

28th Annual Cork Mechanical, Manufacturing & Biomedical Engineering Exhibition



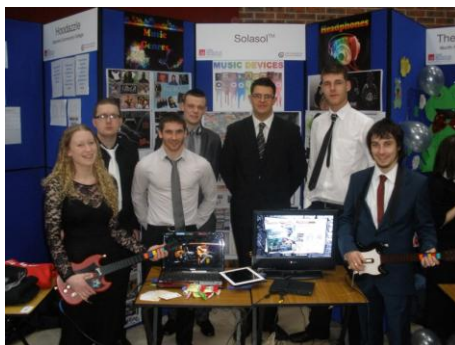
*Ireland's Largest Educational
Engineering and Innovation Event*



200 Stands in Total in 2014 Event

Thursday April 10th 2014

Nexus Courtyard, Student Centre, Cork Institute of Technology



Design, Innovation and Ethical Engineering

2014 Exhibition Theme

Think Outside the Box

CIT Engineering Innovation and Entrepreneurship

Thursday April 10th 2.00 p.m. to 9.00 p.m. Admission Free

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



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



No.	Title of Stand	Industrial Partner
Stand 1	<i>Think Outside the Box</i> <i>CIT Engineering Innovation and Entrepreneurship</i>	Centrepiece Exhibit 1
Stand 2	<i>Student Company AH Technology™</i> <i>Product Mastech™</i> <i>Cork Institute of Technology</i> <i>Animal Healthcare Device Design and Development</i> <i>Nicola O'Mahony, Donal Carey, Kenneth Barry, Damien McAuliffe, Ciaran Malone, Owen Mc Donagh, James Cahill</i> <i>CIT Multi-Discipline Start-Up Innovation Team</i>	<i>Enterprise Ireland / Invest Northern Ireland</i> <i>2013 Think Outside the Box Finals Galway</i> <i>First Place</i> <i>Student Entrepreneur of the Year 2013</i> <i>€10,000</i>
Stand 3	<i>Student Company Sweet Sounding Electrics™</i> <i>Product Hush Hush Hairdryers™</i> <i>Cork Institute of Technology</i> <i>Electronic Device Development</i> <i>John Kelleher, Mariah Reidy, Marco Quatrana, Kieran Minehane, Colm Kearney, Shane O'Driscoll, Niamh Ryan</i> <i>CIT Multi-Discipline Start-Up Innovation Team</i>	<i>Enterprise Ireland / Invest Northern Ireland</i> <i>2013 Think Outside the Box Finals Galway</i> <i>Cruickshank Intellectual Property Attorneys</i> <i>Most Technologically Innovative</i> <i>Product 2013</i> <i>€5,000</i>
Stand 4	<i>Student Company 123 Fitness™</i> <i>Product Robobox™</i> <i>Cork Institute of Technology</i> <i>Sports Training Device Development</i> <i>Donagh Good, Eoghan McEnery, Brian Hand, Aidan O Sullivan, David Linehan, James Fogarty, David Waterman</i> <i>CIT Multi-Discipline Start-Up Innovation Team</i>	<i>Enterprise Ireland / Invest Northern Ireland</i> <i>2013 Think Outside the Box Finals Galway</i> <i>National Award of Merit 2013</i> <i>€1,500</i>
Stand 5	<i>Automation of Ultrasonic Cleaning and</i> <i>Blast Processes at Zimmer Orthopaedics</i> <i>Patrick Byrnes</i> <i>Mechanical Engineering</i> <i>Cork Institute of Technology</i>	<i>Engineers Ireland Innovative Student</i> <i>Engineer of the Year 2013</i> <i>Sponsored by Siemens</i> <i>National Award First Place</i> <i>€1,500</i>
Stand 6	<i>Design and Development of a</i> <i>Wheelchair Enablement Device</i> <i>John Roberts</i> <i>Mechanical Engineering</i> <i>Cork Institute of Technology</i>	<i>Institution of Mechanical Engineers</i> <i>Speak Out for Engineering 2013</i> <i>Engineers Ireland Engineers Week</i> <i>First Place National Award</i>
Stand 7	<i>CIT Innovative Product Development Laboratories</i> <i>Bachelor of Engineering (Honours) in</i> <i>Mechanical / Biomedical Engineering</i> <i>First in Europe</i> <i>First in Ireland</i> <i>First in Innovation</i>	Centrepiece Exhibit 2 <i>(1) European Student Innovator of</i> <i>the Year 2012</i> <i>(2) Enterprise Ireland / Invest</i> <i>Northern Ireland Academic</i> <i>Innovation Award 2012</i> <i>(3) Engineers Ireland Excellence</i> <i>Awards "Best in Class"</i> <i>Inaugural Award 2011</i>
8.	Geared for Life™ Wheelchair Enablement Device	Multi-Discipline Start-Up Innovation Team
9.	Rain Water Works™ Sustainable System Development	Multi-Discipline Start-Up Innovation Team
10.	AgtriStop™ Machinery Protection System	Multi-Discipline Start-Up Innovation Team
11.	First Stroke Control™ Vehicle Engine Damage Avoidance Device	Multi-Discipline Start-Up Innovation Team
12.	Dairy Solve™ Sustainable Product for Developing Countries	Multi-Discipline Start-Up Innovation Team
13.	Quick Connections™ Machinery Safety Product	Multi-Discipline Start-Up Innovation Team
14.	Silent Interactions™ Multifunctional Enablement Device	Multi-Discipline Start-Up Innovation Team
15.	ARKNEM-G™ Child Protection Device	Multi-Discipline Start-Up Innovation Team
16.	Hoof-It™ Sports and Leisure Product	Multi-Discipline Start-Up Innovation Team

