the Institution of Mechanical Engineers Best Medical Engineering and Design and Development of a Biomedical Device Competitions, London (2015, 2014, 2011, 2010, 2008, 2007, 2006, 2005)
Two European Laureate of Innovation First Place Award - European Student Innovator of the Year 2014 and 2012 - European Student Innovation Finals - Innovact Reims France (2014, 2012)
European Science Engineering and Technology Best European Mechanical Engineering Student One First Place and One Runner Up Babcock Award - SET Finals London UK (2013, 2011)
Two Enterprise Ireland / Invest Northern Ireland Think Outside the Box Academic Innovation Awards (2012, 2009)
One European Laureate of Innovation Third Place Award – European Student Innovation Finals - Innovact Reims (2010)
Two Gold Medals Undergraduate Awards of Ireland and Northern Ireland Engineering/Mechanical Sciences (2011, 2010)
Seven First Places and Six Runner Up Finalists in the Institution of Mechanical Engineers Best Medical Engineering and Design and Development of a Biomedical Device Competitions, London (2011, 2010, 2008, 2007, 2006, 2005)
One Global Student Entrepreneur Finalist Award sponsored by the Entrepreneurs' Organisation in conjunction with Mercedes-Benz Financial at the GSEA Finals in Kansas City, Missouri, USA (2009)
One SOFE Paris Second Place Award - Institution of Mechanical Engineers (2009)
One First and One Second Place in the ISEA International Sports Engineering Competition, London
Two Queen's Silver Jubilee awards for Best Mechanical Engineering Degree Project in Ireland and Britain
One Genius 2000 Award for Best New Invention at the Nuremburg Inventors' Fair
Two Society of Manufacturing Engineering Outstanding Young Engineer Worldwide Awards
Three First Places for Best Published and Presented Paper at the International Manufacturing Conference.

Engineering an Innovation Eco-System

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Year 2015 Industrial Exhibition Sponsors

- *Centre for Advanced Manufacturing and Management Systems*
- *Novartis Ringaskiddy*
- *Irish Oxygen Co*
- *Janssen Biologics*
- *EMC Information Systems International*
- *GlaxoSmithKline Cork*
- *Janssen Pharmaceutical*
- *Gas Networks Ireland*
- *MSD Brinny*
- *Bank Of Ireland*
- *Cork City Council*
- *Institution of Mechanical Engineers (RoI Branch)*
- *Intel Ireland*
- *Millipore Ireland*
- *PSE Kinsale Energy*
- *Abbott Ireland Vascular Division*
- *SR Technics Airfoil Services*
- *Eli Lilly S.A. - Irish Branch*
- *Roche Ireland*
- *ARUP*
- *Alps Electric (Ireland)*
- *ESB*
- *Enterprise Ireland*
- *MACOM*
- *Hyperion Energy Systems*


CIT
CORK INSTITUTE OF TECHNOLOGY
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Thursday 30th April 2015 2.00pm – 8.30pm
200 Stands
Ireland's Largest Educational Engineering Event
Exhibition Theme 2015:
Engineering Design - Eureka!
CIT Engineering Innovation and Entrepreneurship
Engineers on the move
Opening Time:
Thursday 30th April
2.00pm to 8.30pm
Nexus Courtyard - CIT
Admission Free
For further information and group bookings, contact:
Sean F. O'Leary, Senior Lecturer, CIT.
Tel: 00 353 21 4335425 Fax: 00 353 21 4326627
seanf.oleary@cit.ie
Design, Innovation & Ethical Engineering

Historical Pictorial Compendium of Stands at Cork Mechanical, Manufacturing & Biomedical Engineering Exhibition

Mr. Leo McKenna, of the Temple Bar based Ark Group, (foreground) presented a magnificent display on "The Best of Italian Engineering of the Past: Leonardo da Vinci " - A full-scale Reconstruction of the studio of the renowned Engineer and Artist including six models of inventions attributed to the Italian genius.

Biomedical Engineering student, Ms. Ruth Kelly-Walker studies some of Leonardo da Vinci's anatomical sketches at the full-scale Reconstruction of the studio of the renowned Engineer and Artist.

Biomedical Engineering student Tracy Cotter examines the machinations of Leonardo's Armoured Car Design.


Alice
Formula One Racing Car


ON EDGE
BE ON
EDGE

→ The Jodel Robin Model Aircraft is demonstrated by Mr. Jack Kelleher of the Southern Model Flying Club

→ Mechanical Engineering Diploma project World War 1 Fighter Airplane the SE5 - Construction of a Rudder Control Mechanism and Airflow Control attended by Mr. Finbarr Heffernan and Diploma student Tobias Roche.

→ The Department of Education and Science stand, promoting Women in Engineering and featuring the Engineering Video "Archimedes Daughters" on a high-tech Video Wall, proved very popular with many visiting female students.

→ The Boston Scientific Cork stand attracted significant interest in the promotion of Minimally Invasive Surgery Medical Techniques and Devices.

→ The Stryker Instruments Ireland featured a demonstration of the many surgical devices designed and manufactured at the Carrigtohill plant.

Á Engineers of the Future Eoghan and Rory O'Leary accompanied by their parents Mary and Seán, Exhibition Organiser.

SOSAir Emergency Breathing Aid Development Multi-Discipline Start-Up Innovation Team

Robin Holbein, Jamie Hodnett, Isabel Rossiter, Brendan Weathers and Eugene Byrne

Emergency Underwater Breathing Device

"When all you need is another breath"

How It works

- Surfer/Kayaker etc hits the water equipped with SOS Air
- Emergency Situation
- Unable to fight the power of the currents beneath the waters surface
- Disorientated and Panicking – Needs Air!
- Reaches for SOS Air
- Disaster Averted - Life Saved

Intellectual Property

- Patent search has been carried out
- Found similar competitors but design not similar to ours
- Tubing in our design is seen in no other product
- Product will be patented in 4th year project

Testing

Market Potential

- Surfers market approx 50,000 (ISA)
- Sailing market approx 30,000 (Irish Sailing Association)
- Potential market of swimmers in Ireland of 675,00 (Swim Ireland)
- Water sports such as kayaking, windsurfing, and jet skiers etc. of 15,000
- 800 large-scale aquatic sports products wholesalers
- 1500 medium-sized retailers
- 10,000 small shops worldwide

Future Potential: Fire Safety Market
1,469,321 households in Ireland (CSO)
82,100 small enterprises in the services sector alone (CSO)

Competition

AIR
Based in Hawaii
Targets the water and fire safety industries
Bulky design
Competitive price

Oxy Fit
Based in UK
Targets the Sports Performance industry
Not designed as an emergency product
Competitive price

Competitive Advantage

- Innovative and unique design
- High Quality
- Compact and convenient design
- Strong modern branding
- Competitively priced
- Different target market to existing competitors

Strategic Partners

National Marine College of Ireland Sub Aqua Club - Gerry Horan

Garrestown Surf School Cork - John Hynes
"Kayakers biggest fear is entrapment ... time is of the essence. This device can allow for that extra time to save someones life."

Adventure Training Ireland - Donnchadh Mac Coitir
"With my background in the lifeboat association I can see this device really making a difference"

Blessington Sailing School - Philip O'Sullivan
" We deal with catamaran sailing dinghies ... one of these devices strapped to the bottom of a boat could get someone out of a very sticky situation"

Online Presence

SOS Air Website

SOS Air Facebook Page

Ultra Sport Website

Google Analytics

FlowStopper Water Leak Detection and Cut-Off Multi-Discipline Start-Up Innovation Team

Ciaran Connolly, David Lewis, Cillian Crowley, Tracey Murphy, Jason McCarthy, Maurice O'Brien

The Need for FlowStopper

- Aging Infrastructure
- Slow leaks
- Burst pipes
- Extreme weather

Introduction of domestic water metering
Increase in insurance premiums

The Big Freeze 2010

- Biggest event claim
- €10m per day for 7 weeks
- 3 out of 5 N.I. Primary schools closed
- Hidden burst pipes – maintenance – Not Covered
- Vacant – no heating – Not Covered

Basic Operating Principles

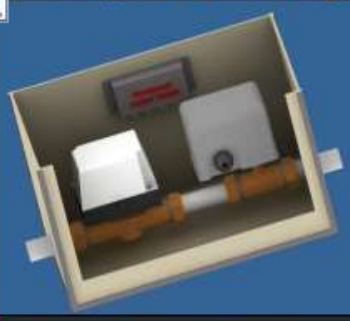
Overall Function

- To stop flow of water into a household if a pipe is leaking/burst

Sub-functions

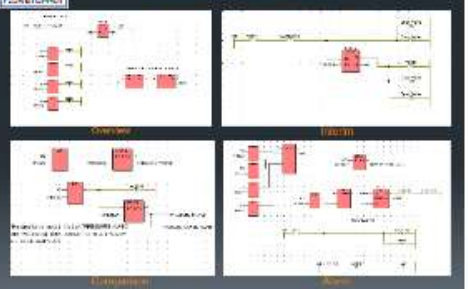
- Test water pressure at predetermined time intervals
- Recognize if there is flow present
- Actuate valve in the event of a leak
- Warn customer that water has been cut off

FlowStopper Solid Model Design

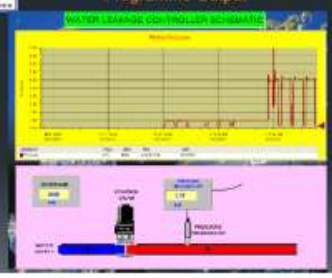


Manufactured and Commissioned Proof of Concept Prototype

Schematic Tree of FlowStopper Software Development



FlowStopper Monitoring and Control Programme Output



Route To Market

- Online Sales
- Trade Shows
- Builders Providers
- County and City Councils
- IIF – Irish Insurance Federation

Product Markets

	Year 1	Year 2
Potential Market	731,000	1,006,000
Target Market	14,620 (2%)	30,240 (3%)
Selling Price	€175	€175
Revenue	€2,558,500	€5,292,000

PING Automated Glass Polishing Machine Multi-Discipline Start-Up Innovation Team

Jonathan Miller,Denise Keogh, John Caplice, Sean Garvey, Maria Cronin, Timothy Lane, Erik Broderick

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Automated Glass Polishing Machine

Origin of Idea

- Hospitality Experience
- Customer Complaints
- Unhappy Customer
- Waste/ Profit Loss
- Tedious Job

Need of Product

- Time saving
- Improved Quality
- Free-up staff
- More efficient
- Save money/labour

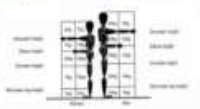
Intellectual Property

- Patent Search
  - No comparable match found
  - Existing products – Expensive

- Existing Patents
  - Single Glass
  - Manual Transfer

Prototype Development

- Systematic Design
- Hazard Analysis
- Solid Model
- Optimised Design
- Prototype Production



Prototype

Competition

Product Production Cost

Item	Quantity	Cost per Unit sold	Cost per product
1000 rpm motor	1	€140.00	€140.00
Polishing Cloth	20	€0.47	€9.40
Bolt Holes	20	€0.11	€2.20
Solid Shafts	11	€7.00	€60.00
Mild Steel	7.5kg	€0.29	€2.00
Flat Bar	1kg	€2.00	€14.00
Pulley	1	€1.00	€1.00
Bearings	11	€1.50	€21.00
V Belt	1	€10.00	€70.00
Total			€390.20

Requirements & Funding

Requirements & Funding				
Fixed Asset Investment				
Equipment and machinery			€40,000	
Working capital Requirement				
Rent		€12,000		
Light and Heat		€1,200		
Phone/Broad band		€1,400		
Office supplies		€1,000		
Travel expenses		€1,550	€17,550	
Start-up Costs			€25,000	
Total Investment needed				€82,550
Amount To be invested by principals		€42,000		
Amount To be provided by borrowings		€35,550		
Bank overdraft		€5,000	€82,550	
Total Investment Funded				€82,550

Dryline Clothes Line Automated Cover Multi-Discipline Start-Up Innovation Team

John Walsh, Chloe Kearney, Laura Queen, Martin Evans, Daniel Murphy, Julien Dreux, Valerie O'Keefe

dry line™ You're Covered

Next Generation Clothes Line System

Consumer Survey

- Q. Are you a homeowner?
- Q. Do you feel it would solve a the problem?
- Q. Would you purchase Dry Line TM?
- Q. What age are you between?

2011

Solution

- Next Generation Clothes Line System
  - Detects Rainfall
    - Sensor
  - Automatically Covers Clothes
    - Counterbalance
    - Catch & Release

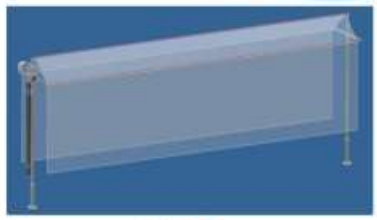
2011

Calculations

- Stress element on top of pole
  - Force Px creates 392.4N
    Normal stress due to compression
  - Force Py creates 588.6N
    Normal stress due to bending
  - Total normal stress = 101.069MPa

2011

Design



2011

Design

2011

Dryline Automated Clothes Line Scale Model Prototype Manufacture, Assembly and Testing

Positioning

- USP (Unique Selling Proposition)
  - Automatic
  - Eco Friendly
- Quality
- Durability
- Value for Money

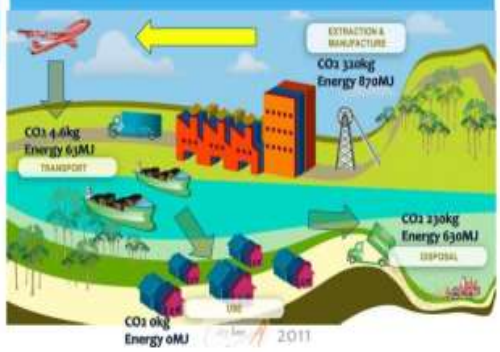
2011

Promotion

- Online
  - Website
    - Drive Traffic to Website
  - Social Networks
    - Integrate with Website
    - Facebook

2011

Life cycle assessment (LCA)



2011

Engineering Team Members

Niamh Sweetnam
Team Leader and Concept Design Engineer

Vincent McSweeney
Design Engineer and Manufacturing Manager

Ian Burton
Applied Biomedical Research Engineer

Business Team Members

Martin Kiely
Accounts Manager

Darragh Clancy
Marketing Manager

Paraba Crutch™ Multi-Discipline Start-Up Innovation Team

Paraba Crutch™

'Putting Pep In Your Step!'

A revolutionary parabolic crutch aid for long-term crutch users

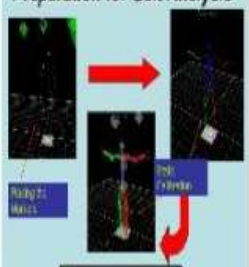
Paraba Crutch™

Validation of Paraba Crutch™

The ***Paraba Crutch™*** team has been extremely fortunate in being granted supervised access to the state of the art 3D Camera GAIT Analysis Technology Centre at the Medical Engineering Design and Innovation Centre - ***Paraba Crutch™*** team member Vincent McSweeney is currently on work placement at the MEDIC Centre. The MEDIC facility (one of just two similar facilities on the island of Ireland) incorporates a VICON 3D motion system, AMTI Force plate – GRF, Tekscan HR Pressure Mat – static and dynamic plantar pressure distribution, Tekscan F-scan – in-shoe system, Basler DV Cameras - Video Observation, Aurion Wireless EMG - Muscle Activation Pattern, Tekscan Seated Pressure Mat - seat and back pressure measurement and Xsensor HR Pressure Sensor Mat – full body pressure measurement.

Paraba Crutch™

Preparation for Gait Analysis



Initial Biomechanical and Biomedical testing of the Mark I ***Paraba Crutch™*** prototype has thus been undertaken on the state of the art 3D Camera GAIT Analysis Technology Centre under the expert guidance of Dr. Magdalena Tyndyk, Research Co-ordinator, MEDIC, whose experimental results interpretive advice has proved crucial in aiding the ***Paraba Crutch™*** team in iteratively progressing the novel design.

Paraba Crutch™

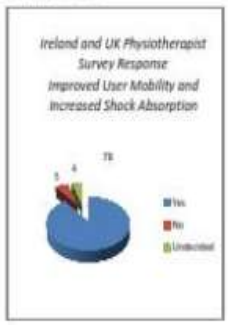
Marketing

Who will use it?

Paraba Crutch™ will be used by people with a long term or a short term mobility problem. ***Paraba Crutch™*** has been designed for use in hospitals and physiotherapy units as well as for domestic and personal use. ***Paraba Crutch™*** has a wide potential target market at home and abroad.

Commercial Investigation

As part of our commercial investigation, a comprehensive ***Paraba Crutch™*** survey of physiotherapists throughout Ireland and the UK has been undertaken.



The response far exceeded the expectations of the ***Paraba Crutch™*** team with a remarkable total of 87 physiotherapists completing the survey.

Of the 87 respondent physiotherapists, 76 recognised a strong need for improved crutch design both in terms of mobility and shock absorption and said they would be interested in our product. This remarkably large and very positive response is most encouraging in terms of the real practical need for the product as recognised by significant numbers of medical professionals working on the coal face of disability assistance provision. We believe this remarkable response is highly indicative that a strong, established and ongoing need and market exists for ***Paraba Crutch™***. Many of the physiotherapists participating in the survey also lent us invaluable advice, alluding to the problems associated with existing crutches and were indeed quite excited by how our design will address these problems.

