



# **Faculty of Engineering and Computing Final Year Projects Expo 2015**

**SCHOOLS OF COMPUTING, ELECTRONIC ENGINEERING AND  
MECHANICAL AND MANUFACTURING ENGINEERING**

## **Final Year Projects Class of 2015**



## Contents

Welcome	Page 2
Message from the Dean	Page 3
INTRA – The DCU-Industry Work Placement Programme	Page 4
Employing Graduates from the Faculty of Engineering and Computing	Page 5
The School of Computing	Page 7
The School of Electronic Engineering	Page 8
The School of Mechanical and Manufacturing Engineering	Page 10
Message from Our Sponsor SAP	Page 13
School of Computing: Programmes/Project Areas/Technologies	Page 15
School of Electronic Engineering: Programmes/Project Areas/Technologies	Page 16
School of Mechanical and Manufacturing Engineering: Programmes/Project Areas/Technologies	Page 17
Student Project Listing	Page 19
Individual Projects: No. 1-167	Page 24
Special Project CPSSD	Page 78
Sponsors of Prizes	Page 80

## Welcome

Welcome to the Final Year Projects exhibition by the graduating BSc and BEng classes of 2015 from the DCU Faculty of Engineering and Computing. Our details and respective projects can be found within this booklet.

The projects demonstrate how we put into practice the knowledge gained during our time here in DCU. They cover many areas within computing, electronic engineering and mechanical and manufacturing engineering and are inspired by time spent on INTRA (work placement), staff research interests, collaboration with companies and original concepts. The projects clearly demonstrate our hard work and innovation.

We would like to extend our thanks to lecturers, supervisors and the support staff for all their help and assistance throughout our time here. Without their support we would not be here today.

We would also like to thank the main sponsor of this event, SAP and those companies sponsoring prizes. Through their sponsorship they are showing a belief in the ability of Irish graduates and a commitment to the future of Irish industry.

And last, but not least, we thank you, the visitors and the companies you represent, for showing an interest in our work – we hope you enjoy it!

### **Graduating Class 2015**

Faculty of Engineering & Computing



## Message from the Dean

On behalf of the Faculty of Engineering and Computing, I would like to welcome you all to this year's Final Year Projects exhibition by the Class of 2015.

Today, we have the opportunity to recognise and celebrate the work of these students. We all go through many stages in our careers and lives, and today, for these students, marks an important milestone, where they display this major highlight of their academic achievements for their peers, their academic mentors, and for the many guests who join us from industry and the wider DCU community.

We believe that the range of Final Year Projects on display here today reflects the great opportunities for these young graduates to contribute to the advancement of Irish society over coming years. Many of the projects displayed represent products with immediate commercial potential; all demonstrate ingenuity, skill and technical capability of the highest calibre.

To the students, congratulations and well done! Some of you will now go on to careers within the engineering, computing or other sectors of the Irish economy; others will continue your formal education either here in DCU or elsewhere; some may travel across the world; and some may choose develop your careers into new and different directions – management, accounting, consultancy, maybe even politics! But we hope that all of you will look back with fondness at your time here at DCU, and also – and perhaps more importantly – at the friendships you have made here.

We here in the Faculty always enjoy hearing how former students are developing their careers. Do please stay in touch, and come back and visit from time to time – you will always be welcome!

To our guests, thank you for taking the time to join us here today. We hope that you enjoy your visit and are impressed with the depth and breadth of the work that our students are presenting. Impressive though they are, these projects still represent only a small sample of the learning that the students have achieved in the course of their studies at DCU. Do please engage with them directly and explore more fully what the DCU education experience represents.

DCU is well-known for its strong relationship with enterprise, innovation and entrepreneurship. We are confident that the students you meet here today will go on to have a strong impact on the various industries and sectors that you represent.

The staff and students of the Faculty look forward to meeting you and sharing these projects with you, and we hope you all enjoy your visit to the Faculty and DCU.

**Prof. Barry McMullin**

Dean, Faculty of Engineering and Computing

## INTRA – The DCU-Industry Work Placement Programme

Relevant work experience through DCU's INTRA (INtegrated TRAIning) programme has been a central feature of education at DCU since the establishment of the university, and is an integral part of all undergraduate degree courses in the Faculty and Engineering and Computing. Under the INTRA programme, undergraduate students complete a six month work placement during their third year of study, running from April to September inclusive. In many cases, students are subsequently recruited to work with their INTRA employers after they have completed their undergraduate studies.

### Why Hire a Student?

Every year, employers in Ireland and overseas hire more than 800 students from DCU for an INTRA placement. Ranging in size from the largest multinational, to the sole trader start up, these employers are convinced of the merits of choosing DCU students and come back to INTRA year after year. INTRA provides the following opportunities for an employer:

- ▶ Access to a supply of highly motivated young people who have proven that they can make a real contribution
- ▶ An opportunity to evaluate and train possible future employees
- ▶ Frees existing staff from time-consuming but essential tasks
- ▶ Allows relief or assistance during seasonal peak work loads
- ▶ Permits new projects to be undertaken
- ▶ Develops existing staff by providing mentoring opportunities
- ▶ Raises awareness of your company and products/services on campus
- ▶ Provides an ideal opportunity for employers and academics to establish long-term relationships and the potential for working together on projects
- ▶ Provides an opportunity for involvement in the development of graduates with the required key skills essential to the Irish economy
- ▶ Helps to promote and reinforce a lifelong learning culture within an organisation through the establishment of strong links with a third level institution

## Employing Graduates from the Faculty of Engineering and Computing

DCU's Careers Service offers a comprehensive employment service for companies wishing to recruit graduates from our Engineering and Computing programmes as well as providing a crucial link to students from a range of other disciplines including Business, Humanities, Science and Education.

As an employer, you have the opportunity to reach excellent DCU students and graduates through availing of the following:

- ▶ Advertising vacancies online, which are seen by up to 1,000 students and graduates per week. Check out: **[www.dcu.ie/careers](http://www.dcu.ie/careers)**
- ▶ Participating in an annual Employer Recruitment Fair, which allows companies to meet up to 2,000 talented DCU students and graduates in October every year as well as students from a range of other Irish Universities and Third Level Colleges
- ▶ Visiting Employer Programme: To recruit competent, highly-educated DCU students and graduates from relevant courses, you may wish to make presentations on campus or even conduct interviews here. The Careers Service runs a Visiting Employers Program and provides opportunities for companies to come on campus and advertise their vacancies and meet plenty of enthusiastic DCU students
- ▶ Opportunity to advertise your vacancies to a range of DCU Alumni in conjunction with DCU Careers Service and DCU Alumni
- ▶ Raise your company profile on campus: DCU Careers Service can email company information on vacancies of relevance to DCU students and graduates directly into the mail accounts of the appropriate students

To learn more about how DCU Careers Service can assist you in recruiting high calibre graduates, visit **[www.dcu.ie/careers](http://www.dcu.ie/careers)** or contact Ger Lardner, Careers Advisor, email: **[ger.lardner@dcu.ie](mailto:ger.lardner@dcu.ie)**.