Stand 17	<i>Bachelor of Engineering (Honours) in Mechanical Engineering International / National Achievements</i>	Centrepiece Exhibit 3 <i>Think Outside the Box CIT Engineering Innovation and Entrepreneurship</i>
18.	Green Boat Hull Design	Solaris Energy
19.	Fuel Flow Measurement Device Development	Start-Up Innovation Product Development
20.	Laser Welding for Turbine Blades	SR Technics
21.	Inline Automatic Detection System for Somatic Cell Counts (SCC) in Dairy Cows	Start-Up Innovation Product Development
22.	Design Analysis of Liebherr Crane Components	Liebherr
23.	Drone Compatible Medi-bag Design and Development	Start-Up Innovation Product Development
24.	Disk Drive Scrap Process Optimisation	EMC
25.	Rugby Lineout Lifting Aid Development	Start-Up Innovation Product Development
26.	Development of Wheelchair System for Intercity Buses	Bus Eireann
27.	PTO Shaft Safety System Development	Start-Up Innovation Product Development
28.	Scrubber System Analysis and Optimisation	GlaxoSmithKline
29.	Weightlifting Technique Trainer Development	Start-Up Innovation Product Development
30.	Cutter Mechanism for Knee Joint Replacements	Stryker
31.	Buoyancy Control System for Tidal Measurement Device Design and Development	Research and Development
32.	Foaming Discharge Analysis	ESB
33.	Smart Feeding System for Varying Cattle Requirements	Research and Development
34.	Development of Housed Camera Platform for Rainfall Radar	Halpin Centre, NMCI
35.	Design Analysis of Ro Og Push Bike	Research and Development
36.	Conveyor Mould Redesign	Dairygold
37.	Design of Spring-Mass-Damper System for Laboratory Use	Research and Development
38.	Radio Telescope Equatorial Mount and Tracking System Design and Development	Halpin Centre, NMCI
39.	Development of Calibrated Nozzle for Wind Tunnel Application	Research and Development
40.	Functional Hard Gauging for the Inspection of Patella Components Design and Development	Stryker
41.	Lineout Training Device Development	Research and Development
42.	Plant Performance Improvement through Six Sigma	Food Ingredients Manufacturer
43.	Tidal Flow Measurement Instrumentation	Research and Development
44.	Cooler-Box Design and Development	Thermosafe
45.	Building Automation Systems Performance Prediction Mathematical Model Development	Research and Development
46.	Audio Visual Alert System Development	COPE
47.	Smart Building Modelling	Research and Development
48.	Analysis of CIT A Block Building Performance	Research and Development
49.	Bovine Jaw Breaking Device Development	Clonakilty Engineering
50.	VTEC Rocker Analysis, Simulation and Optimisation	CIT Engine Development Centre
51.	Motorsport Application 4 cylinder Engine Optimisation	CIT Engine Development Centre
52.	Prius Engine Design Reverse Engineering	CIT Engine Development Centre
Stand 53	<i>Bachelor of Engineering (Honours) in Biomedical Engineering</i>	Centrepiece Exhibit 4
Stand 54	<i>Medical Engineering Design and Innovation Centre (MEDIC) – Cork Institute of Technology Enterprise Ireland Applied Research Enhancement Centre</i>	Centrepiece Exhibit 5
55.	Patient Response Monitoring Clutch and Brake System	Research and Development
56.	Adaptation of “The Magic Flute” - People with Restricted Movement	SoundOUT
57.	Design and Development of Assistive Technology Music System for Sufferers of Cerebral Palsy	SoundOUT
58.	Analysis of the Hurling Swing	Research and Development
59.	Automation of Vessel using DeltaV	Pfizer Ireland Pharmaceuticals
60.	School Bag Carrying Methods Analysis	Research and Development
61.	Development and Analysis of Laser Cutting Process	Stryker
62.	Instrumented Walking Stick Development	Research and Development
63.	Solar Powered Sterilisation Unit Development	Research and Development