Paraba Crutch™

Development of Mark I Prototype

Paraba Crutch™

3-D Visualisation of Gait Analysis

Paraba Crutch™

Potential Strategic Partners

Trulife

MEDIC

Paraba Crutch™

Quality and Standards

Medical Device Classification - Class III

CE Certification CE

ISO Standard

Paraba Crutch™

Market Feasibility

- **Target Market**
  - Hospitals
  - Physiotherapy Clinics

- **Market Potential (Units)**
  - Year 1- Ireland
  - Year 2- Ireland
  - Year 3- International

Paraba Crutch™

Market Proposition

- MEDTEC Trade Show

- Social Networking

- Direct Selling

Paraba Crutch™

Set-up Costs

- Miko Metals Ltd.
- Premises
- Transport
- Wages
- ***Patent Fees***

Paraba Crutch™

Sales Projections

- Year one: 10,200 units
- Year two: 15,000 units
- Cost per unit: €20
- Selling Price per unit: €40
- National Figures
- International Sales:

  U.S.A.: 2.5 million Crutches sold per annum

Paraba Crutch™

EZWrench Tyre Change Empowerment Multi-Discipline Start-Up Innovation Team Members
Jason Richards, Martina O'Mahony, Richard Murray

EZ WRENCH™

Empowerment Strength Independent Wheel Brace

EZ WRENCH™

Empowerment Strength Independent Wheel Brace

An innovative, ergonomic, simple to use , safe and strength independent alternative to struggling with the wheel brace has been designed, developed and tested by the EZ WRENCH™ team. The developed device empowers the large proportion of the driving population, who by reason of gender, age or health, are not in possession of substantial physical strength, to safely and easily remove and replace wheel bolts/nuts during tyre change. EZ WRENCH™ is light, compact, does not require a power source and is easy to apply.

EZ Wrench™ employs a novel power magnification gear based mechanism to achieve the strength independent torque capacity to remove all wheel nuts, no matter how tightly applied. EZ Wrench™ provides a simple black box solution to an everyday real and stressful problem. EZ Wrench™ is driver friendly, and operationally simple. EZ Wrench™ has been designed and tested to the highest safety standards. EZ Wrench™ is an ideal gift for a loved one.

Extensive Operational Testing of EZ Wrench™ has been undertaken. Team member Lisa Harte pictured above.

Capital costs

Capital items owned	Value £	Capital items required	Value £
Equipment/tools		Equipment/tools	22,000
Fixtures & fittings		Fixtures & fittings	5,000
Vehicle		Vehicle	15,000
Security & safety		Security & safety	5,000
IGT		IGT	3,000
Office Furniture		Office Furniture	2,500
Kitchen		Kitchen	2,000
Total		Total	

Variable costs

Variable costs e.g. stock, materials	Costs per annum
Material	267,132
Direct Wages	140,250
Insert type of variable cost	
Total variable costs	£

Fixed costs

Fixed costs	£
Rent & rates	18,000
Heat & power	6,000
Tel & internet	1,500
Vehicle expenses	525
Advertising & promotion	30,000
Office supplies and postage	1,000
Accountancy & legal	3,300
Insurance	10,000
Director's Salaries	40,000
Bankings	n/a
NIC (Class II)	
Total	

Route to Market

Year 1	Local Market Direct Selling	→	Shopping Centre Stands Sales Calls
Year 2	Online Sales	→	Own Website Others
Year 3	Retailers	→	Harvey Norman Co-Op Argos

Advertising and Promotions

- **Direct Marketing**
  - Shopping Centre Stands - Demonstrations
  - Sales Calls
- **Website and Online Advertising**
  - Social Plug-Ins
  - Leader boards, Skyscrapers and Pop-Ups
- **Promotional Competition**
  - Word of **Mouse** – link through e-mail
  - Spa Weekend Break – Female focus

Snap shot of our website

SweetDreamzz Adjustable Moses Basket Development Multi-Discipline Start-Up Innovation Team Members Dale Cusack, Kevin Spillane and Conor O Regan

NEED FOR PRODUCT

- Reduce Back pains
- Ease pain in Stomach Muscles
- Minimise Postnatal Depression

(Ref: Sarah J. Breese McCoy. (April 2006). "Risk Factors for Postpartum Depression")

- Relief from colic

73% of infants in the Infant Gastroesophageal Reflux (I-GERQ-R) study showed significant decrease in I-GERQ-R and acid reflux with an inclined bed position

(A preliminary report on the efficacy of the Multicare AR-Bed 5 August 2009 Universitair Ziekenhuis Kinderen, Brussels, Belgium)

BENEFITS OF PRODUCT

Adjustable height =>Ease for stomach Muscle Pains

Reproduced with kind permission from visible productions

TARGET MARKET

- Market Potential: 75,065 births in 2009
- Market Target: 20% of women have caesarean and 14% of women suffer from stomach pains. In total our product would be targeting 34% of the market which is 25,000
- Market Target: Year 1: 0.4% 332 units

  Year 2: 1.6% 1246 units

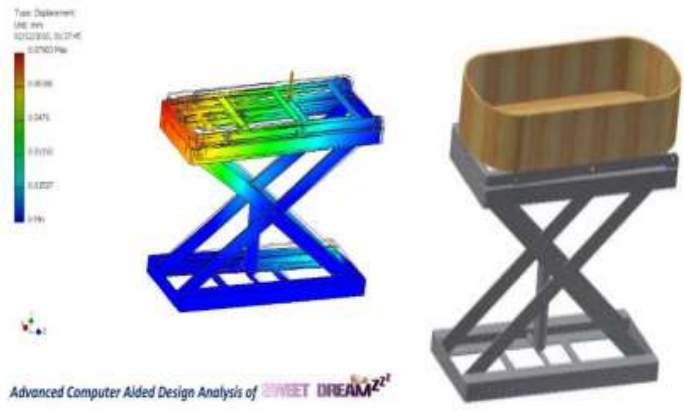
SELLING PRICE

- Cost materials
  - €30
- Cost of Production
- Selling Price
  - €80

PRODUCT

SWEET DREAMZZZ

SWEET DREAMZZZ *Unique Lift / Tilt Design*



Advanced Computer Aided Design Analysis of SWEET DREAMZZZ

Fully Up position

Fully Down position.

→ **Enda Levey, of De Puy Ireland (Johnson & Johnson), demonstrates the Orthopaedic Knee & Hip Systems designed, developed and manufactured at the Ringaskiddy plant.**

Michelle Tobin demonstrates her Biomedical Engineering Project on Inhaler and Space Holder Design and Development

David Irwin; Ciaran Connolly; and John Caplice; with a scale model of their Sheet Lifting Station.

Bord Gais Computer Estimation Programme for Pipe Lengths by Fiona Hedderman, final year Mechanical Engineering.

Collapsible Scooter design and development by David Chandler, Shane McDermott and Martin Evans.

Hands On Dental Drilling Research demonstration by Jonathan Bible, final year Mechanical Engineering.

Centre for Advanced Manufacturing and Management Systems (CAMMS) attracted significant public interest.

An excellent display of the Clean Technology Centre by Tadhg Coakley, Projects Manager, CTC.

David Cronin demonstrates his Capstone Biomedical Engineering Project on the Assessment of the Injectability Bone Bonding Capacity of Modified Surgical Splineplex.

Ian Burton, Catriona Burke, Laura Beausang and Michelle Batt with their project on Optimisation of Scoliosis Brace in conjunction with St. Mary's Orthopaedic Hospital.

Domestic Chimney Heat Extraction Device Hydrostack development by Laurence Barry - CIT Prize for Innovation Winner.

Fadie Sakka and Audrey Mannix demonstrate Festo Robotino design and development.

Gavin Murray, Niamh O'Callaghan, Ross McKeown and Tom Nason demonstrate the development of an Insert Mould for Ultrasonic Transducer Protection in conjunction with Cork University Hospital.

Gas Turbine Instrumentation and Analysis was undertaken by Jove Lachman-Curl.

Onshore and Offshore Wind Farms comparative analysis.

Design and development of HHO Generator demonstrated by Alan Walsh and Eoin O'Tuama.

Four Wheel Drive Wheelchair development demonstrated to Minister Ryan.

Conor Barry demonstrates his project on Contact Lens Detection in conjunction with Bausch and Lomb.

Pulse Jet Engine design and development by Tim Thurneer, Donal Ahern, Niall O'Driscoll and David Lewis.

Plate Metal Lifting Device development by John Caplice, David Irwin and Ciaran Connolly.

Patrick O'Neill with his Airflow Extraction project.

Woodchip Briquette Manufacture undertaken by Robin Holbein, High Byrne and Andrew Cotter.

Amanda Creane and Derek O'Brien with their Rally Hydraulic Handbrake design & development project.

David Curtin with his Stress Analysis & Fatigue Behaviour of Partial Denture Clasps project.

Niamh Mannion, Gary Leahy and Ann-Marie Horan with their IV Cannula Protection project.

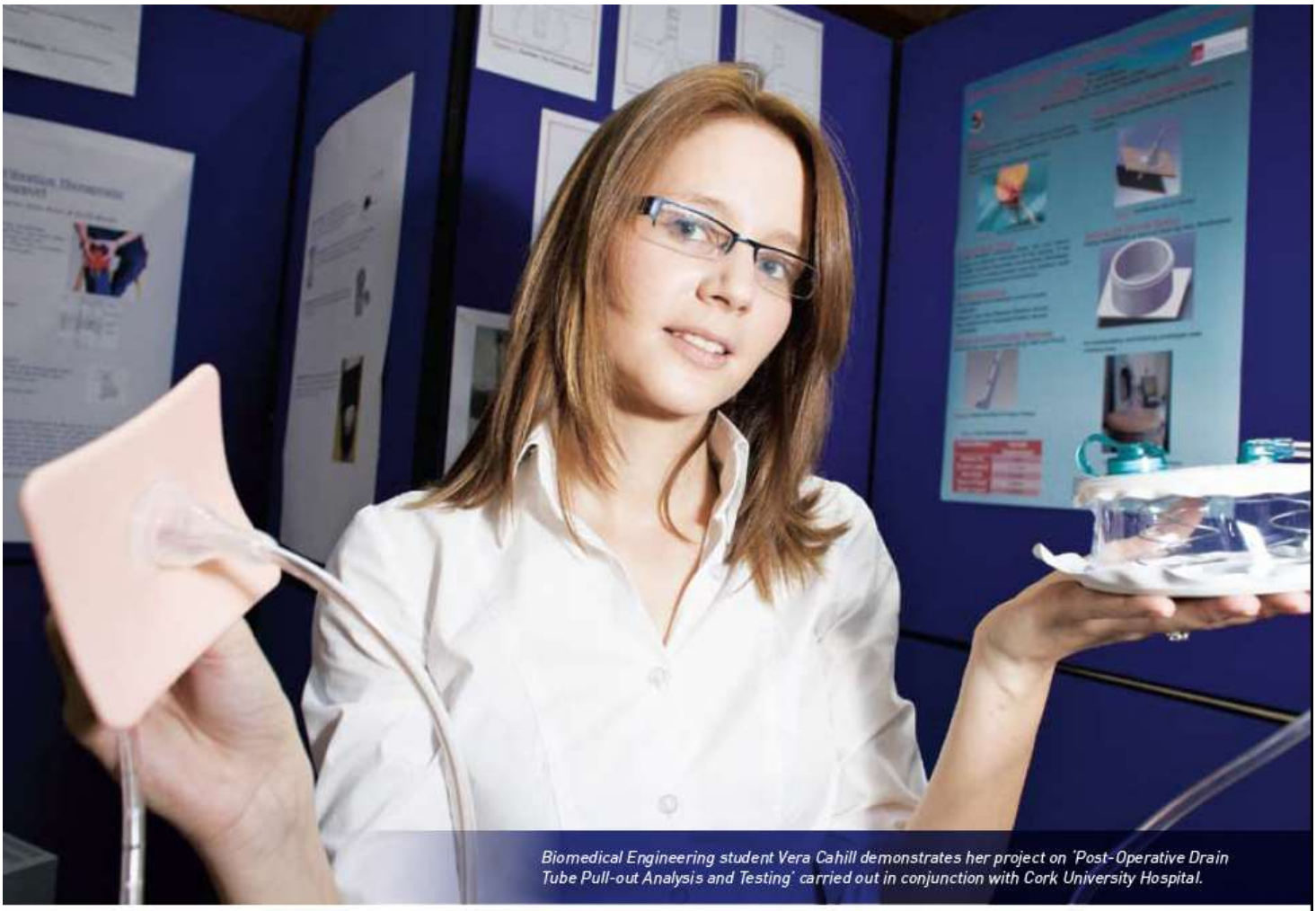
Paul O'Sullivan, Tristan Lacroix and John Tobin with their Cul Vision project.

Spanish Erasmus student stewards Fernando Fuentes Moragrega and Andres Daniel Mantilla Molina stand point guard on the Ferrari Formula 1 Racing Car 2007/8.

Second level students inspect the Ferrari.

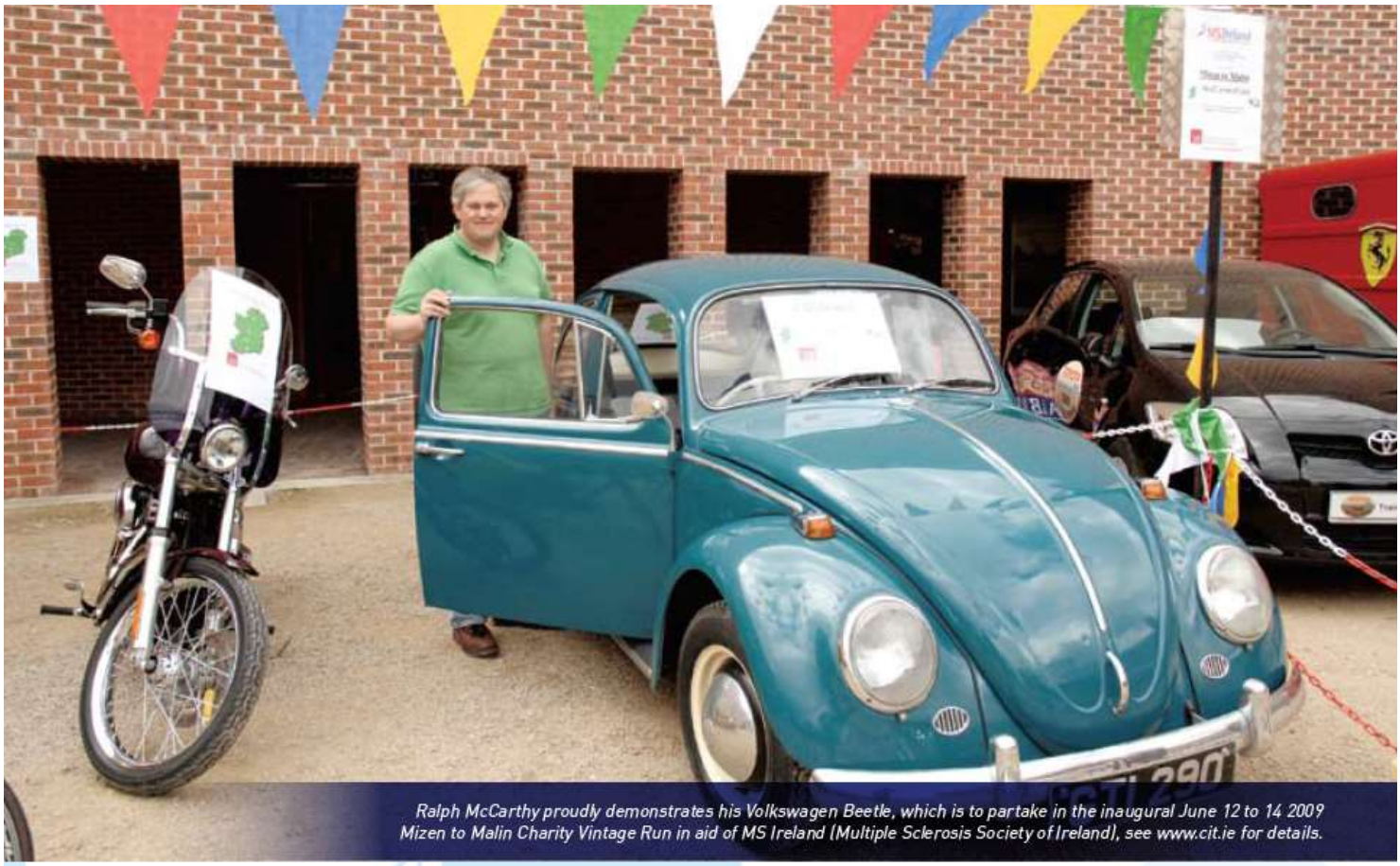
A patented 'Football Boot Metatarsal Support and Improved Performance Mechanism design and development' is demonstrated to Dr Chris Horn by final year Mechanical Engineering student William Holland.

Mechanical Engineering students Gary Donovan and Edward Forristal demonstrate their project on 'Rotating Crank Handle Device design and development'.