## Collaboration on Undergraduate Projects

An interesting way in which companies can raise their profile among graduating students is by putting forward projects which students can work on as part of their course. Companies are also invited to provide in-house support for projects undertaken by students, or to provide financial support for projects assigned to students. There are several benefits to the company, not least of which is the opportunity to get valuable research undertaken that might not be possible within the company due to company commitments. If you are interested in finding out more about possible collaboration with students in our Schools here are the contact details:

School of Computing  
phone: +353 (01) 700 8980  
email: **[computing.info@dcu.ie](mailto:computing.info@dcu.ie)**

School of Electronic Engineering  
phone: +353 (01) 700 5131  
email: **[ee.info@dcu.ie](mailto:ee.info@dcu.ie)**

School of Mechanical and Manufacturing Engineering  
phone: +353 (01) 700 5104  
email: **[mme.info@dcu.ie](mailto:mme.info@dcu.ie)**

# Software Engineers – jobs at Cellusys<sup>o</sup>

Cellusys is hiring graduate software engineers. What's it like to work here? Ask our engineers...

We'll be putting your brain to use from the word 'go'; and you'll have access to the minds of our other highly talented and experienced software engineers and technical architects – not just those you're working with directly – but easy access to anyone, in our open-plan office.

I came back to Cellusys after doing Intra. I'm glad I did. It's definitely not the same in some other companies. One of my mates has been working on the same thing for three years - he's kind of fed up with it. Here things are constantly evolving - the technology; you're constantly on your toes; we're always working with the best technologies. We'd be working on stuff and you'd google it and there'd be very little on it because it's so new. You won't get bored, that's for sure.

**John O'Hara, Software Engineer, DCU CA 2013, DLX 2012**



**Brendan Cleary, General Manager Asia, DCU CA 2009, DLX 2008**

It's always challenging in here; always evolving. I came back from maternity leave and everything had changed - I had a new programming language to learn; everything. The sense of achievement is immense. Everybody learns a lot - whatever level we're at.

**Muireann O'Sullivan, Senior Software Engineer, UCD BComm 2000**



When I solve a big problem - that feels really good. The greatest thing is our teams. We work very well together; talk through a problem and solve it more easily; our brains are more than a sum of the parts.

**Haiying Luan, Software Engineer, DCU CA 2009**



The pragmatism of this place is the magic. And the way we compose our

teams. Cross-specialised teams are very good. When you segregate teams into the development team, the testing team, the deployment team, you're just putting boundaries up. We're tightly-knit teams; a high level of trust. When you have end-to-end control, you know what the customer needs. It comes through in the product. I've spoken to people using our products and they like the power of it - that's what matters most - the users. Some companies don't get their heads around that so easily.

**Tom Cowling, Software Engineer, MSc Physics University of Manchester 2012**



I've learned a heck of a lot. The training here really is good and the fact we're always using the latest stuff... like in some other companies they're using technology that's five, ten years old. We use the latest and the greatest on every new project. So there's a good variety to what we're doing. You're always learning.

**Brian Fanning, Software Engineer, DCU CA 2014, DLX 2013**

You're in at the deep end, but you'll never be left without the help you need. If you're up for it and you're up to the job, you'll definitely get the opportunity - that's my experience.

**David Flynn, Software Engineer, DCU CA 2012, DLX 2011**



Everyone's key here, because you have so much end-to-end responsibility. It's not like some companies, where they'd hardly notice if you're not there. You get exposed to a lot of different areas - networking, coding, and I guess if you want to branch into other areas, like the business side. And if you want to travel you can definitely travel. We're quite harsh on ourselves in terms of standards. It's really worth it though, when you hear the feedback from clients.

**Paul Whelan, Senior Technical Architect, DCU CA 2002**



Customers really tend to like us because we're willing to engage. I think it's a culture thing - we love it here so we take real pride in the job. Like when something needs doing there's not this long drawn out process - we just get on it and get it done. Clients like the flexibility. No red tape I guess.

**Daniel McTague, Technical Architect, DCU CA 2009, DLX 2008**

Cellusys is definitely a lot more technical - that's one thing that attracted me to Cellusys - very engineering focused. Like in a lot of companies, if you identify something that needs changing, there's a lot to process - it'll go through 10 managers, and if you're looking to make a change for the long-term good - not a short term fix - it'll come back a 'no'. But here we just get on and make the thing better.

You see a lot of internal politics in other places, too - like you can't change this because such-and-such person wrote it and he protects his code whereas I could go on holiday and I come back next week and the code I wrote'll be gone.

So it's the end goal we're focused on here - and clean, efficient code. The end goal isn't only do-the-job - it's also writing code to be maintainable. If you look at the code here, it looks like one person wrote it - the idea is I can jump onto someone else's code and I'm so familiar with the structure of everything it's like I wrote it myself yesterday.

**Tom Cashman, Software Engineer, DCU CA 2011**



You'll get straight into building telecoms-grade software with leading-edge technologies including SS7 & LTE. You'll be using state-of-the-art tools and frameworks, including Apache Storm, Elasticsearch, AngularJS, Spring, and Hibernate. And the languages: Java, Clojure, ClojureScript, JavaScript and Puppet.

We'll encourage you to get involved in areas that really fire you up. When there's a discussion going on that interests you, what comes on over and get involved.

We'll be valuable to you. But you'll also be valuable to us. We don't forget that. You'll be part of the family.

Interested? Email **tony.murphy@cellusys.com**

**Tony Murphy, Head of Talent Management, DCU CA 2011, DLX 2010**



## The School of Computing

### Student Knowledge and Aptitudes

The objective of the B.Sc. in Computer Applications and B.Sc. in Enterprise Computing degrees is to produce qualified computing professionals who:

- ▶ Have a capacity to adapt, change and keep abreast of new developments
- ▶ Have a sound understanding of computer hardware, software engineering and computer programming
- ▶ Have a sound understanding of the techniques of systems analysis and design and of quantitative methods
- ▶ Are thoroughly familiar with the use of computer technology in various administrative systems, in manufacturing systems and in management decision making
- ▶ Have a sufficient understanding of the ideas underlying areas such as artificial intelligence, robotics and computer-integrated manufacturing

### Career Possibilities

Students from the B.Sc. in Computer Applications and the B.Sc. in Enterprise Computing have/ will have the ability to work in many computing roles, some of which are listed below:

The B.Sc. in Computer Applications allows graduates to prepare for a career in software development. Graduates are able to design and implement software solutions. Graduates have learned to use techniques from disciplines, such as software engineering, databases, multimedia, computer graphics, artificial intelligence and computer security, to write computer programmes that can be used in real world applications in computer games, financial services and mobile phones. The B.Sc. in Computer Applications has a strong practical focus. Graduates have learned how to apply knowledge gained in the course and they will have developed key practical skills. The degree incorporates a six month work placement (INTRA) to provide graduates with a greater in-depth understanding of how software is used in the modern commercial world.

The B.Sc. in Enterprise Computing provides the foundation for a career in information technology for the modern business enterprise. This degree educates high-end IT professionals, with practical skills in information systems, web technologies and IT systems networking management. It provides an understanding of how software engineers develop software solutions to address real world computing problems and how computing technology can be used to allow people to work together and give companies a competitive edge in the marketplace. Graduates have learned how to use and manage information technology and systems to improve and design the way they do business.

Computational Problem Solving and Software Development (CPSSD) Degree – see information on our new degree on page 78.