No.	Title of Stand	Industrial Partner
64.	Design and Development of Temperature Monitoring Device for Babies	Cork University Hospital
65.	Design and Development of CCO simulator	Research and Development
66.	Mobile Self-Balancing Support Base for Supporting Users in an Upright Position Design, Development and Feasibility Study	Research and Development
67.	Target Ball Backboard Device Design and Development	Research and Development
68.	Design, Development and Analysis of Suitable Ball for New Assistive Technology Competitive Game	Research and Development
Stand 69	<i>Bachelor of Engineering (Honours) in Chemical and Biopharmaceutical Engineering</i>	Centrepiece Exhibit 6
70.	Feasibility of Catalyst Recovery using Fundabac Filtration System	Novartis
71.	Integration of an Aquaponics System with the Cultivation of Algae for the Production of Biodiesel	Research and Development
72.	Investigation of the Potential Reduction in Mains Water Usage on an Incinerator Quench Tank	GlaxoSmithKline
73.	Production of Bioethanol from Algae	Research and Development
74.	Removal of Free Organics from Wastewater	BASF
75.	Assessment of Potable Water and Wastewater Management in an Irish Region	Research and Development
76.	Investigation of the Use of Raman Spectroscopy as Process Analytical Technology (PAT) in Solid Dosage Manufacturing	Astellas
77.	Automation of Bench Scale Crystallisation	Research and Development
78.	Investigation into Production Process Anomalies	FMC Biopolymer
79.	Rheological Analysis of Xanthan Gum Fermentation Broth	Research and Development
80.	Feasibility Study of the Recovery of Solvent from Waste Streams Arising from the Production of Active Pharmaceutical Ingredient (API) for Re-Use in the Production Process	MSD Ballydine
81.	Critical Evaluation of AspenTech Suite of Software Packages for the Simulation of Batch Processes	Research and Development
82.	Cost Benefit Analysis of Solvent Recovery Activities	Roche
83.	Optimisation of Bioreactor Performance at Bench Scale	Research and Development
84.	Cell Harvesting using Tangential Flow Filtration	Irish National Centre for Membrane Technology
85.	Development of an Undergraduate Practical to Demonstrate Two Phase Flow	Research and Development
86.	Design and Construction of a Plug Flow/CSTR	Research and Development
87.	Benchmarking and Optimisation of Laboratory Cooling Tower	Research and Development
Stand 88.	<i>Centre for Advanced Manufacturing and Management Systems (CAMMS)</i>	Centrepiece Exhibit 7
Stand 89.	<i>Bachelor of Engineering in Mechanical Engineering Level 7</i>	Centrepiece Exhibit 8
90.	Wheelchair Adaptation	COPE
91.	Laser Shaft Alignment Test Rig Design and Development	Research and Development
92.	Injury Responsive Force Reduction Treadmill Harness	Munster Rugby
93.	Dual Purpose Wheelie Bin / Bicycle Transporter Development	Research and Development
94.	Hurling Boss Reinforcement Jig Design and Development	Mycro Sports
95.	Dry Sump CNC Manufacture	CIT Engine Development Centre
96.	Honda Oil Pump Redesign	CIT Engine Development Centre
97.	Prius Engine Analysis	CIT Engine Development Centre
98.	Engine Cylinder Measurement Development	CIT Engine Development Centre
99.	Chemical Dryer Development	Research and Development
100.	Track and Field Steeple-Chase Hurdle Refinement	Research and Development
101.	Automation Cell Redesign	Research and Development
102.	Motorcycle Transportation Rig Design and Development	Research and Development
103.	Gas Laws Laboratory Rig Design and Development	Research and Development
104.	Analogue Sensor Rig Design and Development	Research and Development
105.	Analogue Pressure Rig Design and Development	Research and Development