Biomedical Engineering student Vera Cahill demonstrates her project on 'Post-Operative Drain Tube Pull-out Analysis and Testing' carried out in conjunction with Cork University Hospital.

'Foot Support design and development' by Damien O'Flynn and Sarah Prendergast.



Ralph McCarthy proudly demonstrates his Volkswagen Beetle, which is to partake in the inaugural June 12 to 14 2009 Mizen to Malin Charity Vintage Run in aid of MS Ireland (Multiple Sclerosis Society of Ireland), see www.cit.ie for details.

Mechanical Engineering degree student Joseph O'Halloran presents his final year project on 'Contact Lens - Analysis and Design Optimisation of Dry Cured Anterior Mould Release Process and Mechanism' in conjunction with Bausch & Lomb Ireland to Dr Chris Gibbons.

The Technologies for Embedded Computing Centre (TEC) - Cork Institute of Technology Enterprise Ireland Applied Research Enhancement Centre – Stand proved highly popular with industrial, academic and general public audiences.

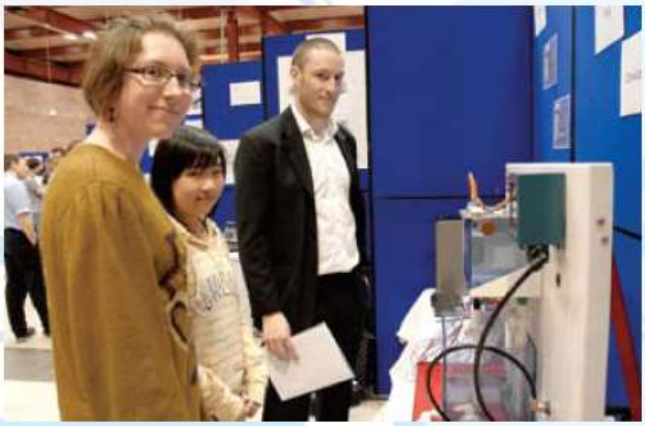
Dr Magdalena Tyndyk, MEDIC, conveys the spirit of medical innovation to an enthralled second-level audience.

'Pallet Handler for Light Goods Vehicles' designed and developed by Mechanical Engineering students Ronan Kenneally, Kieran Coomey, Seán Crowley and Denis Murphy.

Alec McAllister, Engineers Ireland, waxes lyrical on engineering matters to a highly enthused audience.

Compression and Tension of Elements of a Suspension Bridge Structure in Real Time - The Science and Technology Teaching and Learning Centre (A cross-institutional CIT/UCC project under SIF Cycle III)
Project School: Dungarvan C.B.S.

The highly popular hands-on demonstrations at the Metlab International Welding NDT Stand.



A large number of international students attended and clearly enjoyed the exhibition

The especially commissioned 'Engineers on the Move' exhibition T-Shirt is modelled by First Year student stewards Thomas Thornton, Seán O'Gorman and Leslie Wolfe, manning the very popular Welding/Non-Destructive Testing Stand.

'Automated Hurley Manufacture design and development' was carried out in conjunction with MYCRO Sportsgear Ltd. by Mechanical Engineering students James Haugh, Darren O'Halloran, Gary Sheahan and Mark Quigley.

'Festo Robotina Training Program design, development and testing' by Alan O'Leary and Abdalla Sati Alshareef.

'Digger Back Actor Mechanism design and development' presented by JJJ Engineering Student Company.

'Two Wheel Drive Motor Bike development' was undertaken by Rance Keating.

'Poppet Valve Spring Tester design and development', carried out in conjunction with the CIT Engine Test Cell Centre, by students Jason Condron, Stephen Forde, Ronan O'Donoghue and Myles Murray was awarded First Place in the CIT Engineering Technologist of the Year 2009 Competition.

'The Pressure Performance Analysis, Modelling and Testing of Microcatheters' and the 'Analysis, Testing & Development of Rotablator Burr Attach Process for an Angioplasty Device' was carried out in conjunction with Boston Scientific Cork by Thomas Sheehan and Dermot Drew, Final Year Mechanical Engineering Degree students

'Adjustable Bicycle Frame design and development' demonstrated by Joe Jameson to Marion O'Sullivan.

'Wind Powered Grain Drying System design and development' was carried out in conjunction with the Energy Engineering Group by Mechanical Engineering student Pádraig Griffin.

Mechanical Engineering student Aidan Collins presents his final year project on 'Universal Spearhead Position Alignment'.

'Dialysis Model design and development' was undertaken by Seán Ward.

'Wood Chip Compactor design and development' is presented by Mechanical Engineering students Barry McKenna and Matthew Marshall.

'Height Adjustable Wheelchair design and development' was undertaken by Conor Grant, Thomas Martin and Derek Donnelly.

Both young and old partook in the practical demonstration of the CIT designed and developed Can Crusher.

Dr Patrick Caffrey meets Kieran O'Callaghan of AquaEye, Multi-Discipline Start-Up Innovation International Award Winner.

Wave Energy Generation Device design and development by Robin Heaton in conjunction with the Energy Engineering Group.

The Centre for Advanced Manufacturing & Management Systems - Training & Consultancy for Mechanical & Manufacturing Engineers Exhibit was presented by Paul Keane, Manager.

Robert Ryan's Final Year Mechanical Engineering degree project on Vena Cava Blood Clot Filter Design Characterisation was carried out in conjunction with Boston Scientific Cork.

CORK ENGINEERING EXHIBITION

Rheumatoid Arthritis Glove design and development Biomedical Engineering Project in conjunction with Cork University Hospital.

Great public interest was attracted to Adaptation of a V6 2 stroke outboard engine for Autograss Racing Car and Motor-sports project.

Road Bowling Track Surface investigation was carried out in conjunction with Bol Chumann na hEireann.

Dr Michael J. Cáit and Tadhg O'Mahony express interest in Dave Galavan's project on Brain Aneurysm Treatment.

Spatula Cleaner design and development carried out in conjunction with ALPS of Millstreet by Kathleen McAuliffe, Robert McMahon, Alan Walsh and Cormac Harrington.

Equine Tendon Support Boot – Dynamic Performance Testing in conjunction with Dalmar Ireland by Finbarr Brassil.

Dr Hugh O'Donnell investigates Deirdre Quinn and Joe O'Shea's project on Muscle Force Balance Measurement Device development.

Tony Carey demonstrates his research and development project on Corrosion Resistance of Adhesive Joints Investigation to Dr Stephen Cassidy.

Intravenous Blood Infusion Process Bubble Extractor Device Development - Xiao Fang Zhang.

CORK ENGINEERING EXHIBITION

Student demonstration of Golf Swing Trainer Design and Development.

Vera Cahill's Innovative project on Disinfection of Pressure Relief Mattress Device design and development in conjunction with Cork University Hospital proved very popular.

Mycrosports Hurling Helmets Testing and Fitzgerald Sliotars Characterisation projects.

The Boston Scientific Neurovascular Minimally Invasive Surgery project of Damien Healy attracted significant interest.

The Multi-Discipline Innovative Group Project on Football Boot Metatarsal Support Mechanism Development was undertaken by William Holland, Davida O'Brien and Jonathan Bible

Remote Controlled Hazardous Task Robot Axle Analysis in conjunction with Allen Vanguard by Aidan O'Shea.

Second-level students are enthralled by the operations of the Robotina - Festo Robot designed to provide interactive learning.

Enterprise Ireland visiting delegation with Matt Cotterell and Dr Barry O'Connor.

Ciara Dwan's final year mechanical engineering degree project concerned Pellet Break-up and Dust Generation Minimisation in conjunction with Kedco.

CORK ENGINEERING EXHIBITION

Shovels and Spades Load Testing Rig design and development was carried out in conjunction with Ames True Temper.

The Kart Chassis Dynamometer design, development and manufacture was carried out in conjunction with the CIT Engine Test Cell Centre.

Hands-on demonstration of Laser Welding proved very popular with members of the general public.

Pro-Neb Multi-Discipline team - Low Noise Nebuliser Unit design and development.

Final Year Mechanical Engineering Degree student Eoin Crean demonstrates his project on Solar Concentrators design and development.

Final Year Mechanical Engineering Degree student Kenneth Allen presents his project on Solar Facade analysis and testing to Dr Ger Kelly.

Practical demostration of engineering principles and technology is central to the exhibition ethos.

Kate Lourdin, William Howie and Sam Ho demonstrate their biomedical engineering project on Redesign of Wheelchair Seat to counteract Pressure Sore Development.

Final Year Mechanical student Conor McManus's project concerned Unsorted Wood Particles Fluidised Bed Consumption.

Séamus Forde demonstrates his final year research and development project on roller blind spring testing.

Sparks Fly! Second level students clearly enjoyed the hands-on nature of the CIT/Metlab International welding and non-destructive testing stand.

Brian O'Sullivan, President, CIT Students Union, seems entranced by the innovative projects on display.

Domestic recycling compactor design and development was demonstrated by the "EasyComp" multi-discipline innovation team.

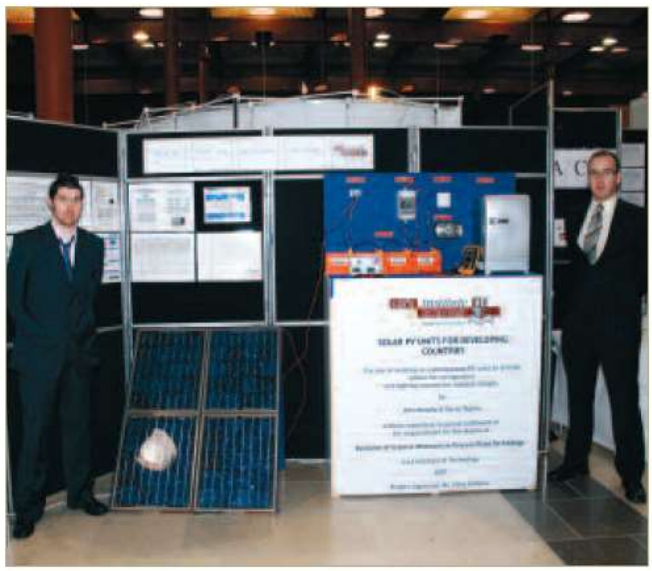
The "Airien" multi-discipline team demonstrated their developed breathing apparatus/fire extinguisher combination device.

The Cork Fire Systems stand featured the design and development of a plug in smoke alarm with power cut function presented here by team members – Mary Duggan, 3rd Year Business Studies and Xiao Fang Zhang, 3rd Year Mechanical Engineering.

Lee Ward, Irish Kart Club Driver of the Year

The design and development of an innovative Eve Shoot Cleaning Device was undertaken by the "Express Eve Shoot" multi-discipline team.

The "Swing n Fill" multi-discipline team designed and developed an innovative easy to use a coal bunker.



The development of solar PV units for developing countries was undertaken by David Tagney and John Murphy.

Exhibition organiser Seán F. O'Leary and P.J. Fallon of Fallon Racing exert an unusual load on Michael Schumacher's Ferrari!

The boy racer's delight – optimisation of rear suspension unusually demonstrated by a sectioned car display.

Sports injury in-cast muscle stimulation was demonstrated by Biomedical Engineering students Hazel Galvin and Aidan Looney.

Outboard motor power loss evaluation on turning; Final Year Mechanical Engineering Degree project is demonstrated by Daniel Healy.

Adaptation of a marine V6 2 Stroke outboard engine for Autograss Racing proved a very popular exhibit.

The "Safe 2 Inflate" multi-discipline team demonstrated their developed motorcyclist neck brace device.

Final Year Mechanical Engineering Degree students Trevor Brookes and Stephen Finn demonstrate their projects on tracking and robotic retrieval of road bowls carried out in conjunction with Bol Chumann na hEireann.

The "Everblast" multi-discipline team demonstrate their developed sliotar shooter device for Goalkeeper Training to Lecturer, Michael Walsh.

AQUA EYE – Swimming Aid for the Visually Impaired €1,000 Award Innovation Team. Mechanical Engineering students Designers and Inventors Kieran O'Callaghan, Ciara Dwan, Ken Allen, Finbarr Brassil, Paul O'Keeffe. Accounting and Information Systems students, Imedla Callanan, Norma Barry, Colin Aherne, Ciara Aherne, David Barker.

Tracey O'Mahony and Michael Fitzpatrick manned the main Boston Scientific stand.

Final Year Mechanical Engineering Degree student Davin O'Mahony demonstrates his project on fusion processes for Micro-Catheter - Carrier of Diagnostic Agents into the Peripheral, Coronary and Neuro Vasculature - carried out in conjunction with Boston Scientific Cork with Ms. Elaine Condon.

Cabhair – severely disabled patient nurse call device development in conjunction with Cork University Hospital – was demonstrated by Denise Cronnelly and John Bohane.

"Outstanding" – Leg callipers design and development in conjunction with Cork University Hospital – by Bronadh Lynch, Davida O'Brien and Séamus McGarrell.

The "MOST" multi-discipline team undertook research on measurement of suture tension in conjunction with Mr. Jason Kelly, Surgeon Consultant, Cork University Hospital.

Patient slide development carried out in conjunction with Cork University Hospital was demonstrated by Séan O'Leary and Malcolm Porter with guest patient Davida O'Brien.

Ciara Egan, Cork University Hospital with Pádraig Curran and Maurice Deady, Final Year Biomedical Engineering students, whose wrist fracture location model development project was carried out in conjunction with CUH.

The Stryker Instruments stand proved a very popular exhibit for many second level students.

A research and development project on artificial hip joint chrome cobalt wire bending was carried out in conjunction with Stryker Orthopaedics by Barry Yelverton.

The development of an anti-claw splinting device for Ulnar Nerve Palsy treatment was undertaken by the "Ulnar Pal", multi-discipline student team.

Stephen Power and Michael O'Gorman demonstrate their biomedical engineering project on IDC Coils – automation of fibre application process - carried out in conjunction with Boston Scientific Cork.

Catheter coating optimisation research and development in conjunction with Boston Scientific Cork was carried out by Dawn Hill and Rachel Joyce.

Apri Cot™ this product encapsulates the development, testing, analysis, and design of a sleeping aid to simulate womb conditions. Niamh Brady, John Barry, Orla Houlihan and Regina O'Donoghue pictured here winning the CIT Innovation Prize.

EXHIBITION

Á CIT Young Engineer of the Year, Charles Daly, presents his Final Year Mechanical Engineering Degree Project on the Precision Inspection of Platinum Coils for the Treatment of Brain Aneurysms carried out in conjunction with Boston Scientific Cork.

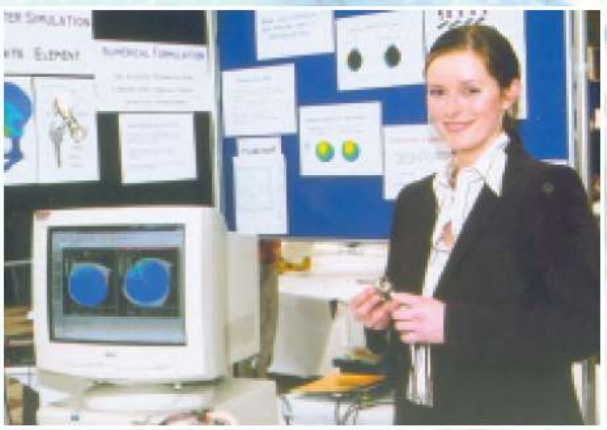
Á "Vena Cava Blood Clot Filter - Dynamic Impact Testing and Analysis" was undertaken by Final Year Mechanical Engineering Degree student Eoin O'Donovan in conjunction with Boston Scientific Cork.

Á Ms. Anne O'Donovan, Quality Engineering and Mr. Andrew Kenny, Manufacturing Engineering Team Leader, provide expert Biomedical Engineering support to a needy individual at the very popular Stryker Instruments Ireland stand.

Á "The Design, Testing and Production of Bone Substitute Material"was investigated by Ms. Sharon Desmond, CIT final Year Mechanical Engineering Degree student, in conjunction with Stryker Instruments Ireland.

EXHIBITION

Á Manning the highly successful De Puy Ireland Johnson & Johnson Biomedical Engineering stand were Stephen Keane, Michael Howell and Oliver Barry.



Á Ms. Joanne Hegarty, Final Year Mechanical Engineering Degree Student, presents her Research and Development project on the topic "Human Pelvis – Acetabular Stress Analysis and Testing with a view to Optimisation of Hip Implant Cement Mantle Design".

Á The Stryker Howmedica Osteonics Biomedical Engineering stand was presented by Ms. Niamh Thompson, CIT Mechanical Engineering Degree Work Experience student, and Mr. James Quinn, IT Work Experience student.

Á Mr. Gary Harnett, Validation Manager, and Mr. Marcus Flynn, Instrumentation Technician, presented the Amersham Health Biomedical Engineering stand.

EXHIBITION

Á "Patient Controlled Overbed Hospital Table Automation – Development of Remote Control System for Several Axes" undertaken by Mechanical Engineering Diploma students Patrick O'Donoghue, Ronan Casey and Jeffrey Linehan.

Á The Design of a Fully Foldable and Mobile Ramp Attachment for a Wheelchair was undertaken by Mechanical Engineering Diploma Student, Allen Sheane.