## The School of Electronic Engineering

### Student Knowledge and Aptitudes

The objective of our taught BEng/MEng programmes in Electronic Engineering is to produce qualified engineering professionals who will:

- ▶ Have a sufficient understanding of basic sciences and mathematics appropriate to developing their careers as professional engineers
- ▶ Be competent in electronic circuits, systems and software design
- ▶ Have a detailed knowledge of the most important sub-disciplines related to their programme of study
- ▶ Have a capacity to model and analyse the dynamics of a range of technological systems
- ▶ Understand the overall requirements of product design
- ▶ Understand the structure and organisation of industry and have relevant industrial experience as a support to attaining the previous objectives
- ▶ Be capable of approaching problem-solving in a creative and innovative way
- ▶ Have developed a range of communication skills – oral, written and visual
- ▶ Have sufficient personal and inter-personal skills to enable them to be effective contributors to technology-based industrial development
- ▶ Be critically aware of the impact of engineering on society
- ▶ Embody the professional qualities of discipline, discrimination and application
- ▶ Be aware of the need to update or deepen their knowledge and skills and have an ability to do so through research, academic or professional training

### Work Areas

Students from our taught BEng/MEng Engineering programmes have the ability to work in a range of different engineering areas, some of which are listed below.

#### BEng in Electronic and Computer Engineering

- ▶ New programme commencing in academic year 2015/16
- ▶ Majors offered in Systems & Devices, High-Speed Communications, Digital Interaction, and Internet of Things.
- ▶ Building on successes of currently offered BEng programmes in Electronic Engineering, Information & Communications Engineering, Digital Media Engineering.
- ▶ Hardware design and development of embedded systems
- ▶ Development of optical communications systems
- ▶ Semiconductor and nanoelectronic materials and device manufacturing
- ▶ ASIC design/testing
- ▶ Building real time distributed system infrastructure and applications software
- ▶ Development of computer and machine vision solutions
- ▶ Analysis, development, refinement and optimisation of DSP algorithms
- ▶ Network design and operation for public telecom operators
- ▶ Private network design and operation for utility companies, government organisations and/or financial services applications

- ▶ System design, concentrating on hardware, software or both
- ▶ Technical marketing, including network design
- ▶ Telecommunications research organisations and consultancies
- ▶ Telecommunications consultants
- ▶ Telecommunications software development
- ▶ Systems development for diverse database-backed web services
- ▶ Hardware design of digital media devices (incl. mobile phones, tablets, mobile robotics)
- ▶ Development of virtual reality, telepresence and visualisation applications
- ▶ Web applications and interfaces for delivery of content to diverse environments
- ▶ Systems architecture design for e-commerce/B2B applications
- ▶ Developing archival or browsing systems for libraries of multimedia content

### **Taught MEng in Electronic Systems**

Option to take a Major in Nanoelectronics & Photonics or Image Processing & Analysis.

### **Taught MEng in Telecommunications Engineering**

Option to take a Major in in Network Implementation

Opportunities in Irish and International high-tech industries, including:

- ▶ Research and Development Engineer
- ▶ Design Engineering
- ▶ Production Engineering
- ▶ Sales Engineering
- ▶ Management Engineering
- ▶ Software Engineering

### **Taught MEng in Healthcare Technologies**

- ▶ 3U Joint Programme with Maynooth University & Royal College of Surgeons in Ireland
- ▶ Graduates can expect to work both inside and outside the health services
- ▶ Software and engineering of healthcare focussed services and systems
- ▶ Technology-based products for use in a medical/clinical environment.

### **BEng in Mechatronic Engineering (in collaboration with the School of Mechanical and Manufacturing Engineering)**

See page 11.

## The School of Mechanical and Manufacturing Engineering

### Student Knowledge and Aptitudes

The objective of our taught BEng/MEng programmes in Mechanical and Manufacturing Engineering disciplines is to produce qualified engineering professionals who will:

- ▶ Have a sufficient understanding of basic sciences and mathematics appropriate to developing their careers as professional engineers
- ▶ Be competent in design, professional development, dynamics and control, solid mechanics, fluid mechanics, materials and manufacturing, sustainable manufacturing systems, biomedical engineering and business
- ▶ Have a detailed knowledge of the most important sub-disciplines related to their programme of study
- ▶ Have a capacity to model and analyse the dynamics of a range of technological systems
- ▶ Understand the overall requirements of product design
- ▶ Understand the structure and organisation of industry and have relevant industrial experience as a support to attaining the previous objectives
- ▶ Be capable of approaching problem-solving in a creative and innovative way
- ▶ Have developed a range of communication skills – oral, written and visual
- ▶ Have sufficient personal and inter-personal skills to enable them to be effective contributors to technology-based industrial development
- ▶ Be critically aware of the impact of engineering on society
- ▶ Embody the professional qualities of discipline, discrimination and application
- ▶ Be aware of the need to update or deepen their knowledge and skills and have an ability to do so through research, academic or professional training

### Work Areas

Students from our taught BEng/MEng Engineering programmes have the ability to work in a range of different engineering areas, some of which are listed below.

#### BEng/MEng in Mechanical and Manufacturing Engineering

- ▶ Design of engineering materials, processes and components, and related developing technologies
- ▶ Create models (CAD or otherwise), deriving appropriate equations and specifying boundary conditions and underlying assumptions and limitations.
- ▶ Use of appropriate mathematical methods for application to new and ill-defined mechanical and manufacturing engineering problems
- ▶ Investigate the performance of systems and components through the use of analytical methods and modelling techniques, and develop software tools including numerical techniques to solve engineering problems
- ▶ Product design and development of mechanical systems
- ▶ Sustainability of manufacturing processes
- ▶ Project management skills

### **BEng/MEng in Biomedical Engineering**

- ▶ Modelling and design, production technology, biomaterial science and the requirements for regulatory compliance
- ▶ Understanding of Anatomy and physiology, and biomechanics, image processing, sensors, statistics, and the requirements for regulatory compliance
- ▶ Evaluation of the latest technology in the Bio Engineering field of interest and use of the appropriate technologies where desired
- ▶ Development of computer-based design to mimic bio engineering problems
- ▶ Application of ethical standards and duty-of-care towards the end-users of biomedical products

### **BSc in Manufacturing Engineering with Business Studies**

- ▶ Design, manufacturing and marketing of engineering products
- ▶ Management of manufacturing processes and systems coupled with the awareness of business opportunities.
- ▶ Synergistic approach to solving engineering challenges (designing, manufacturing, engineering products and managing manufacturing processes)
- ▶ Application of appropriate business skills (marketing, plant operation, project management and business management) within the broad discipline of manufacturing engineering.

### **BEng in Mechatronic Engineering (in collaboration with the School of Electronic Engineering)**

- ▶ An understanding of the principles of fundamental sciences, engineering sciences, technology and mathematics.
- ▶ An understanding that a few powerful unifying principles govern the function of many different mechatronic systems.
- ▶ A thorough knowledge of modelling and design, system integration, actuators and sensors, intelligent systems, robotics, computer integrated manufacturing and automation, motion control and image processing.
- ▶ A capacity to take a problem and redefine it in an engineering context; in the course of designing a system, component or process to meet specified needs.
- ▶ Proficiency in the design and running of experiments and the analysis and interpretation of data.
- ▶ A knowledge of the resources required to put in place a solution to an engineering problem taking into account the practical constraints from a technical, human resources and financial perspective.
- ▶ The capability of efficient project management maximising use of available resources to produce a successful outcome in a pre-defined time frame.
- ▶ An ability to demonstrate professional conduct in diverse, complex and unfamiliar situations at all times being aware of the implications of their work.
- ▶ An understanding of the need for high ethical standards in the practice of engineering, including the responsibilities of the engineering profession towards people and the environment.
- ▶ An understanding that sustainability, recycling and product life cycle must be considered at the design stage.