Stand 106.	<i>Bachelor of Engineering in Biomedical Engineering Level 7</i>	Centrepiece Exhibit 9
107.	Nebuliser Control Design and Development	Cork University Hospital
108.	Pain Management Device Design and Development	Research and Development
109.	Youth Safety Head Gear for Contact Sports Design and Development	Research and Development
110.	Airplane Patient Hoist Design and Development	Research and Development
111.	Hydrotherapy for Animals	Research and Development
Stand 112	<i>Bachelor of Science in Advanced Manufacturing Technology Honours Level 8</i>	Centrepiece Exhibit 10
113.	Implementation of JIT systems	Ceramicx
114.	Ergonomic analysis of Lawn Mowers	Research and Development
115.	Lean implementation of Engineering	Ceramicx
116.	Air Handling Unit Performance Analysis	Research and Development
117.	Analysis of Project Management Systems	Research and Development
118.	Water Pressure / Flow Loss Analysis	Research and Development
119.	Design of a Bicycle Setup Rig	Research and Development
120.	MRP Database Development	Research and Development
121.	Hub Design Analysis Optimised for Drifting	Research and Development
122.	Design of Spring Back Test Rig	Research and Development
123.	Modelling and Optimisation of Stock Movement	Research and Development
124.	Investigation of System Requirements for 3D Printing of Disability Aids	Research and Development
125.	FMS Cell Upgrade	Research and Development
Stand 126	<i>Bachelor of Science in Process Plant Technology Honours Level 8</i>	Centrepiece Exhibit 11
127.	Motorised Golf Trolley Re-Design	Research and Development
128.	Automated Cake Plastic Dispenser Design and Development	Research and Development
129.	ABB Robot Cell Station Commissioning	Research and Development
130.	Waste Tyre Disassembly Processes Design	Research and Development
131.	Heat Treatment Rig Design and Development	Research and Development
Stand 132	<i>Bachelor of Engineering in Building Services Engineering Honours Level 8</i>	Centrepiece Exhibit 12
133.	Quantification of Climate Cooling Potential for Cork Area using TRY and DSY Weather Data	Research and Development
134.	Analysis of Heating Coil Performance and Valve Authority under different Hydronic Control Configurations	Research and Development
135.	Evaluation of Primary Energy and CO ₂ Reductions in CIT's ZERO2020 building	Research and Development
136.	Indoor Air Quality and Thermal Comfort Evaluation in CIT Lecture Rooms	Research and Development
Stand 137	<i>Bachelor of Engineering Sustainable Energy Honours Level 8</i>	Centrepiece Exhibit 13
138.	Critical Analysis of Cooling Retrofit Options for Data Centre	EMC ²
139.	Analysing the Factors associated with Implementation of the European water Stewardship Standard within the Pharmaceutical Industry	Research and Development
140.	Feasibility Study for Biogas Conversion to Bio-methane	Carbery
141.	Utilisation and Optimisation of Electrical Energy in Farming Systems	Research and Development
142.	Evaluation of an Air-source Heat Pump for Domestic Use	Mark Climate Technology
143.	Wind Farm Optimal Design and the Future of Wind Energy in Ireland	Research and Development
144.	Energy Analysis of a Biopharmaceutical Process Plant	Janssen Pharmaceutical
145.	The Installation of a Micro Hydro Generator in a Rural Area	Research and Development