Á Biomedical Engineering Diploma Students Paul O'Flynn, Glenn How, Amy McCann and Richard Cunningham present their project on the Design and Development of a Human Gait Force Plate.

Á Biomedical Engineering projects on (1) the Development of a Pressure Regulator for a Biomedical Application Infusion Pump and (2) the Mechanical Testing of Bone Cement PMMA were presented by Brian Lahive, Barry Doyle and Linda Horgan.

EXHIBITION

Á At the very popular SIFCO Turbine Group aerospace engineering stand were Ms. Maria Carey, Development Engineer and Ms. Ber Noonan, Customer/Product Support.

Á Dermot Hastings presents his Final Year Mechanical Engineering Degree project, carried out in conjunction with Aerospace Engineering Company SIFCO on the topic of "Aircraft Engine Vanes and Blades – Development and Characterisation of Platinum/Aluminide Coatings".

Á The Moog Ireland aerospace engineering stand on the topic "Technology Powered by People" was presented by Ms. Ann-Marie Power, H.R. Officer, Moog.

Á Adrian Reid, Final Year Mechanical Engineering Degree student, presents his project on the Thermal Modelling and Reliability/Design Optimisation of a Motor Controller for Aerospace Engineering company Moog.

EXHIBITION

Á The Ever-Wandering Helium-filled Blimp, expertly radio controlled by Members of Cork Model Aero Club, gave a Bird's Eye view of the exhibition through a Remotely Manouvered Mounted Camera.

Á Huge crowds were attracted to the Southern Model Flying Club Display, which featured a demonstration of a Model Aeronautical Gas Turbine and Radio Controlled Model Aircraft.

Á The Analysis, Design and Manufacture of a World War 2 Plane Tail Assembly was conducted by Mechanical Engineering Diploma students Shane Prendergast, Diarmuid O'hlarlaithe and Oliver Santry.

EXHIBITION

Á The Design, Construction and Testing of a Chemical Bag Cutter was carried out in conjunction with Pfizer Tablet Plant by Mechanical Engineering Diploma students Eoin Beakey and Kieran Brosnan.

Á Mechanical Engineering Diploma students, Paul Linehan and Ross O'Brien, demonstrate their project on the Design, Assembly and Commissioning of a Pallet-Lifting Device carried out in conjunction with Janssen Pharmaceutical.

Á Graham Canty presents his Final Year Mechanical Engineering Degree project on the topic of "Jacketed Reactor Vessel – Batch Cycle Design Optimisation", carried out in conjunction with Janssen Pharmaceutical to an enthralled audience.

Á Mechanical Engineering Diploma students, Stephen O'Neill and Jessica Gleeson, undertook the Device Design for Measurement and Analysis of Tank Scale Build-up in conjunction with Aughinish Alumina.

EXHIBITION

Á Final Year Mechanical Engineering Degree student, Kevin Vaughan, demonstrates his project on Hydrocyclone Design Optimisation for the Centrifugal Separation of Fermented Broth carried out in conjunction with ADM Ringaskiddy.

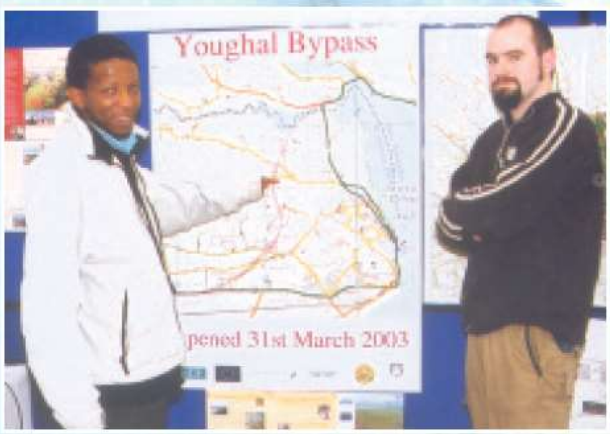
Á The Process Optimisation of Colour Creation in Moulded Ceramics was conducted by Matthias Hellstern, Final Year Mechanical Engineering Degree student, in conjunction with Sternplastic of Kinsale.

Á The extremely busy Hewlett Packard Ireland stand was a notable feature of the 17th Exhibition.

Á Masters Research student, Dylan Ryan, presents his project on the Finite Element Analysis and Material/ Photoelastic Testing of Inkjet Printer Component in conjunction with Hewlett Packard Ireland.

EXHIBITION

Á Dermot Gough, Final Year Mechanical Engineering Degree student, demonstrates his project on the Analysis and Design of an Energy Efficient Climate Control Chamber carried out in cooperation with Arup Consulting Engineers.



Á Mr. Mbuti Mkwananzi, Executive Engineer, and Mr. Cormac Desmond, Assistant Engineer of Cork County Council expound on the newly opened Youghal Bypass.

Á Mechanical Engineering Diploma students, James O'Donovan and Dave Tonery, carried out a project in conjunction with Ridge Tool on the Design, Build and Commissioning of a Laser Measurement Device.

Á Students from Mount Mercy College, Cork, receive a demonstration from Jonathan Cummins, CIT Mechanical Engineering student, on his Diploma project, which concerned the Field Study and Design of a Combined Heat and Power Unit for Brookfield Leisure Centre.

EXHIBITION

Á The Design, Fabrication, Commissioning and Testing of a High-Speed Alt-Azimuth Mount for CCD camera Analysis of Gamma Burst Rays in the Cosmos was undertaken by Mechanical Engineering Degree student, Declan Finn.

Á The Design, Construction and Testing of a Hydraulic Block Splitter and Loading Arm was undertaken by Mechanical Engineering Diploma students, Eoin O'Sullivan and Graham Stanley.

Á Shane McSweeney, Final Year Mechanical Engineering Degree student, demonstrates his project on the Development of a Hydraulic Level Control System to brother, Luke, and father, Brendan, on Family night.

Á The Design, Construction and Testing of a Modified Bale Handler Attachment with Bale Rotating Feature was undertaken by Mechanical Engineering Diploma students Ray Delaney, Shane Corry and Neil McKenna.

EXHIBITION

Á Side View of the Modified Bale Handler Attachment with Bale Rotating Feature.

Á The Design of a Mechanical and Manufacturing Engineering Website was undertaken by Mechanical Engineering Diploma students, Dave Hennessy, Joseph Kenny and Cian Long.

Á Mechanical Engineering Diploma student, David Egan, demonstrates his project on the design of a Domestic Household Waste Burner to a number of intrigued students.

Á Denis Kennelly, Final Year Mechanical Engineering Degree Student, presents his project on the Development and Testing of a Retrofit Underfloor Heating System to Sister Helen, Sister Joseph and Mrs. Teresa Mac Sweeney.

EXHIBITION

Á The Design, Construction and Testing of an Oil Filter Crusher for Automotive and Light Truck Applications is demonstrated by James Doherty, Mechanical Engineering Diploma student.

Á An Off-Road Sports Vehicle, Designed for the Younger Generation, demonstrated by Mechanical Engineering Diploma students, Eoin MacCoitir and Dale Cusack.

Á "Antarctica Cup Yacht Keel Analysis and Design" carried out in conjunction with Ron Holland Yacht Design, Kinsale, was undertaken by Charles Dwyer, Final Year Mechanical Engineering Degree student, shown here with supervisor Dr. Gerard Kelly.

Á "Fishing Net/Pot Hauler for Small Boat – Design, Build and Testing of a Hydraulically Controlled Device" undertaken by Mechanical Engineering Diploma students Dermot Walsh, John O'Donoghue and Patrick Harte.

→ A very popular stand in the Aerospace section of the exhibition – MOOG Ireland – manned by Tony O'Donnell, Product Engineer and Aidan Browne, Technical Leader Software.

→ CIT Final Year Mechanical Engineering Degree student, Eamonn O'Caoimh's project on the Evaluation, Analysis and Design of Heat Sinks (Fins) was carried out in conjunction with MOOG Ireland.

→ The Jodel Robin Model Aircraft is demonstrated by Mr. Jack Kelleher of the Southern Model Flying Club

→ The Ever Wandering Blimp, expertly radio controlled by Ralph McCarthy of Cork Model Aero Club, gave a Bird's Eye View of the exhibition through a Remotely Manouvered Mounted Camera.

→ Sean O'Leary discusses the operation of the displayed Jet Engine Model Aeronautical Gas Turbine with members of the Southern Model Flying Club.

→ Mechanical Engineering Diploma project World War 1 Fighter Airplane the SE5 - Construction of a Rudder Control Mechanism and Airflow Control attended by Mr. Finbarr Heffernan and Diploma student Tobias Roche.

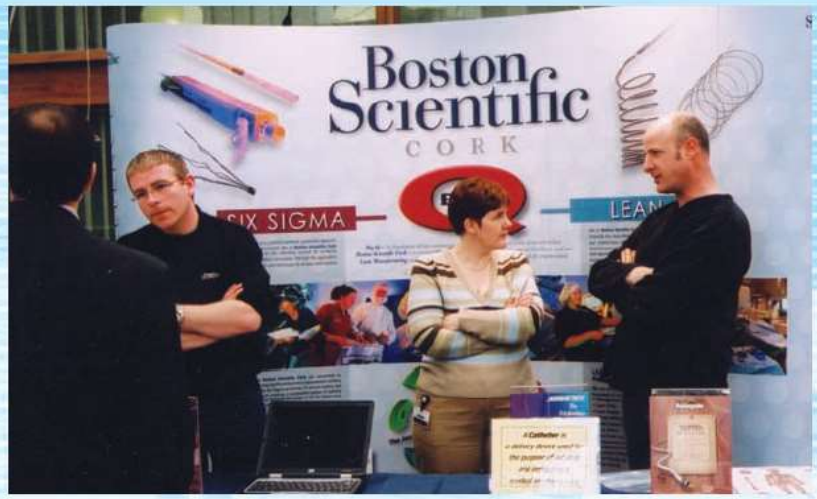
→ The Stryker Instruments Ireland featured a demonstration of the many surgical devices designed and manufactured at the Carrigtohill plant.

→ Mary Pat O'Connor, School Liaison Officer, and Christine Hosford, Registrar's Office enjoying the Cork Model Aero Club stand.

→ Biomedical Engineering Diploma student Michael Mullally gives colleague, David Moloney, a lift to demonstrate their project on the Design and Development of a Patient Lifting Hoist for the Assistance of Medical Workers and Carers.

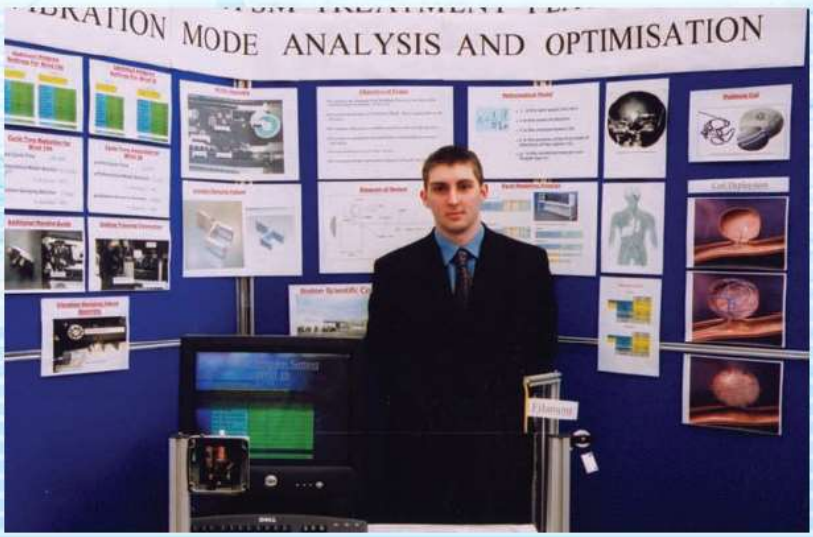
EXHIBITION

→ Bone Cement Fatigue Testing Rig Development was undertaken by Biomedical Engineering students Shane Forde, Sarah Daly and Turlough Duggan.



→ The Boston Scientific Cork stand attracted significant interest in the promotion of Minimally Invasive Surgery Medical Techniques and Devices.

→ Vena Cava Blood Clot Filter - Analysis and Testing of Hook Forming - carried out in conjunction with Boston Scientific Cork by Mechanical Engineering Degree student, John Geary.



→ Mechanical Engineering Degree student, John Paul Randles demonstrates his project on Brain Aneurysm Treatment Platinum Coil - Vibration Mode Analysis and Optimisation of Coiling Process - carried out in conjunction with Boston Scientific Cork.

→ Hip and Knee Implant Design, Development, Manufacture and Operation was featured at the Stryker Howmedica Osteonics stand.

→ Biomedical Engineering students Frances Collins and Margaret Murphy undertook the Construction of a Model Renal Hemodialysis System.

→ The Design and Development of a Wheelchair Assist Device to provide Greater Physical Autonomy for Wheelchair Users was achieved by Biomedical Engineering Diploma students Daniel O'Mahony, Brian Smith and Stephen O'Connor.

→ Patrick Nolan, Niall Murphy And Eamon Crowley demonstrate their Mechanical Engineering Diploma on the Development of a Rheumatoid Arthritis Therapy Apparatus.

→ Enda Levey, of De Puy Ireland (Johnson & Johnson), demonstrates the Orthopaedic Knee & Hip Systems designed, developed and manufactured at the Ringaskiddy plant.

EXHIBITION

→ Dr. Keith Bryan discusses the Design and Development of a Hand Held Infusion Tester used in Chemotherapy treatment with Biomedical Engineering students Ruth Kelly-Walker, Suzanne Malone and Tracy Cotter. This project has won First Prize and the g3,000 CIT Innovation Award.

→ Barrie Ahern and Anne Twohig of the Learning City magazine at the very popular Cork County Council stand.

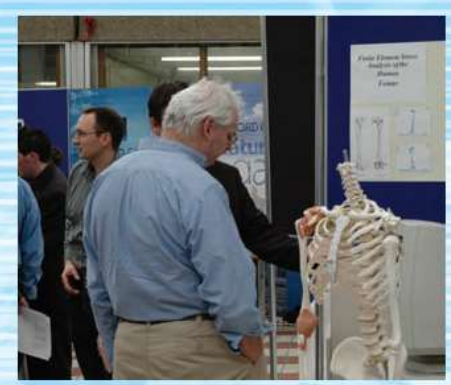
→ Peter Deasy casts a learned eye over plans for the Ballincollig Bypass at the Cork County Council stand.

→ The 5 metres length Scale Model of the Airport Roundabout Flyover attracted many viewers at the Cork County Council stand.

→ Keelin Murphy (foreground), HP Colleges Liaison Officer, mans the very busy Hewlett Packard stand.

→ Final Year Mechanical Engineering Degree student Paul Lonergan demonstrates his project on the Finite Element Analysis and Testing of an Inkjet Printer Carriage, carried out in conjunction with Hewlett Packard.

→ The hands-on demonstrations at the Welding/Non-Destructive Testing – Metlab International Exhibition Stand proved a great hit with many of the large attendance.



→ Senior Lecturer Bill Corr discusses the intricacies of a Final Year Mechanical Engineering Degree project on the Finite Element Analysis of the Human Femur undertaken by student Brian D. Murphy.

→ Final Year Mechanical Engineering Degree student Niamh Thompson demonstrates her National and International Award Winning project on the Influence of Surgical Solutions on Fatigue Properties of Bone Cement, carried out in conjunction with Surgeons at Cork University Hospital and St. Mary's Orthopaedic Hospital.

→ An Overview of the 18th Annual Cork Mechanical, Manufacturing and Aerospace Engineering Exhibition.

EXHIBITION

→ A Feasibility Study into Adsorption / Absorption Refrigeration at GlaxoSmithKline Cork was carried out by Final Year Mechanical Engineering Degree student Shane Collins.

→ Joseph Healy's Final Year Mechanical Engineering Degree project on Capacity Analysis of Gas Compressor Stations and Michael Ivor Durcan's Final Year Mechanical Engineering Degree project on Fuel Shrinkage Optimisation with consideration to the Environment at Beatock (U.K.) Compressor Station were both carried out in conjunction with Bord Gais.

→ Final Year Mechanical Engineering Degree student, Brian J. Murphy, undertook his project on Water Hammer Investigation and Analysis in conjunction with Pfizer Ireland Pharmaceuticals.

→ A Corrosion Analysis of Stainless Steel Autoclave and Design of Cooling System was undertaken by Final Year Mechanical Engineering Degree student Louise Connolly in conjunction with Amersham Health.

→ ADM Ringaskiddy was the industrial partner for Final Year Mechanical Engineering Degree student Jerry Cronin for his project on Simulation, Analysis and Installation of GEM Steam Traps.

→ Final Year Mechanical Engineering Degree student Timothy O'Sullivan's project concerned Modern Computer Mice – Force Reduction during Operation – and was carried out in conjunction with Logitech.

→ Mechanical and Manufacturing Engineering Diploma students Eoin McCarthy, Jonathan Holmes and Conor Kelleher display their project on The Shell Eco-Marathon - Design, Build and Test of Lightweight, Aerodynamic and Fuel-Efficient Vehicle to compete at the Rockingham Motor Speedway.