- ▶ An ability to work as part of a multidisciplinary team using their hybrid mechatronic training to integrate technologies in a synergistic manner.
- ▶ An awareness of the need to update or deepen their knowledge/skill set and an ability to conduct further training through research, academic or professional training.
- ▶ An ability to independently acquire further expertise and to ensure that the use of this expertise complies with the ethical standards of the profession.
- ▶ An understanding of the importance of the engineer's role in society and the need to communicate effectively within this environment and to other engineers.
- ▶ An ability to embrace all modern media for the purposes of communication, with a strong emphasis on visual computer aided design methods.
- ▶ An understanding of the need for the highest ethical standards of practice.
- ▶ An understanding that, as part of a team, it is important to consider the opinions of other members and to put in place a plan/design/process that is cognisant of these opinions.

Full details of the DCU INTRA programme are available at: **[www.dcu.ie/intra](http://www.dcu.ie/intra)**.

## Message from Our Sponsor

SAP, as ever, is delighted to be here again to celebrate this final step of your undergraduate journey. I'd like to congratulate each of you on this significant life achievement and wish you well on the next phase of your career.

SAP helps organisations of all sizes and industries overcome the complexities that challenge our businesses, our jobs, and our lives. With Run Simple as our operating principle, SAP's nearly 75,000 employees focus on a singular purpose that inspires us every day: To help the world run better and improve people's lives. I hope that wherever your career takes you that you too can help the world run better.

I'd like to take this opportunity to highlight the extended relationship between DCU and SAP. As the result of the high quality students that SAP has worked with via INTRA and our graduate program we have this year launched an extended professional internship with 10 students from DCU working with SAP for 2 years in conjunction with their academic studies. This program will complement their academic studies and allow them to apply their knowledge in real world situations. We believe these opportunities will fast track the careers of these students and many others in the years to come.

Once again, congratulations on this special day and I wish you every success in the future.

**Liam Ryan**

*MD SAP Ireland*

Tawanda, SAP  
Service & Support

# RUN

with people who get you.

Where will the next big idea come from? Why not you? At SAP you'll hit the ground running and see your ideas recognized by creative thinkers like yourself.

Run like never before at [sap.com/careers/ireland](http://sap.com/careers/ireland)

RUN BETTER.





## School of Computing Programmes

### Project Numbers

#### Computer Applications

2 3 4 5 6 9 10 11 12 13 21 22 24 26 28 30 34 36 39 41 46 52 75 79 87 92 105 107 108 111 113 114 115 117  
119 121 122 123 125 127 130 131 135 136 137 139 141 143 144 146 148 150 152 154 156 158 160 162 166

#### Enterprise Computing Project Numbers

14 15 16 17 23 25 27 31 32 35 43 48 54 58 59 93 96 109 116 118 126

### Project Areas

Content Management System: 121

Databases: 27

Data Analytics: 16 107 115 117 139 150 152 162  
166

Educational: 9 17 19

Gaming: 12 125 127 135

GPS GIS: 96

Image Video Processing: 3 23 119

Mobile App: 5 6 10 14 15 28 30 31 32 35 36 43  
48 52 54 58 59 105 108 109 113 116 122 123 126  
130 136 137 143 148

Virtual Reality: 34 46 141

Web Application: 2 4 11 13 21 22 24 25 41 79 92  
111 118 131 144 146 154 156 158 160

Sensor Technology: 93

Artificial Intelligence: 39 75 87 114

Developer Productivity: 134

### Project Technologies

.NET: 21

C/C++: 19 39 87

C#: 26 34 46 125

HTML5: 24 25 41

Java: 3 4 9 10 11 13 15 23 30 31 32 36 52 58 75  
105 108 113 114 115 116 117 118 119 123 127 130 137  
139 143 148 150 152

JavaScript: 2 5 6 12 16 17 22 28 35 48 92 93 109  
122 126 131 134 135 136 144 154 156 160 162

Node.js: 146

PHP: 24 96 121 158

Python: 107 111 166

REST: 79

SQL: 54

**School of Electronic Engineering Programmes****Project Numbers****Information and Communication Engineering**

29, 33, 71, 167

**Digital Media Engineering**

66, 81, 85, 90, 42, 110

**Electronic Engineering**

38, 64, 65, 70, 74, 77, 94, 106

**Project Areas**

29	Road Traffic Simulation
33	Wireless Local Area Networks
38	Software Defined Radio
42	Software development
64, 65	Analog and Digital Circuit Design
66	Internet of Things
70	3D multiple sensorial media
71	Multiple Sensorial Media (MulSeMedia)
74	Control Systems
77, 110	Cryptography
81	Mobile App Development
85	Telecommunications
90	Sensor data acquisition
94	Computer Vision
106	Electric generator
167	Signals and systems

**Project Technologies**

29, 33	NS-3
38	GNU Radio/Python
42	HANA DB
106, 167	Matlab
64	Mixed Signal Circuits & PCB Design
65	Digital and Analog Circuit Design
66	Node.js/Embedded Linux
70, 71	C#, C++, Visual Studio
74	MATLAB & C
77, 110	FPGA, VHDL
81	Android/Java
85	Arduino
90	Digital signal processing
94	Python

## School of Mechanical and Manufacturing Engineering Programmes

### Project Numbers

#### Mechanical with Business

98, 99, 101, 104, 153

#### Mechatronic Engineering

1, 7, 8, 18, 47, 49, 50, 62, 63, 72, 83, 88, 89, 91, 97, 100, 103, 120, 129, 133, 138, 140, 142, 151, 155

#### Biomedical Engineering

55, 56, 57, 60, 61, 68, 76, 78, 80, 82, 86, 95, 124, 145, 149, 163

#### Mechanical and Manufacturing Engineering

20, 45, 51, 67, 69, 73, 84, 112, 128, 132, 147, 157, 159

### Project Areas/Project Technologies

No.	Project Areas	Project Technologies
1	Automation	PLC
7	Robotics	BeagleBone Embedded Single-Board Computer
8	Engineering Education	Matlab
18	Engineering Design	Android
20	Engineering Education	Excel/VBA
37	Biomedical Engineering	Materials Testing
40	Engineering Design	Android
45	Energy Conservation	Curing Systems
47	Lean Manufacturing	Ultrasonic Leak Detection
49	FOG Traps	Micro bubbles
50	Radon Gas Reduction	Flow Measurement
51	Manufacturing	Hydroforming
55	Biomedical Engineering	Balloon Catheters
56	Biomedical Engineering	Finite element modelling
57	Biomedical Engineering	Arduino
60	Biomedical Engineering	Materials Testing
61	Biomedical Engineering	Materials Testing
62	Robotics	BeagleBone Embedded Single-Board Computer
63	Mechanical Engineering	SolidWorks
67	Manufacturing	Additive Manufacturing
68	Microfluidics	Additive Manufacturing/Stereolithography
69	Manufacturing	Additive Manufacturing
72	Manufacturing	Laser Processing
73	Device Design	Solidworks, Mechanical Testing
76	Biomedical Engineering Design	SolidWorks, Zwick tensile tester
78	Material Science	Labview