No.	Title of Stand	Industrial Partner
146.	The Feasibility of Solar Photovoltaics in Rural Africa	Solaris
147.	Growing Plants using Under-Soil Heating and Heat Pumps	Research and Development
148.	Evaluation of Potential Energy Optimisation Option for Tyndall Data Centre	Tyndall
149.	Feasibility Study on the Anaerobic Digestion of Waste from Pig Farm	Research and Development
150.	Utilising Biogas Produced as a By-Product of Decomposing Waste to Power a Tri-generation CHP Station	EPA
151.	Use of Anaerobic Digestion for Waste Management/Treatment in Urban Areas	Research and Development
152.	Energy and Fuel Efficiency at a Bord Gais Networks AGI	Bord Gais Networks
153.	Energy Analysis of HVAC Energy Consumption in Cleanroom Environments	Research and Development
154.	To Identify Steam Energy Savings through the use of Improved Steam Distribution Accountability	GlaxoSmithKline
155.	AHU Mixing Box Optimisation and Control	Research and Development
156.	Analysing the Feasibility of Recycling in a Biological Waste Water Treatment Plant	Merck Millipore
157.	Heating Degree Day Map of Ireland	Research and Development
158.	Wood Chip Kiln Potential Use in Kenya	O'Brien & Gere
159.	Sustainable Energy Technologies at CIT	Research and Development
160.	Feasibility Study of Retrofit	Crawford College of Art and Design
161.	Vehicle to Grid Analysis	Research and Development
162.	Waste Heat Recovery from HVAC Systems in Commercial Kitchens	Clean Technology Centre
163.	The Feasability of Solar Photovoltaics in Ireland's Commercial Sector	Research and Development
164.	CNG Buses and the Design of CNG Maintenance Building	Bus Éireann
165.	Is Community CHP a Viable Method of Meeting Power Demand	Research and Development
166.	Feasibility for Biomass CHP Energy Production	Grainger Sawmills
167.	An Investigation into the Potential of Kite Energy Production	Research and Development
168.	Feasibility Study of Heat Pumps in Meat Processing Plant	Research and Development
169.	Methane Production in Microbial Electrolysis Cells	Research and Development
170.	The Feasibility of Commercial Rainwater Harvesting in Ireland	Research and Development
171.	Nitrogen Dashboard	Research and Development
172.	An Investigation into the Viability of CNG as an Alternative Fuel for Ireland	Research and Development
173.	Energy Analysis in CIT	Research and Development
174.	Microbial Fuel Cell	Research and Development
175.	Design, Build and Test a 250W Wind Turbine	Research and Development
176.	The Design and Development of a Portable Hybrid Renewable Energy System	Research and Development
Stand 177	<i>Engineers Ireland</i>	Centrepiece Exhibit 14
178.	Abbott Vascular Ireland	Research and Development
Stand 179	<i>Vintage and Classic Vehicles of Yesteryear Display CIT Mizen to Malin Fund Raiser Drive for Suicide Aware</i>	Centrepiece Exhibit 15 <i>The CIT Staff and Student Mizen to Malin Vintage Car Rally for Suicide Aware supported by Munster Rugby, raised over €17,000.</i>
Stand 180-200	<i>International / National Awards in Engineering Innovation, Design & Entrepreneurship</i>	Centrepiece Exhibit 16

International / National Awards in Engineering Innovation, Design & Entrepreneurship

National Prize-Winners in

Engineering Innovation, Design & Entrepreneurship Innovative Product Development Laboratories include:

Ten Engineers Ireland Innovative Student Engineer of the Year Awards sponsored by Siemens (2013 L8, 2012 L8, 2011 L7, 2009 L7, 2008 L8, 2007 L7, 2006 L8, 2005 L8, 2004 L8, 2003 L8)
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)
Four MEETA Asset Management and Maintenance National Awards (2013, 2011, 2006)
Four Enterprise Ireland I.Mech.E Speak Out for Engineering Awards (2013, 2007, 2006, 2004)
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:

One European Laureate of Innovation First Place Award – European Student Innovator of the Year 2012 - European Student Innovation Finals - Innovact Reims France (2012)
One European Science Engineering and Technology Best European Mechanical Engineering Student First Place Babcock Award - SET Finals London UK (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





**CORK
INSTITUTE OF
TECHNOLOGY**

INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

28th Cork Mechanical, Manufacturing & Biomedical Engineering Exhibition

Thursday 10th April 2014 2.00pm – 9.00pm
200 Stands

Ireland's Largest Educational Engineering Event

Exhibition Theme 2014:

Think Outside the Box

CIT Engineering Innovation and Entrepreneurship

**Engineers
on the move**

Opening Time:
Thursday 10th April
2.00pm to 9.00pm
Nexus Courtyard - CIT

Admission Free

For further information and group bookings, contact:

Sean F. O'Leary, Senior Lecturer, CIT.