→ The Design and Development of Versatile Quad Topper was undertaken by Mechanical and Manufacturing Engineering Diploma students Philip Stanley, John Harding and Ciaran Lane.

→ Honda 4-Stroke 5.5hp 160cc Engine Tuning to Optimal Efficiency was undertaken by Mechanical and Manufacturing Engineering Diploma students William Keohane, Shane Tuohy, Brian Crowley and Sean Duggan, photographed here with supervising lecturer Lorraine Howard.

→ 100cc Racing Kart Engine Design and Manufacture of Inertial Dynamometer was undertaken by Mechanical and Manufacturing Engineering Diploma students Declan Kinnane, Maurice McGrath, Tadhg O'Connell and Damien Mannix.

EXHIBITION

→ Mechanical and Manufacturing Engineering Diploma students Noel Horgan and Lorna Lyons undertook the Design and Development of Foldable, Manouverable, Hydraulically Powered Engine Hoist.

→ Nissan Micra Auto-Grass Inlet Manifold Design to Motorsport Ireland Regulations for Optimal Engine Performance was undertaken by Mechanical Engineering Diploma student Ian Vaughan.

→ The Design and Development of Gas Cylinder Hoist for MIG and TIG Welding Processes was undertaken by Mechanical and Manufacturing Engineering Diploma students Brian Barry and John Daly, photographed here with supervising lecturer, Ronald Buttimer

→ The development of a Wobble Board is demonstrated by Biomedical Engineering Students Claire O'Sullivan, Gavin O'Sullivan and Xiano Hou.

→ The Design and Development of Telescopic Arm Car Boot Lift Device suitable for use by Disabled or Elderly Person was undertaken by Mechanical and Manufacturing Engineering Diploma students Bryan O'Connor and Dylan Roche.

→ The Design and Development of Moveable/Adjustable Ladder Shelf was undertaken by Mechanical and Manufacturing Engineering Diploma students Susanne Quinn, Brendan O'Neill and Patrick O'Dwyer.

→ At the Post-Exhibition reception in MacB's is a much relieved Exhibition Organiser Senior Lecturer Seán F. O'Leary (centre) along with Michael Ivor Durcan and Niamh Thompson, Award Winning Final Year Mechanical Engineering Degree students.

CIT Innovation Day Second and Third Level Exhibitors Pictorial Sample

CIT Coláiste na Coise Céanna
Cork Institute of Technology

Appoint Minister for Thinking, advises de Bono

Innovation and internal currency key to survival

by Eoin English

ALL governments should appoint a Minister for Thinking, the world's leading authority on creative thinking suggested yesterday.

That, coupled with a new internal currency to stimulate spending, could drag Ireland out of its recession, Dr Edward de Bono said.

The internationally renowned speaker, who developed the original concept of lateral thinking, was speaking before delivering a keynote address at Cork Institute of Technology's (CIT) annual innovation awards ceremony.

The 73-year-old from Malta, who advises some of the world's top Fortune 500 companies, said innovation in society and at government level is essential. "The job of most governments ministers is continuity and problem-solving — which is fine," he said.

"But without it [innovation] you go on repeating the same thing over and over again.

"The notion of innovation is key. Innovation might just be simplicity — finding a simper way of doing things.

"It's why I think all governments should have a minister for thinking or a minister for new thinking.

"The person would have a platform to collect, encourage, and generate ideas, or ways of simplifying things, creating new value, organising the thinking function.

"And from the Government's point of view, it would be great to have someone to blame."

He also suggested the introduction of a Functional Internal Currency (FIC) to stimulate the economy, rather than state capital spending on projects such as roads and bridges.

"Governments in the eurozone have lost the levers to control their own economies," he said.

"They can't raise interest rates and lowering the rates doesn't stop deflation.

"My big idea would be to use FICs whereby people could exchange a euro for two 'bonds', spend them, then let the retailer convert them back into euro.

"It is a fundamental change that will happen sooner or later."

Mr de Bono worked with the IDA almost two decades ago.

Asked if he is available now to offer advice, he said: "Generally speaking governments don't like to be seen to be asking what to think."

Mr de Bono was at CIT thanks to the Co Meath-based Edward de Bono Foundation, which is chaired by Cork businessman Pat Dineen.

Mr de Bono's concepts have been applied by executives at some of the world's most successful corporations, including BP, British Airways, Citibank, Ford, Exxon, General Motors, IBM, Kodak, Merck, Monsanto, NTT, Pfizer, Prudential, Proctor & Gamble and Sandoz.

While advising Shell, his techniques resulted in a new horizontal drilling technique which yields up to six times more oil than vertical drilling.

His techniques have also been employed in the jury rooms of three American states where jurors are taught his "six hats" method — a thinking tool for group discussion and individual thinking. It has resulted in a rise in unanimous verdicts.

A medical doctor, Mr de Bono is the author of more than 80 books which have been translated into 32 languages.

The winners of CIT's Prize for Innovation will be featured in Monday's Irish Examiner.

● www.edwarddebono-foundation.com

Dr Edward de Bono delivering the keynote address at Cork Institute of Technology's annual innovation awards ceremony. Picture: Neil Danton/News Digital

Edward de Bono on ... Everything from penalty shootouts to unemployment, taking issue with Darwin and his three problems with Italians

Soccer: As an alternative to the unfair penalty shoot-out, I suggest that someone should track the number of times each team's goalkeeper touches the ball. The team whose keeper touches the ball more often, loses. This system ensures that the winner is the team that had more attempts at scoring goals, made less back passes, and played a more exciting brand of football.

Schools: Schools are about knowledge and analysis. But in the real world there are two things you need to add — design and operacy. Design is how you put together what you have to deliver the values you want. Operacy is where you learn the skills of doing things, not just learning things and knowing things. They should be part of education. Research in England has shown teaching my thinking as a separate subject increases performance in every other subject by between 30% and 100%.

Clamping and parking: Instead of using parking meters and clamping to control parking, introduce 'headlights only' parking zones, where motorists must leave their headlights on while parking. The drain on the car's battery will ensure a quick turnover of parking spaces.

Tackling unemployment: Establish people agencies — personal services companies that hire people out as butlers, cooks, valets, cleaners, or drivers. Theoretically, there is no limit to the level of employment in the personal services industry. People aren't spencing their money on motor cars anymore, perhaps they'd spend their money on this.

Darwin: I don't think Darwin is quite right. The gastro feeding frog eats its eggs when they are fertilised. It turns off its digestive juices, the frogs grow in its stomach, it opens its mouth and they jump out. The problem is this: If it ate the eggs before it turned off the juices, it would digest the eggs. If it turned off the juices before it ate any eggs, it would starve. It is difficult for Darwinian theory to explain how two things happen together. Unfit get weeded out but the process of change is self-organising.

The future: There is a lot of interest in my work in China and Korea. For instance, the Chinese government is trying out my work in schools in five provinces. And if they like the results, then they put it in 680,000 schools.

So I'm telling everyone that if that happens, get out your national dancing costumes because the rest of the world will just be a tourist area. Once they grasp the creative thinking game, they play it very well.

Italians: I am often asked are Italians creative. They have three problems. Firstly, they think they are creative. Secondly, they do not distinguish style from creativity and thirdly, they are too social. They want to have lunch or dinner with their friends, tell them their idea, and if they don't like it, they drop it.

If Marconi had stayed in Bologna, he would never have done his big work. He went to England and learned to be bloody-minded. It's why I suggest executives eat lunch alone at least one day a week.

Innovation: With innovation, we often focus on the innovators. But we also need to focus on the middle people, the entrepreneurs who can spot ideas and make them happen. Often, people with good ideas are not always the people to make them happen. We need to focus too on the people who can make things happen.

Chinese graduate to meet President

GUEST: Student Xiao Fang Zhang will be at Áras an Uachtaráin this week.

CORK Institute of Technology (CIT) graduate Xiao Fang Zhang, has added yet another achievement to a growing list — she will dine at Áras an Uachtaráin this week.

She has been invited to dinner this week at the President's residence for the launch of the Innovation Island Initiative and Awards.

In a further honour for both Ms Zhang and CIT, she has also been invited to act as part of a project team formed to plan and design a new Irish innovation award.

Ms Zhang was last year awarded a Postgraduate IRCSET Scholarship, worth €24,000 a year, from the Irish Research Council for Science, Engineering and Technology.

Originally from Liao Ming Province in China, she was also outright winner of CIT's Innovative Engineer 2008 Award.

She was awarded first place in the Cruickshank Most Technologically Innovative Project Competition at the 25th Enterprise Student Enterprise Awards 2008 and was a finalist in Siemens Engineers Ireland Innovative Engineer of the Year.

She also represented CIT and Ireland at the Institute of Mechanical Engineers Medical Engineering Extravaganza in London.

Innovative Product Development Class Stewards at Exhibition

Engineers Ireland National Award
Chartered Engineer of the Year 2011
First Female Winner of
Chartered Engineer of the Year Accolade

Louise Connolly, ESBI, CIT Mechanical Engineering

Graduating from CIT with an honours degree in Mechanical Engineering in 2004, Louise joined ESB International. She is currently a consultant engineer in ESBI Engineering's power plant department and works on Irish and international power plant and gas pipeline projects.

European Laureate of Innovation 2010
Ms. Xiao Fang Zhang

Med-Ware™ 2010

Medical Infusion System Air Bubble Extractor Design and Development by Ms. Xiao Fang Zhang, Final Year Mechanical Engineering Degree, Cork Institute of Technology in conjunction with Cork University Hospital

Three Innovact Student Laureates 2010 Announced in Reims
Finals of the European Student Innovation Awards - Innovact 2010 March 3rd Reims

From a large Europeenne Entry and 28 Short-listed European Finalists, the three European Innovation Student Laureates 2010 are:

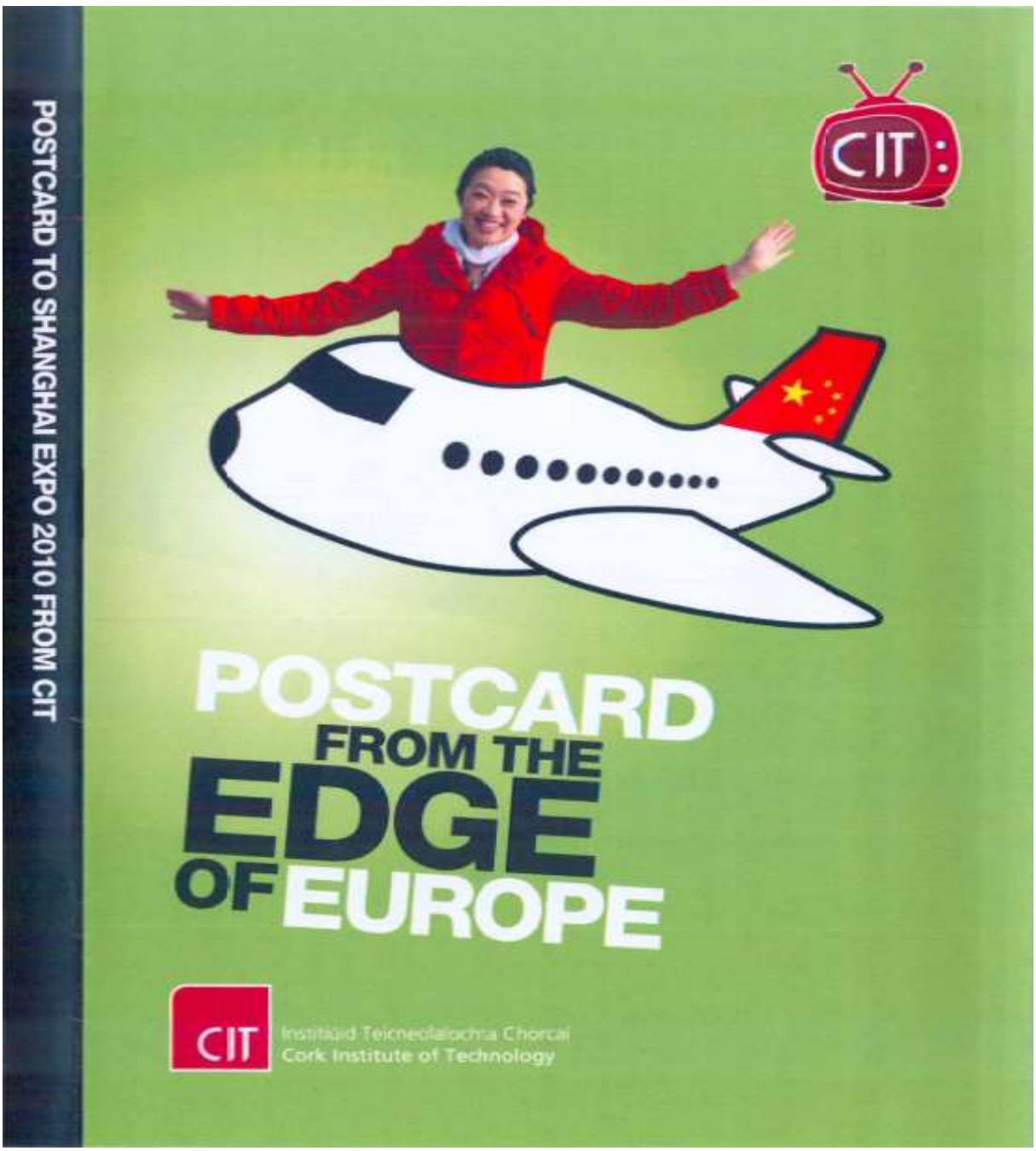
Cecille Schomollgruber - Stereolabs - France
Eric Hogner - Windflip - Norway
Xiao Fang Zhang - Med-Ware™ - Ireland

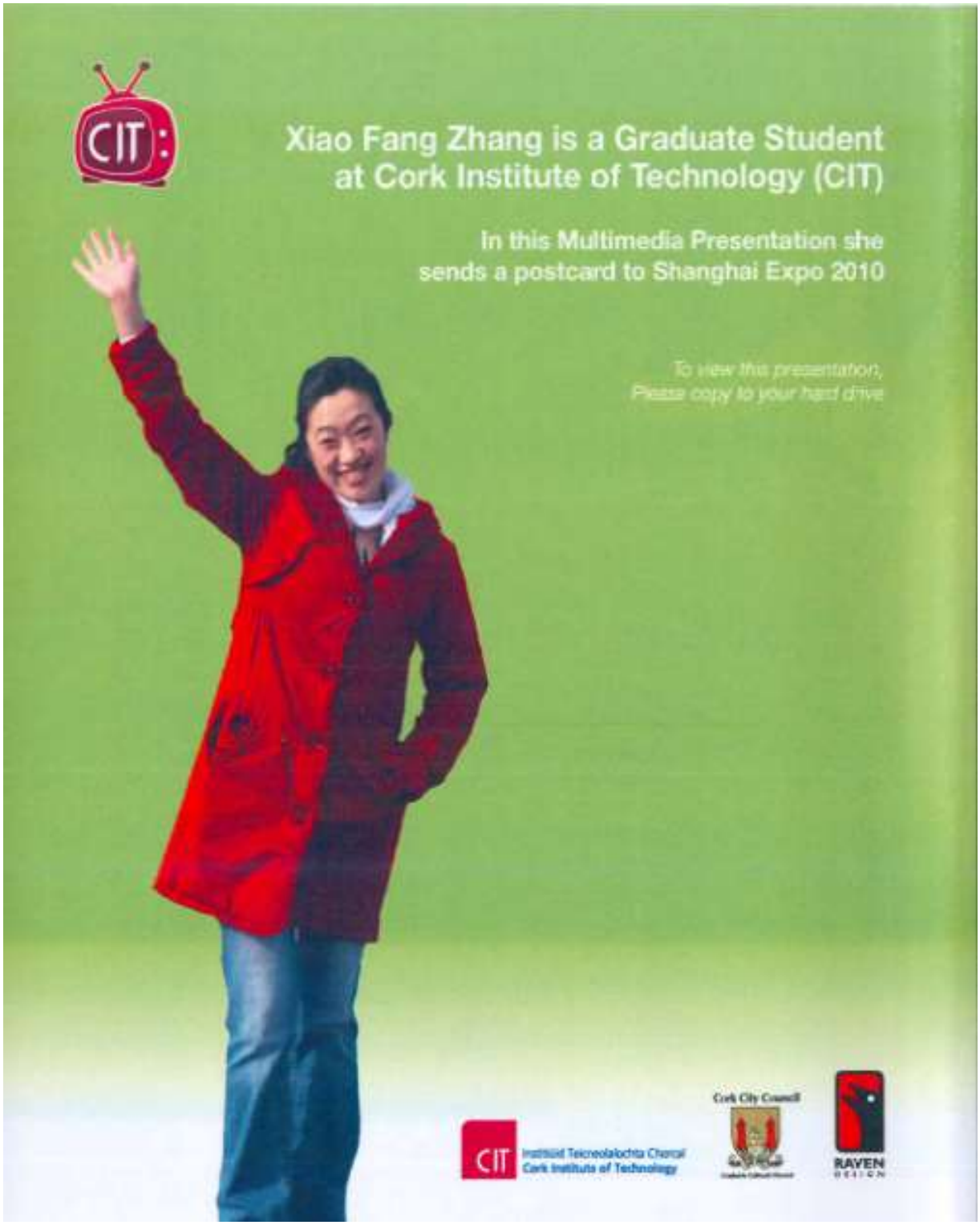
A delighted Ms. Xiao Fang Zhang of Med-Ware™ of Cork Institute of Technology has been interviewed by French Television.