<b>No.</b>	<b>Project Areas</b>	<b>Project Technologies</b>
80	Biomaterials development	Blow spinning
82	System modelling	Scilab
83	Control	Labview
84	Automation	Labview
86	Microfluidics	SolidWorks
88	Design	Solidworks
89	Embedded Systems	Android
91	Sensor Data Acquisition	MEMS devices
95	Computer Vision, Design	Solidworks, Image Processing , Microsoft Kinect
97	R&D	Magnetic Levitation
98	Lean Manufacturing	ExtendSim 8
99	Lean Manufacturing	Matlab
100	Optimisation	Python
101	Lean Manufacturing	MS Excel VBA
103	Educational Display	Android
104	Energy Conservation & Eco Auditing	Excel
112	Material Science	Coating
120	Environmental Engineering	Plant design selector tool
124	Energy Engineering	eTracker energy metering
128	Energy Conservation	NuWave Particle Sensors
129	Environmental Monitoring	Autonomous Nutrient Sensor
132	Water science and technology	Excel (visual basic)
133	Embedded systems	Haptics
138	Wind-driven generator	Solidworks
140	Metrology	Laser Optics
142	Computer Vision	C++
145	Image Analysis	Matlab
147	Mechanism Design	SolidWorks
149	Preventative Maintenance	Data Analysis and Validation
151	Automation	PLC Control /Programming
153	Flexible Manufacturing Systems	PLC
155	Embedded Systems	Sensor Fusion
157	Mechanical Analysis	Matlab
159	Sustainable Energy	Steering/Motors
163	Fluid Mechanics	Solidworks

## Project Listing

No.	Name	Project Title
1	Jason Cross	Beet Washer Automation
2	Stephan McLean	CoolWall
3	Jahangeer Iqbal	Image Deblurring
4	Pauraic Mc Auley	Patient Flow Analytic Application
5	Karl Treacy	Community Reporting App
6	Owen Gannon	Liar – Hybrid App
7	Ronan Cooke	An ARM Controlled Pan/Tilt Head for an Internet Camera Dolly
8	Cormac O Broin	Stop Motion Image Analysis
9	James Redmond	WhichPrep
10	Sean Hough	Android Pass – Android app compatible with unix utility pass
11	Alex Conroy	PiBell
12	Kieran Bridges	Velcro
13	Ian Duffy	CarCloud
14	Dylan Moran, Liam Bacon	Distinct Data
15	Emmet Fardy, Aaron O'Brien	Med-Rem
16	Lauren Deasy, Brian Kane	Senti-Meant
17	Claire Luke, Daniel Doran	EduQuiz
18	Conor Murphy	Generation of Simple CAD models Using Android
19	Conor Tweed	LEXICAL
20	John Whelan	Mechanism Animation In Excel
21	Aoibhinn Farrell	TimeTracker – Employee Scheduling Simplified
22	Jack Kettle	ISTO
23	Angelika Szysz	100,000,000 +1 Automatic Image Annotation
24	Fearghal Eighan	Auto FPL
25	Daniel Mahon, Steven McGrath	BuyChance
26	Evan Power	Rift Runner
27	Aine Keogh, Glen Bollard	Inherit-Enhance Database Cleaning Tool
28	Robert McEvoy	My Stop
29	Shane Carroll	Development of a road traffic simulator
30	Niamh McCormack	TrainTogether
31	Brian O'Neill, Darren McCarthy, Graham Byrne	BronSports
32	John McCann, Lloyd Shiels	Peace of Mind
33	Udit Sharma	Energy saving in the Local Area Network
34	Colin Fitzsimons	RiftWorks
35	Karla Mc Donnell, Siobhan Tierney	IPM Wristband
36	Meng Li	Chinese character writing checker for Primary School Students
37	Jinchuan Xiong	Development of Cerebral Aneurysm Models for the in vitro Testing of New Treatment Methods

<b>No.</b>	<b>Name</b>	<b>Project Title</b>
38	Ciaran Brennan	Investigation of the Use of a Digital Video Broadcast TV Dongle as a Software Defined Radio
39	Garry Walsh	Arduino based pathfinding & environment mapping robot
40	Liam Sexton	Reverse Engineering of Simple Products using Android and OpenCV
41	Cian McCann	Community Area Alert System
42	Mateusz Skrzyniarz	Real Time Volleyball Game Analysis Tool
43	Amy Dromgoole, Mark Bagnell	Logix Vox
45	Conor Conroy-Murphy	Energy conservation in curing systems
46	Glenn Seagrave	Virtual Reality as a Platform
47	Barry James Byrne	Using the DMAIC process to show it's application in compressed air systems, with the aim of generating direct cost savings by energy saving methods.
48	Sukhrat Vaitov, Kevin Tambele Mustong, Damilare Olowoniyi	FitServ – Health & Fitness Application
49	Fergal Gerard Craig	FOG Fats, Oils and Grease traps
50	Cian Henry	Passive Radon Device
51	Xiong Feng Ou Yang	Hydroforming of Micro-tubes
52	Fergus Murtagh	Sport Technique for All
54	Declan Tyndall, Mary-Kate Kavanagh	EZ-Receipts
55	Paul Hugh Sheridan	Finite Element Analysis of Catheter Balloon Expansion
56	Killian Chellar	A Finite Element Analysis of Stresses and Strains on a Hydrogel used to treat Cerebral Aneurysms in ANSYS
57	Alan James Cleary	Design of a control system to mimic physiological and near physiological shear forces on a material in a custom cone and plate shear tester.
58	Shane Homan, Eoin Cusack	Total Conference
59	Philip Curran, Davod Burke	AisleHopper – An application to reduce the time spent by consumers in stores.
60	Ian James Richardson	Mechanical and Rheological Analysis of a Novel Radiopaque Hydrogel for the Treatment of Cerebral Aneurysms
61	Gemma Thorne	Determination of the Freezing Effect on the Mechanical Properties of Decellularised Arteries
62	Deirdre Reilly	Precision Robot Cart Sensor Platform
63	Claire Nally	Variable Parameter Car Steering Mechanism: Design & Manufacture
64	Kilian Dolan	Design and Test of A Low-Noise VLF Receiver System
65	Andrew Gerard Sexton	Galileo-Based Solar Tracker
66	Ian Harrison	A Scalable Framework for Interacting with Electronic Devices over the Internet
67	Conor Boyle	Study of dimensional accuracy and robustness of parts printed in Miicraft HR 3D printer.
68	Ciaran Hennessy	Characterisation of new stereolithography 3D printers for fabrication of microfluidic channels

No.	Name	Project Title
69	Conor Brendan Martin	Characterisation of new stereolithography 3D printers for fabrication of bioscaffold designs
70	John Noel Monks	Quality of Experience Assessment of Synchronisation between 3D Video and Mutisensorial Media Components
71	Aida Olaru	Quality of Experience Assessment of Synchronisation between 2D Video and Mutisensorial Media Components
72	Hiu Sen Poon	Develop a fully integrated laser control system capable of manipulating the laser beam in X, Y and Z planes
73	Colin Dowling	Design and Evaluation of a Polymer regrind device
74	Ronan Deery	An Investigation of using MATLAB with popular hardware platforms
75	Graham Maxwell	Modelling Simple Societies – Game Theory
76	Karl Keogh	Development of a Spinning Process for Fabrication of PVA ligaments
77	George Morcos	Efficient Hardware Implementation of the Lightweight Cryptographic Algorithm PRESENT
78	Sean Brian O'Neill	Frictional Based Properties of PVA Based Cartilage Replacement Biomaterial
79	Avril Dockery	ALT Goal Manager
80	David Savage	Development of a Blow Spinning Apparatus for Biomaterial Development
81	Rory Hewson	Development of an Android based Multimeter and Digital Oscilloscope
82	David Davitt	Modelling and Simulation
83	Alastar Doyle	Control of a Dynamic System
84	Deirdre Kenny	Automated Weighing Process
85	Ruairi O'Brien	Teleprinter demo
86	Abhishek Vembadi	Actuation of dissolvable film valves on a lab on a disc using mechanical fluting
87	Donal Ryan	Investimate
88	David Ramsey	Automated Assembly
89	Vincent Yegenoglu	Android based vision control
90	Niall Tiernan	Combining Accelerometer and Gyroscopic Signals using a Microprocessor as part of a Sensor subsystem design for a light-aircraft AHRS
91	Zac Lennon	Sensor exploration for positioning control systems
92	Kirill saliev	TaskPortal project management social network
93	Shalom Osiadi, Dzino Olenczuk, Yki Leung	Gluco24
94	Grace Reidy	Hazard Awareness System
95	Faheem Shah	Vision System Development for Image Analysis in Fluid Flow
96	Shane Griffin, Jacques Fay, Levon Vasilyan	Alzafind Wristband – GPS Tracking for Alzheimer's Patients
97	Lucian Nanau	"Frictionless" Shearing Apparatus
98	Warren Behan	Upstream Impact of Demand Variability
99	Peter Francis Fisher	Replenishment strategies in Mizusumashi systems