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*Design, Innovation &
Ethical Engineering*

28th Cork Mechanical, Manufacturing and Biomedical Engineering Exhibition

Exhibition Theme 2014:

Think Outside the Box

CIT Engineering Innovation and Entrepreneurship

Thursday 10th April 2014 - 200 Stands - Ireland's Largest Educational Engineering Event



2013 Think Outside the Box Finals Galway
Three Major Awards Winners for
Cork Institute of Technology



From over 400 Entries and following three grueling days of Finals in Galway,
Three Major Awards Winners were announced for Cork Institute of Technology by Minister John Perry:

First Place and Student Entrepreneur of the Year 2013 - €10,000
Most Technologically Innovative Product 2013 - €5,000
Think Outside the Box Award of Merit 2013 - €1,500



2014 Think Outside the Box Finals
to come to CIT



2013 Think Outside the Box Finals Galway
First Place and
Student Entrepreneur of the Year 2013 - €10,000



Company: AH Technology Product: Mastech
Cork Institute of Technology
Animal Healthcare Device Design and Development

CIT Multi-Discipline Start-Up Innovation Team
Nicola O'Mahony, Donal Carey, Kenneth Barry, Damien McNeill, Ciaran Malone,
Owen Mc Donagh, James Cahill



2013 Think Outside the Box Finals Galway
Cruckshank Intellectual Property Attorneys
Most Technologically Innovative Product 2013 - €5,000



Company: Sweet Sounding Electrics Product: Hush Hush Hairdryers
Cork Institute of Technology
Electronic Device Development

CIT Multi-Discipline Start-Up Innovation Team
John Kelleher, Mariah Reidy, Marco Quatrana, Kieran Minehane,
Colm Kearney, Shane O'Driscoll, Niamh Ryan



Speak Out for Engineering 2013

First Place National Award



Developed Pyra-Aid™ Wheelchair Enablement Device by J. Roberts



Winner: John Roberts Mechanical Engineering Cork Institute of Technology
"Design and Development of a Wheelchair Enablement Device"

With 3 million users in the US and 5 million users in Europe, a staggering 1% of the total population of the Western World are estimated to gain mobility and freedom through the daily use of wheelchairs. Unfortunately, this mobility can be severely restricted by every day barriers such as mounting single steps or kerbs.

The design, development and testing of Pyra-Aid™, a retro fitted, user friendly, momentum powered mechanical device in aid of mounting of single steps or kerbs, is undertaken by the author. A systematic design approach, informed by wheelchair user and support group liaison, is adopted in the iterative development of the enablement device. Critical design criteria of the innovative 3 wheeled pyramid configuration include operation, efficiency, stability, safety, ease of attachment/detachment, versatility, wheelchair brand universality, manufacturability, aesthetics and cost.

A Mark 1 Pyra-Aid™ device has been manufactured and tested both in field and laboratory. Initial step / kerb mount tests have proven to be very promising. Design optimisation of the developing device, utilising state of the art manufacturing and material selection methodologies, is undertaken. Advanced analytical, computer aided design and experimental techniques, including finite element analysis and photo-elastic testing, are employed in the development of a Mark 2 prototype.

Pyra-Aid™ - a safe, easy to use, low cost aid promoting user comfort, mobility and independence through daily life for wheelchair users.



2013 Think Outside the Box Finals Galway
National Award of Merit 2013 - €1,500



Company: 123 Fitness Product: Robobox
Cork Institute of Technology
Sports Training Device Development

CIT Multi-Discipline Start-Up Innovation Team
Donagh Good, Eoghan McEnery, Brian Hand, Aidan O Sullivan,
David Linehan, James Fogarty, David Waterman



Engineers Ireland Innovative Student
Engineer of the Year 2013

SIEMENS sponsored by Siemens

First Place €1,500 National Award



Winner: Patrick Byrnes
Mechanical Engineering Cork Institute of Technology

"Automation of Ultrasonic Cleaning and
Blast Processes at Zimmer Orthopaedics"



Design, Innovation and Ethical Engineering

For further information and group bookings, contact:

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