The Med-Ware™ team comprises: Ms. Xiao Fang Zhang, Bachelor of Engineering in Mechanical Engineering and Mr. Peter Sullivan, Ms. Michelle Bonne, Ms. Carmel Linehan, Bachelor of Business Studies in Information Systems.

Inventor and Designer, Ms. Xiao Fang Zhang drew her project inspiration from both Chinese and Irish sources, quoting dual inspiration from Mr. Ger Flynn, Chief Biomedical Engineer, Health Service Executive Southern Region, Cork University Hospital, her Lecturer, and Mr. Gou Yu Zhang, Veterinary Surgeon, Liao Ning Province, China, her Dad.

DEVELOPMENT OF MANDARIN BASED
MULTIMEDIA PRESENTATION PROMOTIONAL DVD
" POSTCARD FROM THE EDGE OF EUROPE "
BY MS. XIAO FANG ZHANG
EUROPEAN LAUREATE OF INNOVATION
PROMINENTLY FEATURED AT THE
SHANGHAI EXPOSITION
SEE
HTTP://WWW.YOUTUBE.COM/WATCH?V=KBMLYERVIP8





European Laureate of Innovation
Ms. Xiao Fang Zhang

Medical Infusion System Air Bubble Extractor Design and Development by Ms. Xiao Fang Zhang, Final Year Mechanical Engineering Degree, Cork Institute of Technology in conjunction with Cork University Hospital

INNOVACT, EUROPEAN INNOVATION FINALS, REIMS FRANCE

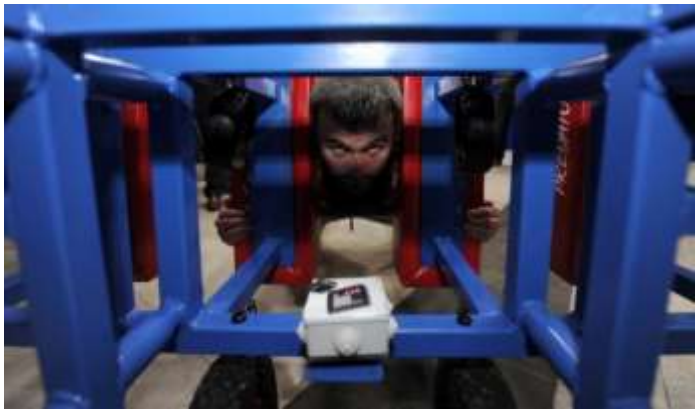
Major Centrepiece Stand CIT Student Projects in conjunction with Munster Rugby including Advanced Scrum Machines, Lineout Training Aid and Gym Motion Tracking System Design/Development

Munster Rugby Team test the CIT Student Developed Advanced Scrum Machine

The CIT Scrumtech Multi-Disciplinary Team Scrum Sled Development Project in conjunction with Munster Rugby

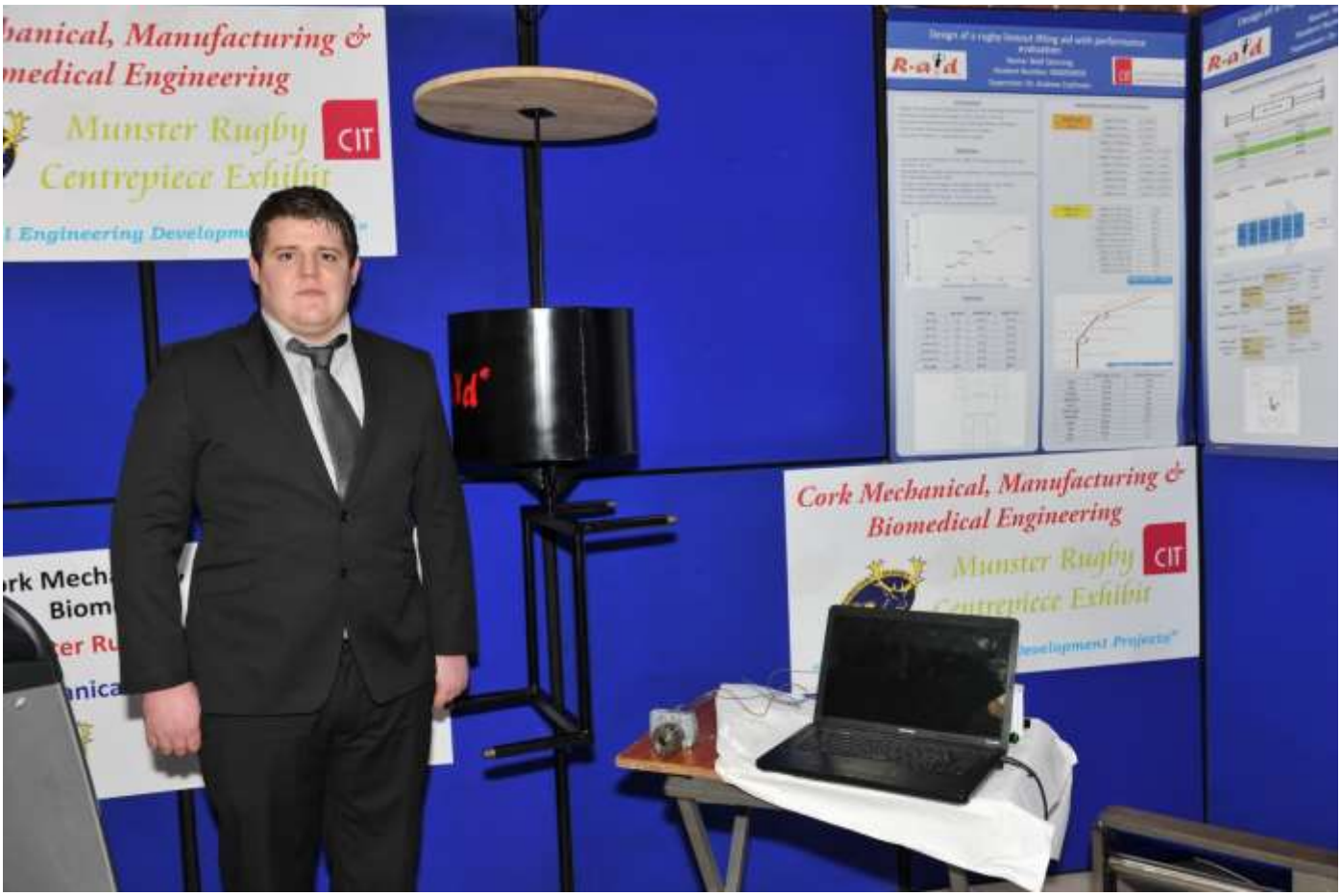
Student Design and Development Projects in conjunction with On- Campus Munster Rugby Elite Training Facility

Student Design and Development Projects in conjunction with On- Campus Munster Rugby Elite Training Facility



Student Design and Development Projects in conjunction with
On- Campus Munster Rugby Elite Training Facility

Student Design and Development Projects in conjunction with
On- Campus Munster Rugby Elite Training Facility

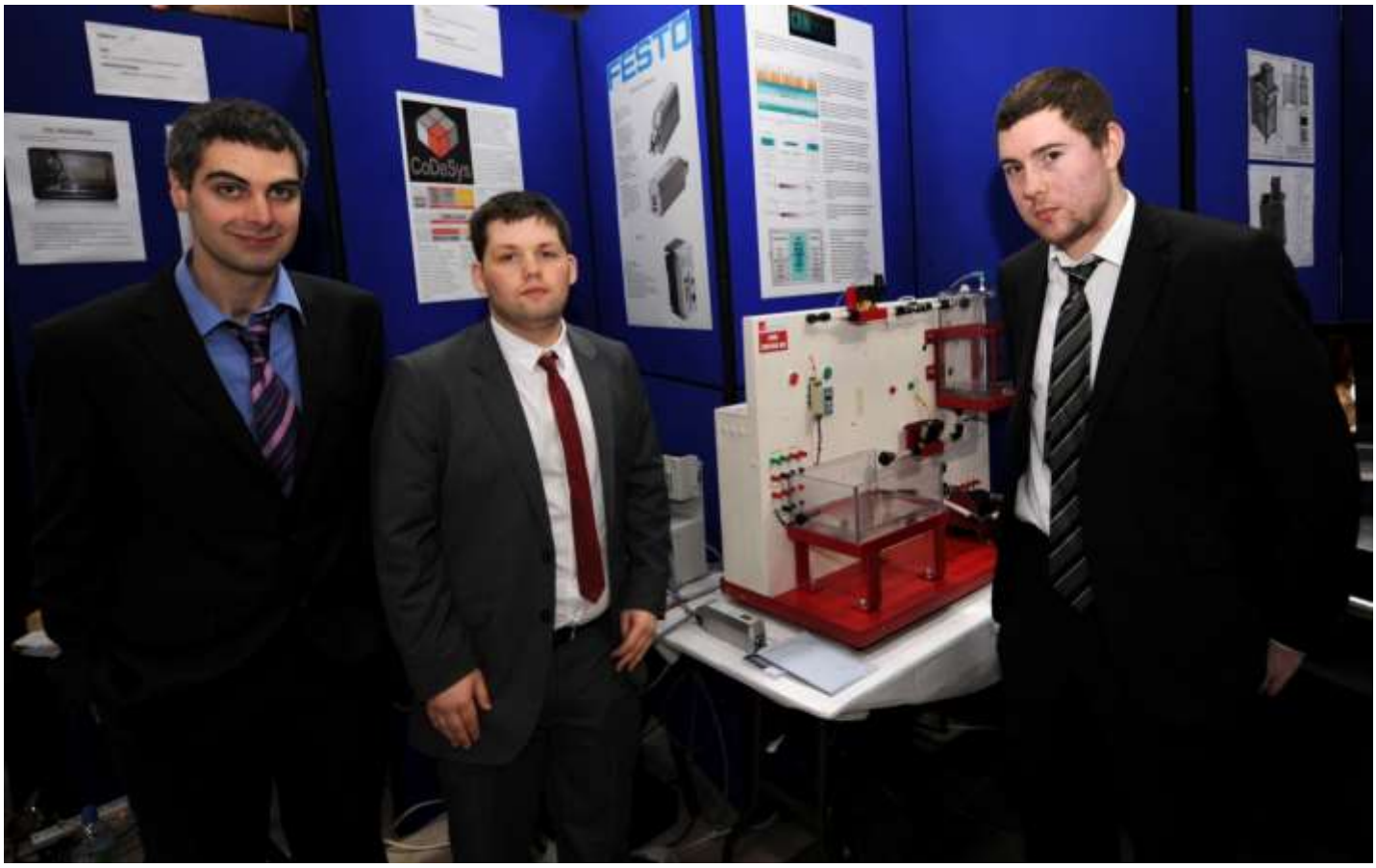


Multi-Discipline Start-Up Innovation Project - RAid™ - Sport Training Device Design

The CIT Staff and Student Mizen to Malin Vintage Car Rally for Suicide Aware supported by MunsterRugby, raised over €17,000

Solar Tracking System Design and Development

PLC Piping Rig Components Design



Multi-Discipline Start-Up Innovation Team - Safety 4B Solutions™ - Automobile Safety Device Design

Patient Transfer System Device Design and Development

Student Start-Up Company - SOSAir™ - Sporting Aid Device Development

Multi-Discipline Start-Up Innovation Team - GripToStick™ - Sporting Aid Device Development

Multi-Discipline Start-Up Innovation Team - MSI™
Muscle Stress Indicator Device Design and Development

Automated Cattle Sorting Unit Design and Development

Solar Tracking Device Design and Development in conjunction with Blackrock Castle

Square Bale Trailer Design and Development

Blood Oxygenation System Design and Development

MEDIC - Medical Engineering Design and Innovation Centre

Multi-Discipline Start-Up Innovation Team - PyraAid™ - Wheelchair Enablement Device Design

Multi-Discipline Start-Up Innovation Team - Cool Counter™ - Drink Cooling Device Design and Development

Nimbus Research Centre

Femoral Implant Process Automation in conjunction with Zimmer Orthopaedics

Engine Parts Repairs Services

Wind Turbine Modeling Mechanical Engineering Group Project

Multi-Discipline Start-Up Innovation Team - Road Network Solutions™ - Safety Device Design

Multi-Discipline Start-Up Innovation Team - GripToStick™ - Sporting Aid Device Development

Multi-Discipline Start-Up Innovation Team - Safety 4B Solutions™ - Automobile Safety Device Design

Multi-Discipline Start-Up Innovation Team - FogOff™ - Spectacles Defogging Device Design

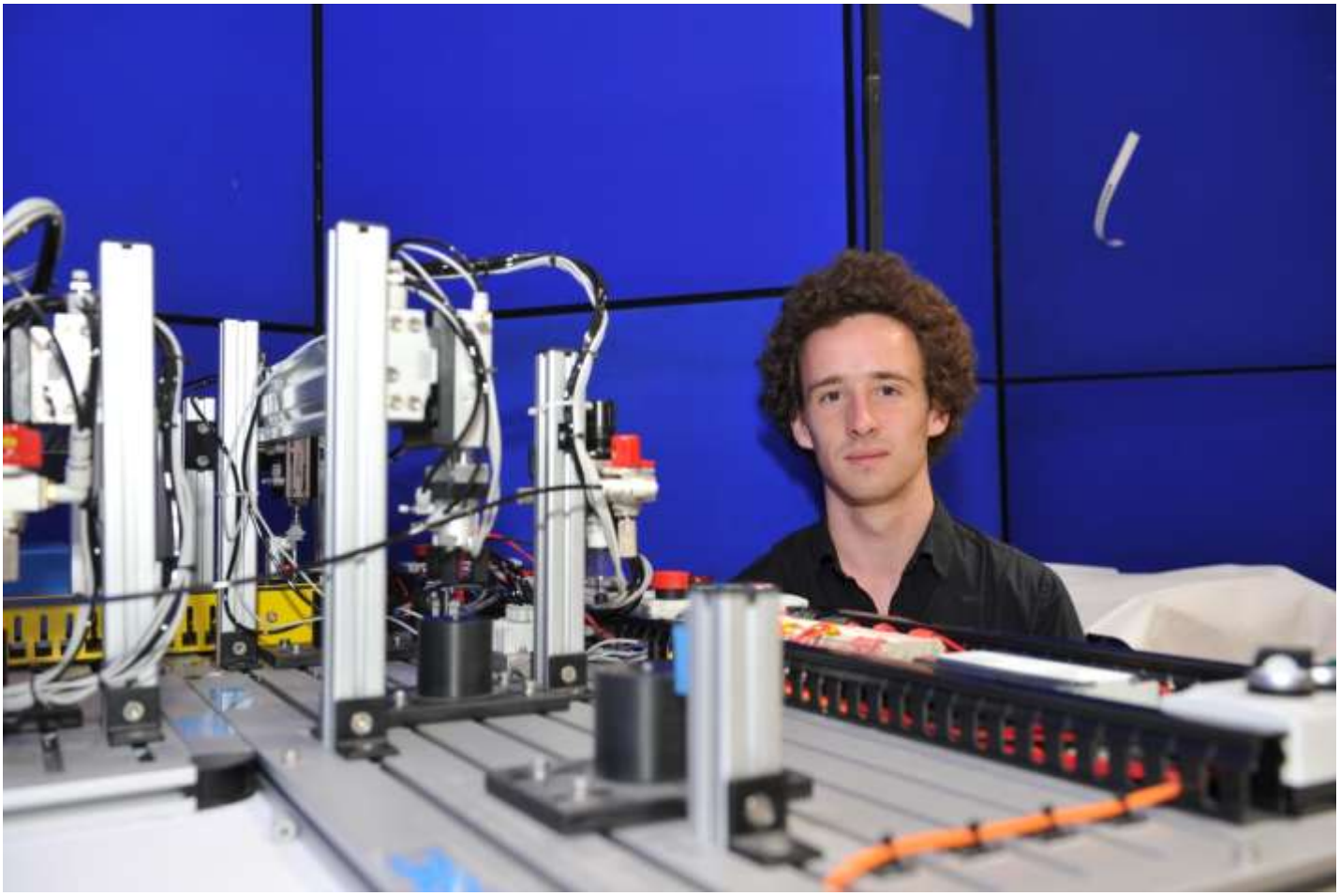
Multi-Discipline Start-Up Innovation Team - Cool Counter™ - DRINK Cooling Device Design and Development

Multi-Discipline Start-Up Innovation Team - PyraAid™ - Wheelchair Enablement Device Design