<b>No.</b>	<b>Name</b>	<b>Project Title</b>
100	Seamus Lane	Algorithms for Job Shop Scheduling Problems
101	Shane Mc Carthy	Simulation modeling of a lean Heijunka Box
103	Islam Bisayev	Final Commissioning of Sectioned Car Engines
104	Owen Connolly	Energy & Space Audit of the School Of Manufacturing Engineering
105	Brendan Byrne	Super Word-A-Day
106	Sean Burke	The Bike Bug: the Simulation of a Bicycle-Powered Phone Charger
107	Kevin Sweeney	Betting Data Analysis
108	Mark Macken	Picture Messaging Android Application And Service
109	Anna Sargent, Hayley Manning	Fónetic
110	Laura Mary Murphy	Efficient Hardware Implementation of the Lightweight Block Encryption Algorithm CLEFIA
111	Darren Brogan	MoodleFUSE
112	Opeidelh Elsheikh	Low Temperature Deposition Gun
113	Eimhin Smyth	Smart bracelet
114	Conor McCarthy	Heads-up Computer Poker
115	Richard Kavanagh	Real Time Twitter Sentiment analysis
116	Clare Faughey, Nikita Puri	Wise Owl Prepositions
117	Dylan Lee	MARS – Test Management and Recommendation System
118	Emmet Donnelly, Greg Collins	EveryBar – An event driven, bar management web application for hotel bars
119	Nicolas Chovelon	Letter Recognition
120	Sean Cairns	Wastewater treatment plant design selector tool
121	David Mc Hugh	INTRA Portal System
122	Peter Morgan	NFCOpen
123	Niall Gaffney	Dota 2 Statistics App
124	Johanna Glynn	Energy Analysis of Cleanroom Areas
125	Ciaran Duffy	Knights of Alliance – a 2D Game
126	Mark O'Sullivan, Sean White	Check-It-Out
127	Conor de Buitlear	Video Game Maker
128	Marc Mc Donald	Cleanroom Energy Efficiency 1
129	Conor Gerard Osborne	Packaging, Modelling and Validation of an Autonomous Sensing Device (Nutrient Sensor)
130	Shane Carolan	Dynamic Routing System
131	Shauna Marie Naughton	Check It Out
132	Anthony Shanley	Wastewater treatment energy optimisation strategy selector tool
133	Cian Nolan	Design and implement a device to measure aerodynamic slip, and convey the measured data to the pilot by means of tactile feedback.
134	Robert Devereux	Vimable – Efficient Text Editing in Chrome
135	Damian Downes	Krazy Kayaking
136	Kevin O'Neill	Basketball Shot Tracking App
137	Emmet Delaney	Pal-2-Pal



<b>No.</b>	<b>Name</b>	<b>Project Title</b>
138	Stelin Thomas	Design of Wind-driven Generator for light Aircraft.
139	Laura Browne	PowerScout
140	Abiola Ogunde	Design of a laser microphone for photoacoustic signal detection
141	Padraig Kearns	Pac-Man VR
142	Andrew Mc Phee	Hazard Awareness System II (internal)
143	John Molloy	Event Finder – Android Events Application
144	Gareth Murphy	Chasing Returns
145	Anthony Joseph Smyth	Automated classification of cell structure using image analysis
146	Feargal Karney	TickIt
147	Gearoid Dennis De Cleir	Design of a battery driven electric loading shovel
148	David Valentine	Graze-Even
149	Laura Mc Inerney	Vibration Sensor and Data Logger for Use in an Industrial Situation.
150	Ryan Moody	Data Analysis using Android-based Smartwatches
151	Derek Morris	Improvement of Station performance on the FMS Rig
152	James Hackett	Gaelic Player Data Analysis
153	Ali Imran Yawar	Manufacturing System Dashboard for FMS Rig
154	Haider Mir	WordPlay
155	Ross Harry Boland	Development of an embedded system based multisport monitor
156	Glenn Murphy	InShip – Automatic Supplier Invoice Process and Document Control
157	Cillian Byrne	Car Steering Design Comparison
158	Aislinn Moorhouse	‘Einfach erlernt’ – Easy to learn
159	Michael Kinsella	Siemens Green-power challenge
	Oluwatosin Emmanuel Odekeye	
160	Kevin	ScorePundit
162	Adrian Dornan	Trend Analysis of Wikipedia Articles
163	Mija Thomas	Micro-bubble generation for aeration
166	Jinnyre Malazarte	Car Deal Analyser
167	Hesham Ahmed	Implementation of Transforms for Electromagnetic and Biomedical Applications

**Project Number: 1**

**Project Title:** Beet Washer Automation  
**Name:** Jason Cross  
**Email:** jason.cross3@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Harold Esmonde

Beet Washers are used in the production of Biogas. Beet is left to rot and ferment to create gas and in turn run a generator to create electricity. All beet washers are hydraulically powered with manual controls. Engines are currently used to run the machines and emissions are high. The aim of this project is to create an emission free machine which is fully automated. This involves the use of a 90kw 3 phase motor and IFM automation system. The automation system uses IFM PLC, speed sensors, oil pressure sensors and 7" screen.

**Project Area:** Automation  
**Project Technology:** PLC

**Project Number: 2**

**Project Title:** CoolWall  
**Name:** Stephan McLean  
**Email:** stephan.mclean2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Renaat Verbruggen

CoolWall is a web and mobile application which allows users to collaborate on an online "Wall" similar to how they would on a physical white board. The application allows users to create their own Walls which they can populate with content and share with other users. CoolWall is available on Chrome, Safari and also on Android and iOS as a native application.

**Project Area:** Web\_Application  
**Project Technology:** JavaScript

**Project Number: 3**

**Project Title:** Image Deblurring  
**Name:** Jahangeer Iqbal  
**Email:** jahangeer.iqbal3@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Alistair Sutherland.

Blurring is one of the most frequent problems while taking photos under constraints like low lighting. The most common sources of image-blur are motion, defocus and aspects of the camera, such as pixel size and sensor-resolution. This projects delves into what is involved in deblurring effectively. This project researches into techniques that are useful to deblur an image on a mobile platform. Alongside research, an Android application has been developed to showcase how a user would utilise such functionality.

**Project Area:** Image\_Video\_Processing  
**Project Technology:** XML,OpenCV,Java,Eclipse,C/C++

**Project Number: 4**

**Project Title:** Patient Flow Analytic Application  
**Name:** Pauraic Mc Auley  
**Email:** pauraic.mcauley3@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr Liam Tuohy

Patient Flow Analytic App is used by a Medical Group Executive Committee and Hospital Bed Management Team to monitor and manage the flow of patients through the Hospitals within the group. User will be able to download the app on Android Device, iOS and Window Phone. App is been compiled by Phonegap using HTML5, CSS3 and JQuery. All Data is received/sent by Rest Service using Java with Apache CXF and Spring Web Service

**Project Area:** Web\_Application,Software\_Development,Data Analytics,Databases  
**Project Technology:** SQL,REST,JSP/Servlets,JQuery,JavaScript,Java,HTML5,Eclipse

**Project Number: 5**

**Project Title:** Community Reporting App  
**Name:** Karl Treacy  
**Email:** karl.treacy5@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Heather Ruskin & Marija Bezbradica

Community Reporting App. is a reporting service. Its purpose is to allow the general public to report on hazards/potential faults to local councils. [Local authority personnel consulted]. The Smartphone application is designed so that a hazard, such as a pothole, faulty street lighting, litter and graffiti, can be easily tagged with minimal information. Open Source maps permit further extension of the app., as well as extraction of features of interest. The service will benefit communities and local councils.

**Project Area:** Web\_Application,Mobile\_App  
**Project Technology:** Node.js,NoSQL,JavaScript

**Project Number: 6**

**Project Title:** Liar – Hybrid App  
**Name:** Owen Gannon  
**Email:** owen.gannon2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Kevin Casey

Liar is a popular card game played by between 4 and 8 players. Using a shuffled 52-card deck distributed evenly, the aim of the game is to get rid of all your cards first, both honestly and dishonestly. The hybrid app is built using the MEAN stack MongoDB, Express.js, Angular.js and Node.js, along with Socket.IO, Passport.js and jQuery. An installable Android app is then created using PhoneGap but a mobile-friendly Web app will also exist for non-Android users.

**Project Area:** Gaming,Mobile\_App,Model\_View\_Controller,Software\_Development,Web\_Application  
**Project Technology:** HTML5,JavaScript,JQuery,Node.js,NoSQL

**Project Number: 7**

**Project Title:** An ARM Controlled Pan/Tilt Head for an Internet Camera Dolly  
**Name:** Ronan Cooke  
**Email:** ronan.cooke5@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Derek Molloy

The aim of this project is to update an existing motorised camera dolly rig to allow for the addition of motorised panning and tilting action (and quick attach/release of a camera). The dolly is controlled remotely over the Internet using a remote connection to an ARM embedded single-board computer.

**Project Area:** Robotics  
**Project Technology:** BeagleBone Embedded Single-Board Computer

**Project Number: 8**

**Project Title:** Stop Motion Image Analysis  
**Name:** Cormac O Broin  
**Email:** cormac.obroin5@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Alan Kennedy

A series of photographs have been taken of a Lego mechanism as it moves. The points of interest on the mechanism have different colours and can be identified using MATLAB code. In this project, this code has been further developed so that the positions of the points of interest in each frame are determined accurately and, from these, velocities and accelerations are calculated and displayed.

**Project Area:** Engineering Education  
**Project Technology:** Matlab

**Project Number: 9**

**Project Title:** WhichPrep  
**Name:** James Redmond  
**Email:** james.redmond9@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Jennifer Foster

WhichPrep is a mobile application for Android designed to make the process of learning English prepositions rewarding and engaging. For most non-English speakers, this is the most difficult aspect of English grammar to learn as it requires knowledge of language idioms rather than literal meaning. WhichPrep uses various types of quizzes to test a user's knowledge of prepositional usage and reinforce that knowledge through feedback and scoring.

**Project Area:** Educational  
**Project Technology:** Android

**Project Number: 10**

**Project Title:** Android Pass – Android app compatible with unix utility pass  
**Name:** Sean Hough  
**Email:** sean.hough2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Stephen Blott

Android app compatible with unix utility pass which uses git and gnupg to provide core functionality. This project allows Android users to access their password store on their Android devices.

**Project Area:** Mobile\_App  
**Project Technology:** Java

**Project Number: 11**

**Project Title:** PiBell  
**Name:** Alex Conroy  
**Email:** alex.conroy8@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Stephen Blott

The aim of this project is to answer the question of 'who is at my front door?' which notifies the users of a guest present at their front door. The user is then notified with an image of the guest taken from a mounted camera, along with the time and date to their android device from any location, provided they have a functioning internet connection. The application will allow the user to perform various tasks to communicate with the guest.

**Project Area:** Sensor\_Technology,Web\_Application,Wireless Technology,Internet Of Things (IoT)  
**Project Technology:** Eclipse,Java,Python

**Project Number: 12**

**Project Title:** Velcro  
**Name:** Kieran Bridges  
**Email:** kieran.bridges2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Claus Pahl

Velcro is a physics based game that is being developed for mobile devices using the Unity Engine. Levels will be puzzle based containing special "Velcro" surfaces to which a ball can stick to. Swiping across the ball will give it momentum and direction. The ball shall move across Velcro surfaces and corners providing that the balls velocity is appropriate. The player will have to use these surfaces to direct the ball to its end destination which will complete the level.

**Project Area:** Gaming  
**Project Technology:** JavaScript

**Project Number: 13**

**Project Title:** CarCloud  
**Name:** Ian Duffy  
**Email:** ian.duffy3@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** stephen.blott@dcu.ie

This project is a mobile and web based desktop application that focuses on supplying car owners with access to trip information and setting alerts for trip events. This is displayed as points on a map, each point will have various metrics associated with it, this includes things such as speed, RPM, mileage, stopping time, etc.

**Project Area:** Web\_Application,SMS,Model\_View\_Controller,Mobile\_App,GPS\_GIS  
**Project Technology:** SQL,REST,JQuery,JavaScript,Java,HTML5

**Project Number: 14**

**Project Title:** Distinct Data  
**Name:** Dylan Moran  
**Email:** dylan.moran29@mail.dcu.ie  
**Name:** Liam Bacon  
**Email:** liam.bacon3@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Cathal Gurrin

Distinct Data is a news and entertainment proof-of-concept application that aggregates and delivers an efficient and intuitive informative feed to users. It allows the user to control the quantity and type of results by employing a number of filtering strategies. The users account is linked to their Facebook profile, which can act as both a profile as well as an indicator of interest. This also allows for additional option of a personal music playlist generated around their liked artists.

**Project Area:** Mobile\_App,Information\_Retrieval  
**Project Technology:** Proof on Concept

**Project Number: 15**

**Project Title:** Med-Rem  
**Name:** Emmet Fardy  
**Email:** emmet.fardy2@mail.dcu.ie  
**Name:** Aaron O'Brien  
**Email:** aaron.obrien62@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Martin O'Connor

Med-Rem is a proof of concept for a medication reminder application. It is an Android based app with plans for an Apple version. Med-Rem has features such as a barcode scanner which can scan common medications and download information from the database so users don't have to input any details. The more common features include medication tracking and alarms.

**Project Area:** Mobile\_App  
**Project Technology:** Java

**Project Number: 16**

**Project Title:** Senti-Meant: Advanced Social Analysis  
**Name:** Lauren Deasy  
**Email:** lauren.deasy3@mail.dcu.ie  
**Name:** Brian Kane  
**Email:** brian.kane6@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Prof. Alan Smeaton

Senti-Meant is a social network sentiment analysis tool providing findings based on a smaller, more reliable cohort of users than the usual random sampling. Through the use of APIs, tweets are extracted and run through a ranking engine. The ranking engine criteria determines whether or not a user and tweet can be deemed 'trusted'. Reports can be generated comparing original sentiment and that of the augmented data, in an attempt to provide more trusted and reliable sentiment analysis.