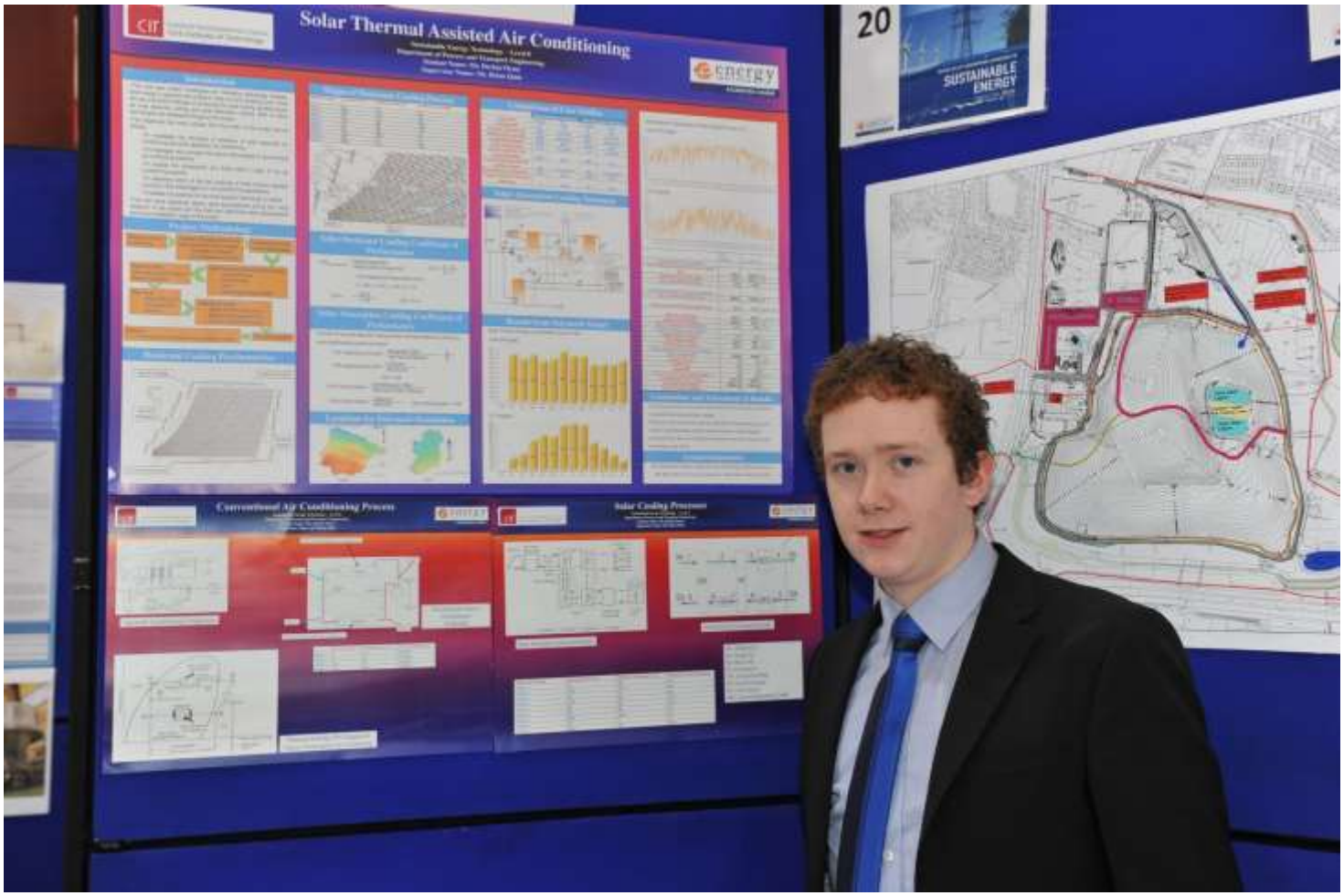
Advancement of the Neonatal Incubator Environment

Automation of Ultrasonic Cleaning and Blast Processes at Zimmer Orthopaedics

Clean Room Modelling Biomedical Engineering Team Project



Optimum Method for ET Balloon Inspection



Solar Thermal Assisted Air Conditioning

Solvent Recovery Assessment for Potential High Volume Commercial Product

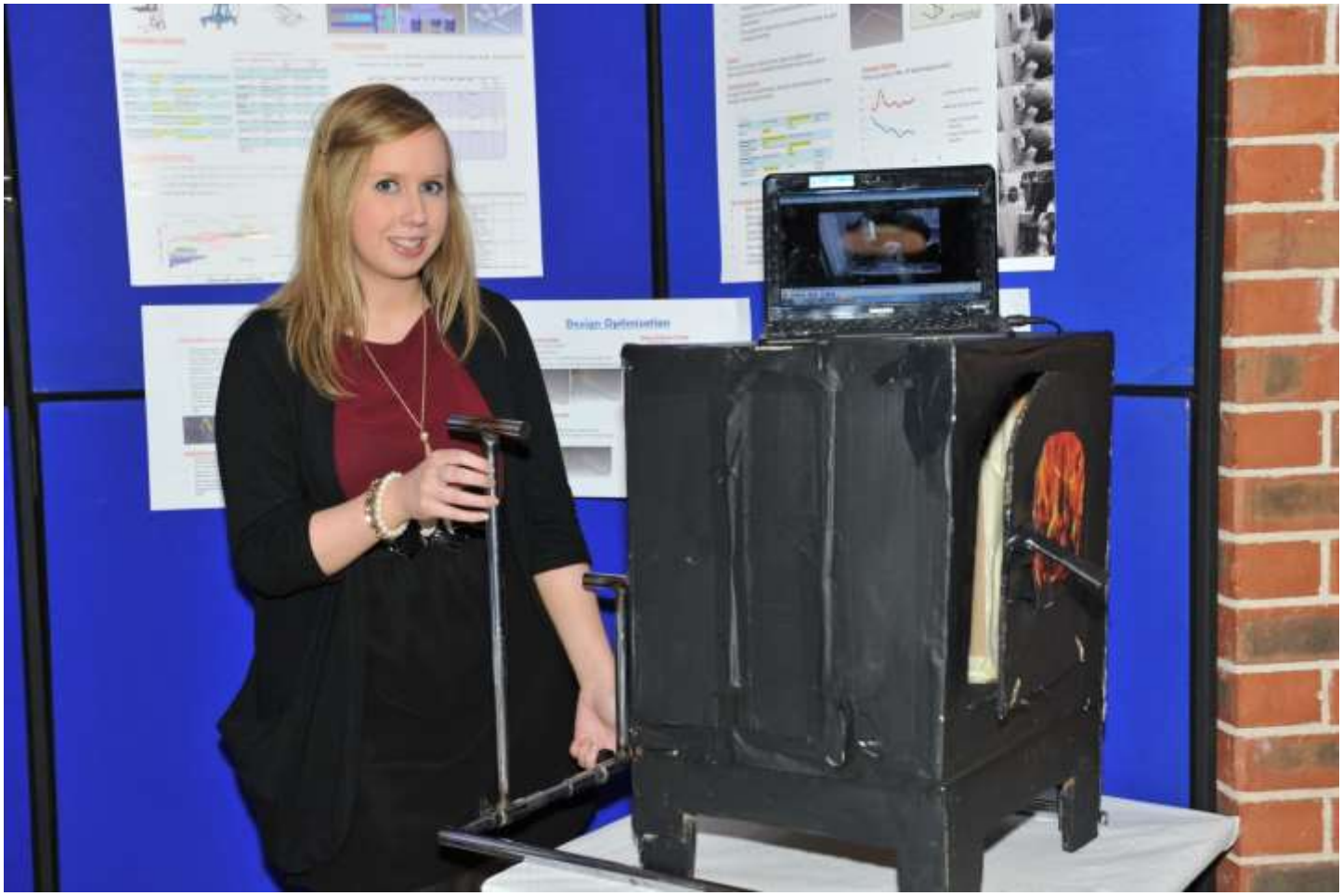
Walking Aid Design and Development

Adaptation of a Cement Mixer for Use as a Soil Grader

Robotic Cell Rig Design and Development

Start-Up Innovation Product Development

Alternative Guitar Design and Manufacture Method

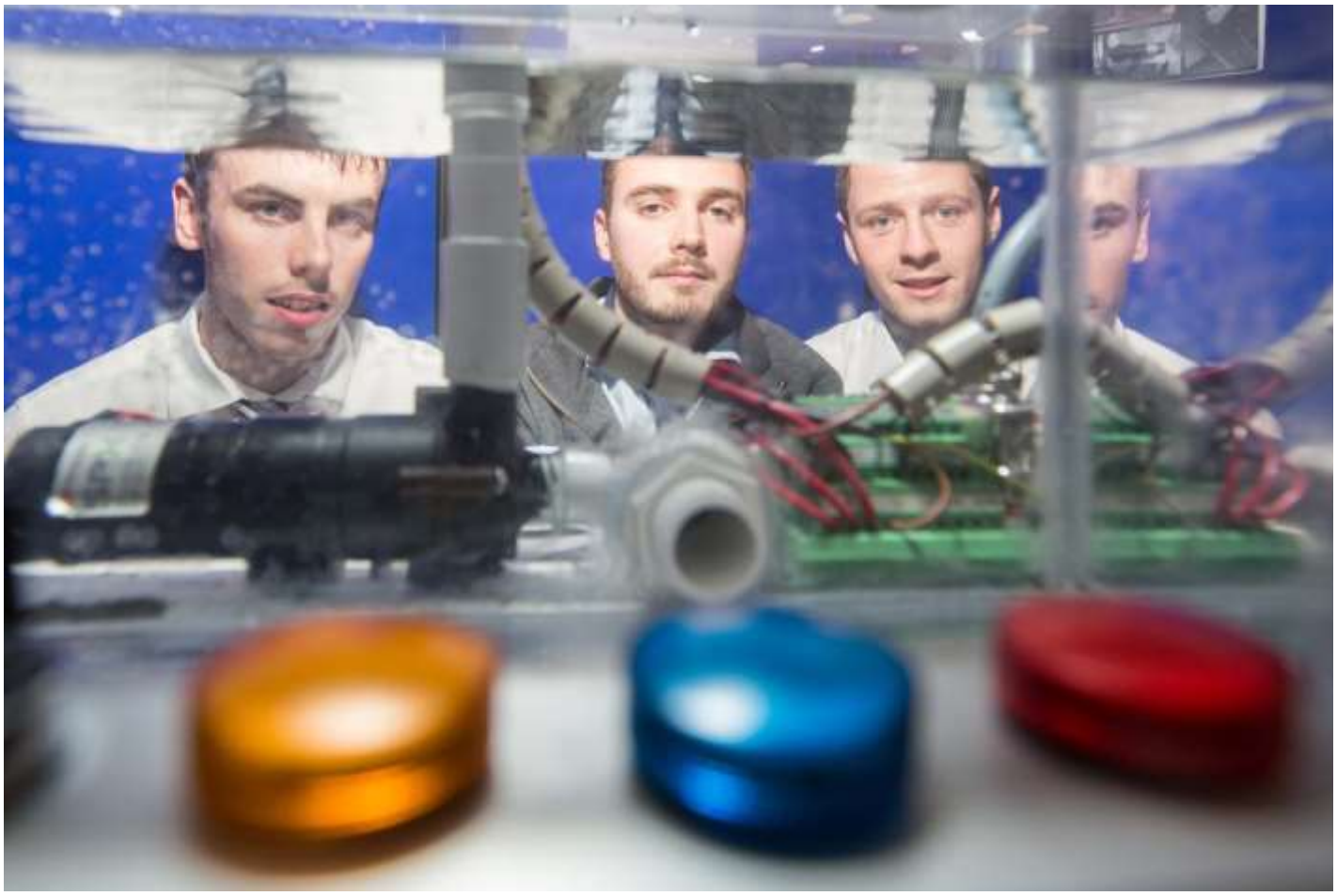


Start-Up Innovation Product Development

Stove Installation Device Design

Presentation of the Year Tim Sexton Memorial Award to
Mr. Andrew Cotter (CIT Bachelor of Engineering in Mechanical Engineering - Honours)
CIT First Class Honour Mechanical Engineering Degree Graduate
Cliona Magner Scholarship Winner
First in Bachelor of Engineering in Mechanical Engineering Class

Presentation of the Year Tim Sexton Memorial Award to Dr. Kieran O'Callaghan B.Eng. PhD
CIT First Class Honours Mechanical Engineering Degree Graduate
European Student Innovation Awards Innovact Reims France
European Student Innovator of the Year - First Place and Outright Winner
NCBI CFIT Technology Showcase - First Place and Grand Prize Wood Quay Dublin

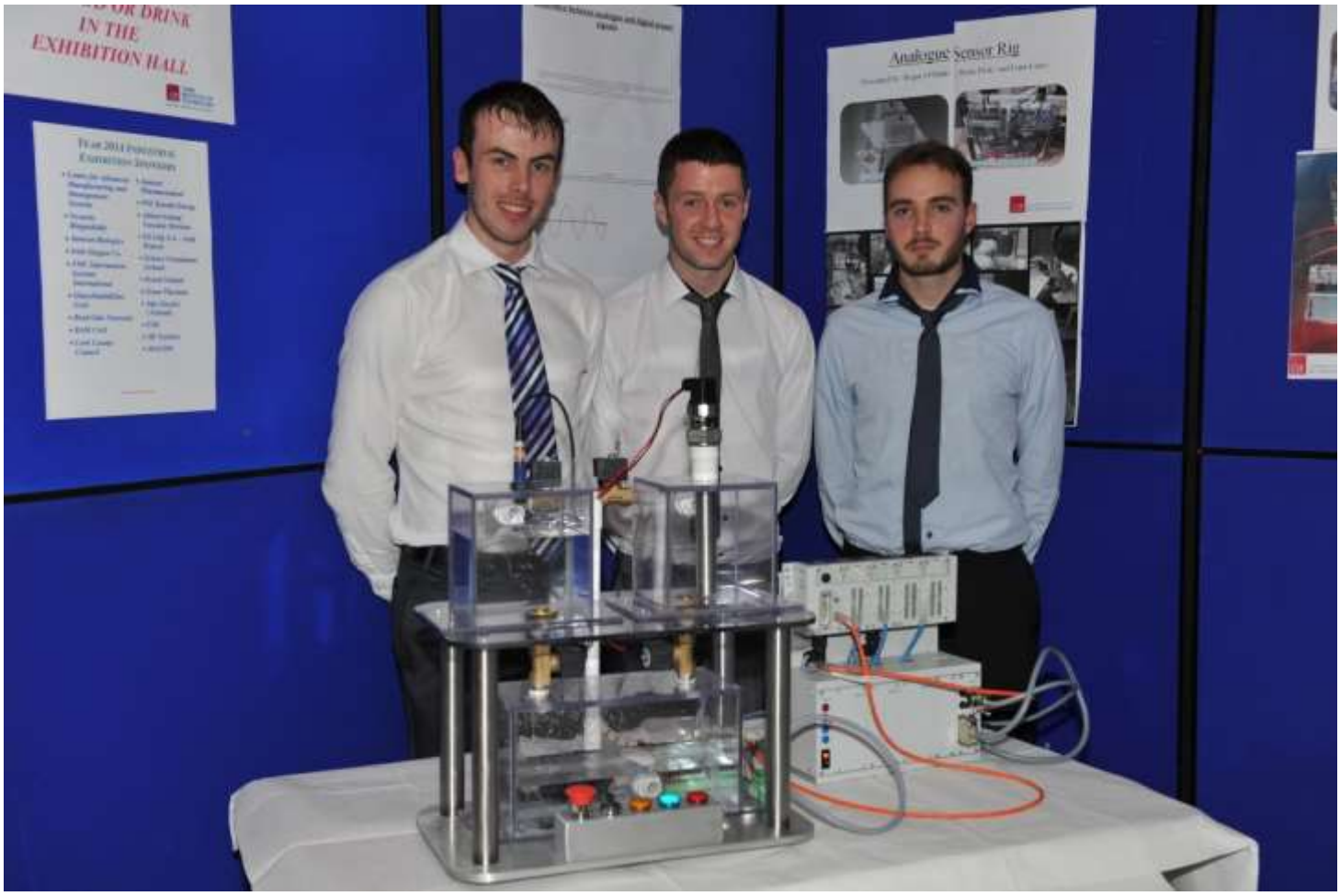


Design and Development of
Assistive Technology Music System for Sufferers of Cerebral Palsy

Design, Development and Testing of Cardiac Output Simulator
in conjunction with Cork University Hospital

Bovine Jaw Breaking Device Development

Optimizing Agricultural Shaft Safety



Analogue Sensor Rig Design, Development and Testing

Motorcycle Transportation Device Design, Development and Testing

Reverse Engineering a Prius Engine Design

Motorsport Rally Car Cylinder Measurement

Cell Automation Redesign

Multi-Discipline Start-Up Innovation Team - ARKNEM-G^{TM} - Child Protection Device

Engineers Ireland Promotion Stand

Multi-Discipline Start-Up Innovation Team - First Stroke Control™ - Motor Engine Device Design

Multi-Discipline Start-Up Innovation Team - Solasol™ - Music Device Design

Multi-Discipline Start-Up Innovation Team - WSA™ - Sport Training Device Design

Multi-Discipline Start-Up Innovation Team - RAid™ - Sport Training Device Design

Multi-Discipline Start-Up Innovation Team - Sweet Sounding Electrics™ - Electronic Design

Multi-Discipline Start-Up Innovation Team - Sweet Sounding Electrics™ - Electronic Design

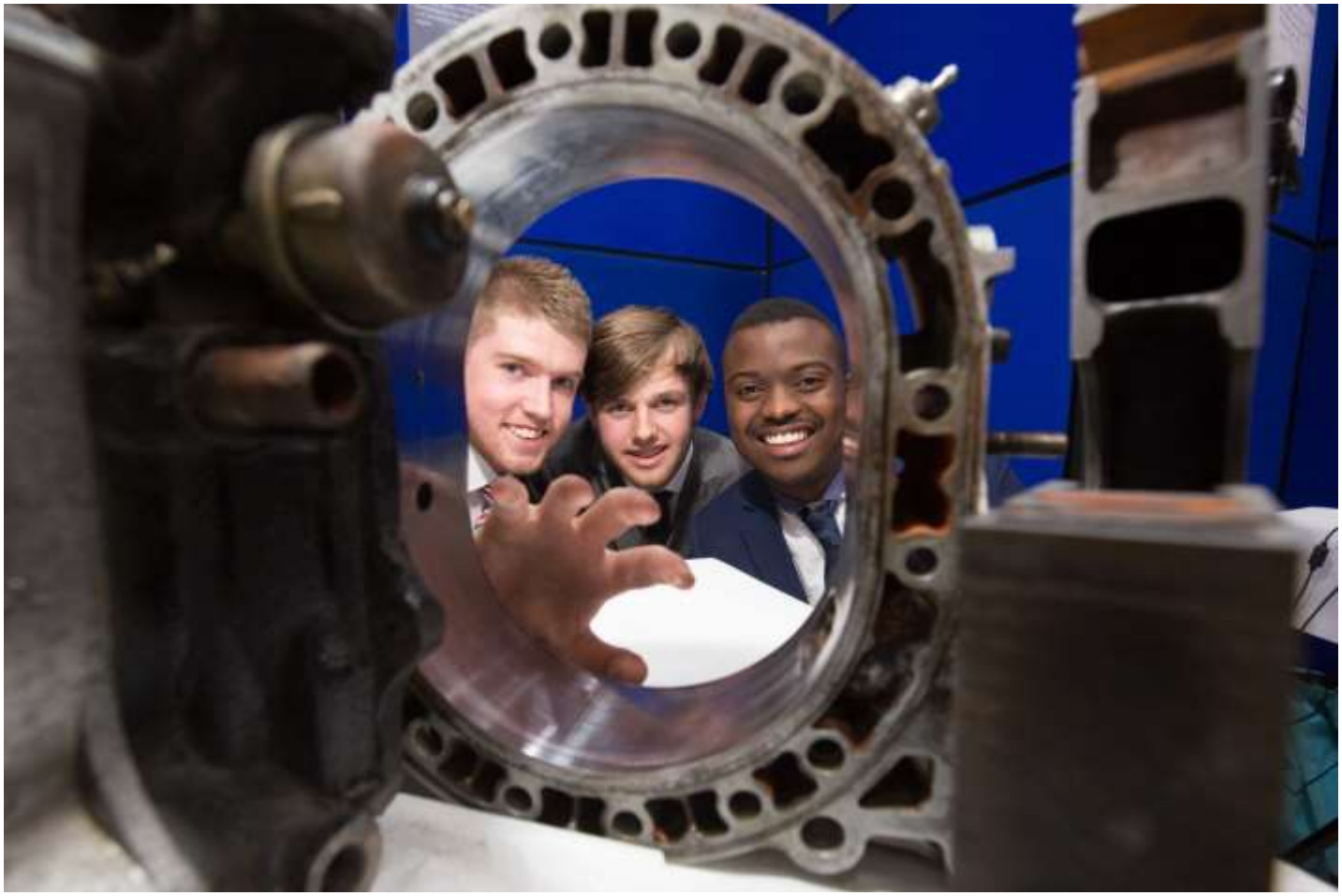
Research, Design and Development of
In-Line De-Gassing Solution for Intravenous Medical Applications

Automatic Flood Defence Barrier Design and Development

Automatic Pig Milking Device Design and Development

Automatic Quick Hitch Hose Attach System for Front loader Applications Design and Development

Observatory Dome Roof Door Automation in conjunction with **Blackrock Castle Observatory**



Nozzle Cleaner Design and Development

Sub Lieutenant Marcus Ryan's project on Research and Development of an Unmanned Search and Rescue Vehicle in conjunction with the Naval Service

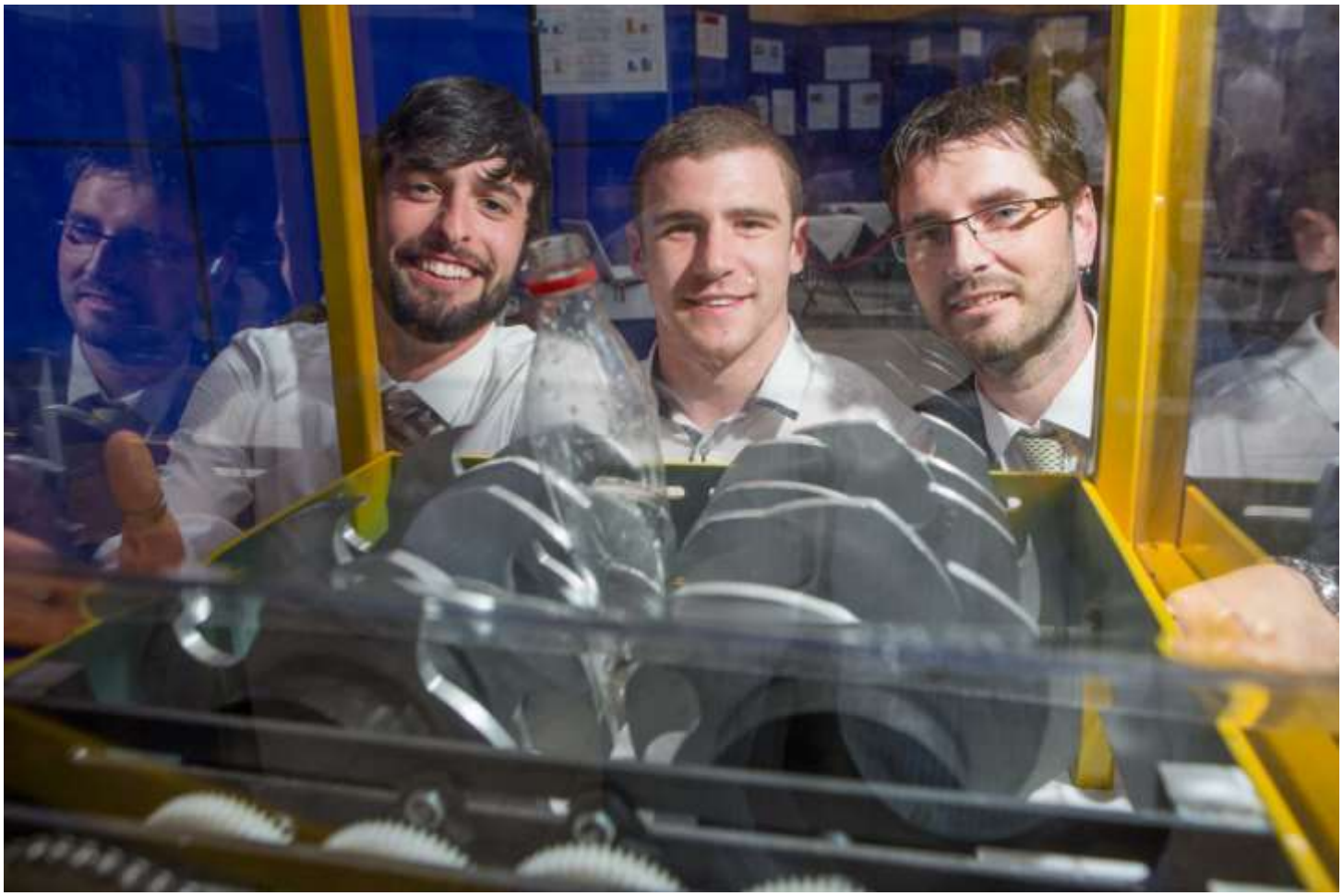
Wheelchair Users Club Throwing Rig Design and Development

New Ball Game - Ball Manufacturing Process Development

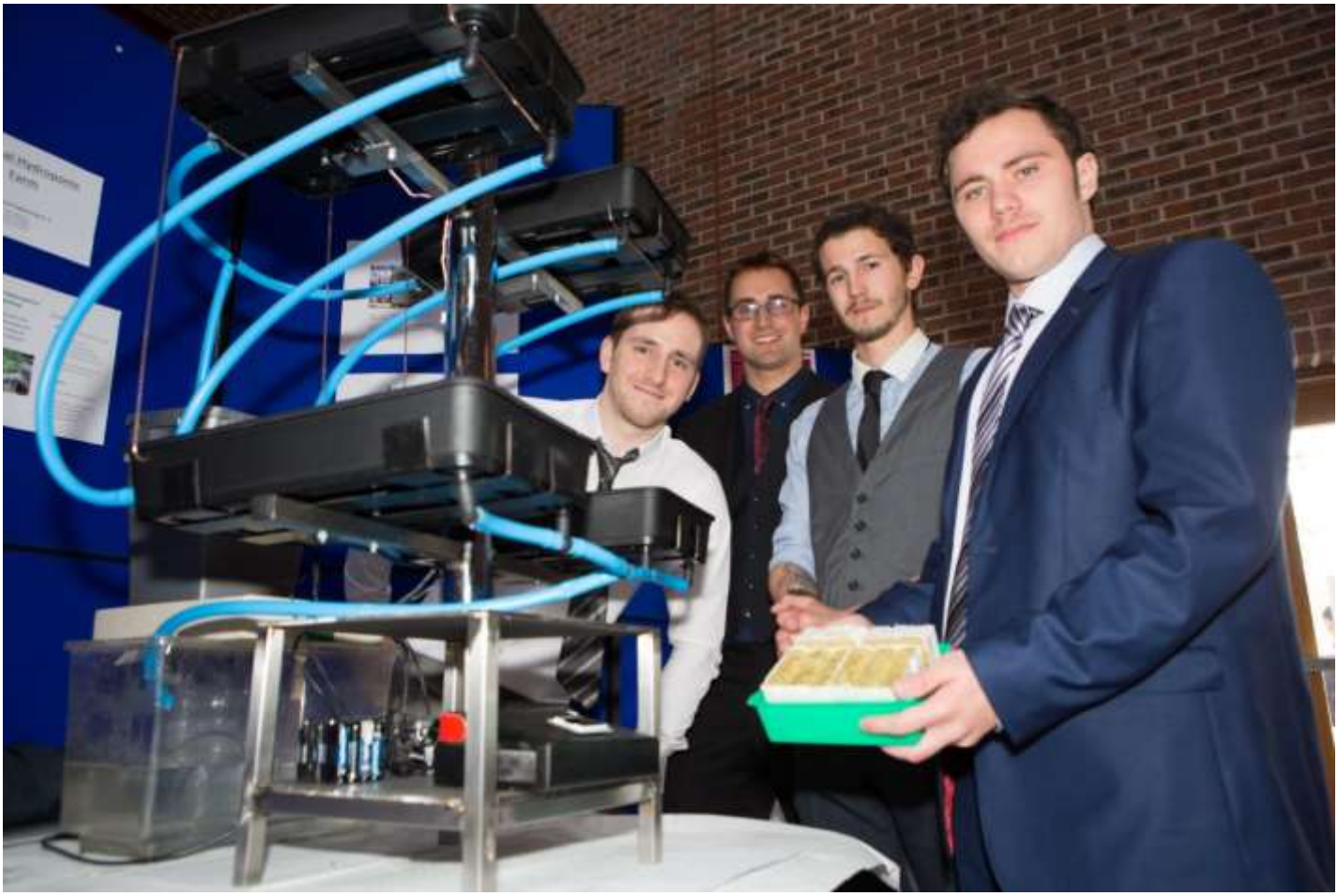
Heated Wristband Design and Development in conjunction with Mycro Sports

Hurling Sliotar Launcher Design and Development

PrintInspector™ Incorporation and Application into a Weber Machine Design, Manufacture and Commissioning



Recycling Reduction Development



Vertical Hydroponic Farm Design and Development

Gravel Grader Design and Development

Group Baler Design and Development

Cattle Tipping Device Design and Development in conjunction with Inspect4

Epilepsy Seizure Warning Device Design and Development

Toe Alignment Device to Improve Backswing Research and Development

Vertical Hydroponics Design and Development

Development of Removable Car Seat for Patients with Disabilities

Multi-Discipline Start-Up Innovation Team - Hush Hush Hair Dryers™

Multi-Discipline Start-Up Innovation Team - B3 Medi-Aids™ - Enablement Device Design

Multi-Discipline Start-Up Innovation Team - Grease Lightning™ - Electronic Applicator Design


Pyroscape
Rehabilitation Assessment Systems
///RAS
REHABILITATION ASSESSMENT SYSTEMS
///RAS
///TESTDRIVE

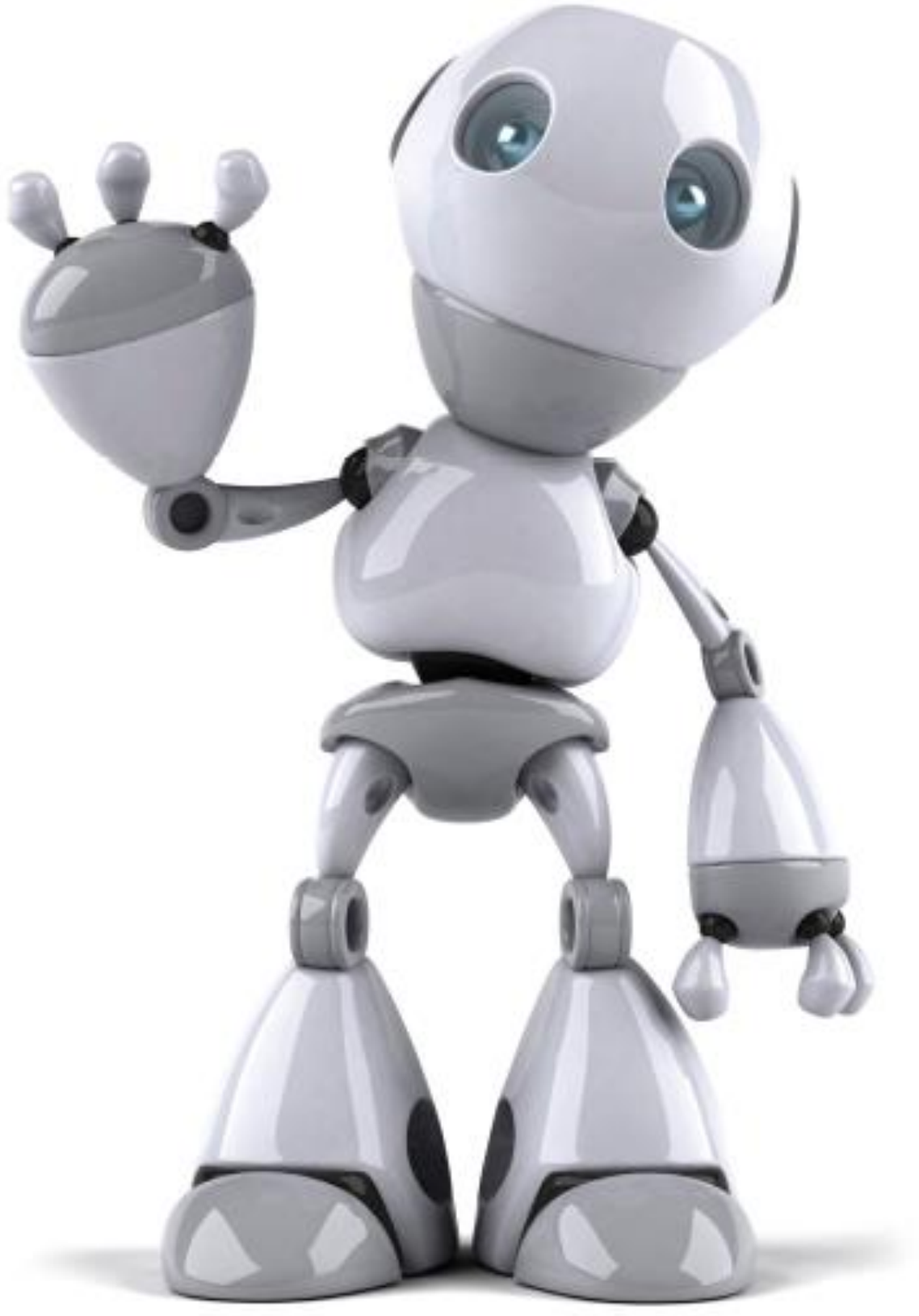
Multi-Discipline Start-Up Innovation Team - Gladium Medical™ - Medical Device Design

Multi-Discipline Start-Up Innovation Team - Stride™ - Medical Recovery Device Design

Multi-Discipline Start-Up Innovation Team - Quick Injection Solutions™ - Medical Device Design

Multi-Discipline Start-Up Innovation Team - Chainsaw Safety Solutions™ - Safety System Design

Multi-Discipline Start-Up Innovation Team - Target Drilling Products™ - Precision Drilling Design



Engineering an Undergraduate Innovation Eco-System