**Project Area:** Data Analytics  
**Project Technology:** Node.js, Parse.com, JavaScript, jQuery, HTML5

**Project Number: 17**

**Project Title:** EduQuiz  
**Name:** Claire Luke  
**Email:** claire.luke3@mail.dcu.ie  
**Name:** Daniel Doran  
**Email:** daniel.doran4@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Monica Ward

EduQuiz aims to enhance the learning experience of children by combining an educational quiz with a syllabus. This competitive edge should help encourage and motivate children to obtain as much knowledge as possible from the course in order to obtain a higher ranking in the quiz which follows each milestone in the syllabus. The site currently contains two syllabuses, HTML and JavaScript, with the potential to expand not only to other languages within this field but also to other industries.

**Project Area:** Educational  
**Project Technology:** CSS,SQL,PHP,JavaScript,HTML5

**Project Number: 18**

**Project Title:** Generation of Simple CAD models Using Android  
**Name:** Conor Murphy  
**Email:** conor.murphy274@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Bryan MacDonald

The objective of this project was to begin development of a free Android app that may be used by engineers to generate simple CAD models in the field and export them to other CAD systems via a DXF graphics interchange file. A simple, easy to use and accurate touch interface for 2D drawing was built and the ability to save and export drawings in DXF format was incorporated. Basic editing features such as undo and erase were also incorporated to leave a basic app template which may serve as a stepping stone for further development.

**Project Area:** Engineering Design  
**Project Technology:** Android

**Project Number: 19**

**Project Title:** LEXiCAL  
**Name:** Conor Tweed  
**Email:** conor.tweed2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Monica Ward

LEXICAL is a language learning software tool, comprising of several different language games and aimed at children aged 8-9 years of age. LEXICAL has been written in C++ and is designed to be utilised in primary school education as an interactive and fun way to engage pupils in language learning. LEXICAL's greatest advantages are its strong teacher reporting tools and its language independence, allowing almost any human language to be loaded into the system and used in the exercises.

**Project Area:** Educational  
**Project Technology:** C/C++

**Project Number: 20**

**Project Title:** Mechanism Animation In Excel  
**Name:** John Whelan  
**Email:** john.whelan34@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Alan Kennedy

The aim of this project was to design and develop a basic system (using VBA code in Microsoft Excel) to allow lecturers and/or students to quickly and easily make animations of simple mechanisms. By moving simple shapes (and calculating and displaying their velocities and accelerations), an interactive learning tool has been created to help students to understand the dynamics of simple mechanisms.

**Project Area:** Engineering Education  
**Project Technology:** Excel/VBA

**Project Number: 21**

**Project Title:** TimeTracker – Employee Scheduling Simplified  
**Name:** Aoibhinn Farrell  
**Email:** aoibhinn.farrell56@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Renaat Verbruggen

TimeTracker is a cloud hosted platform independent web application. It provides a simplified method for employees to record their work hours. It allows time spent on specific projects to be recorded to facilitate project management and to ensure accurate customer billing. The application is developed using ASP.NET MVC 5, an open source framework that applies the Model-View-Controller architectural pattern to the ASP.NET framework. The database management system used was SQL server and data access is provided by the Entity framework.

**Project Area:** Web\_Application  
**Project Technology:** .NET



**Project Number: 22**

**Project Title:** ISTO  
**Name:** Jack Kettle  
**Email:** jack.kettle2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Monica Ward

The Irish Student Trampoline Open (ISTO) is Ireland's largest student gymnastics competition, consisting of over 600 competitors from 50 clubs from Europe. This project is built to tackle the job of managing all aspects of the competition, including member and club sign up, event management and judging. It grants the organisers an easy, efficient and secure medium for managing all aspects of the competition. It consists of a Google endpoints Restful API back-end communicating with a AngularJS Application front-end.

**Project Area:** Web\_Application  
**Project Technology:** AngularJS, NoSQL, REST, JavaScript, Java, HTML5

**Project Number: 23**

**Project Title:** 100,000,000 +1 Automatic Image Annotation  
**Name:** Angelika Szysz  
**Email:** angelika.szysz2@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Alan Smeaton

This project is inspired by availability of 100,000,000 tagged images, released by Yahoo! and Flickr. The aim of the project is to overcome the existing semantic gap in object recognition and machine learning tools for tag suggestions and propose a system based on semantic concepts used by humans to interpret images. The system provides a service of automatic tagging of a users input image based on analysing the similarity against the indexed 100 million image dataset.

**Project Area:** Image\_Video\_Processing, Information\_Retrieval, Data Mining  
**Project Technology:** NoSQL, Python, Java

**Project Number: 24**

**Project Title:** Auto FPL  
**Name:** Fearghal Eighan  
**Email:** fearghal.eighan2@dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Monica Ward

Auto FPL is a web application which automates the process of team selection in the popular Fantasy Premier League online game. Auto FPL uses a wealth of real world team data and player statistics to generate teams. Teams generated by Auto FPL can be used to compete against the millions of user created teams from around the world.

**Project Area:** Web\_Application  
**Project Technology:** SQL, PHP, HTML5

**Project Number: 25**

**Project Title:** BuyChance  
**Name:** Daniel Mahon  
**Email:** daniel.mahon5@mail.dcu.ie  
**Name:** Steven McGrath  
**Email:** steven.mcgrath38@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Joseph Morris

BuyChance is a website based on the concept of crowd-funding. However, not for an idea/venture but for an item/product that an individual wants to sell. This website provides the platform to allow a seller to place an ad for their item which buyers can subsequently buy digital tickets for. Once the minimum price and time frame (both selected by the seller) is reached, a live digital draw for the item takes place which selects the winning buyer.

**Project Area:** Web\_Application  
**Project Technology:** HTML5

**Project Number: 26**

**Project Title:** Rift Runner  
**Name:** Evan Power  
**Email:** evan.power24@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dónal Fitzpatrick

Rift Runner is a first person action-adventure platformer game built in Unity. It uses the Oculus Rift virtual reality headset and Razer Hydra motion controllers to present a compelling game experience to the player and enable them to feel immersed in the environment. The player uses the Rift to look around the environment and the Hydras to interact with objects such as doors and pipes in order to traverse the area.

**Project Area:** Virtual\_Reality,Gaming  
**Project Technology:** C#

**Project Number: 27**

**Project Title:** Inherit-Enhance Database Cleaning Tool  
**Name:** Aine Keogh  
**Email:** aine.keogh28@mail.dcu.ie  
**Name:** Glen Bollard  
**Email:** glen.bollard2@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Liam Tuohey

This research project is concerned with common database errors and developing a database cleaning tool to combat these data quality issues. The result of this project will be a working prototype of a database cleaning tool called Inherit Enhance. The main selling point of this database cleaning tool will be the flexibility afforded to clients data with particular attention being paid to Irish address records which have been largely ignored by other database cleaning tools.

**Project Area:** Databases  
**Project Technology:** PL/SQL and Microsoft Excel

**Project Number: 28**

**Project Title:** My Stop  
**Name:** Robert McEvoy  
**Email:** robert.mcevoy6@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Gareth Jones

'My Stop' is an Android application which enables users to streamline their public transport journey regarding time efficiency and choice of transport, in as few clicks as possible. The application achieves this by presenting real time dashboards for each of the available transport operators (Dublin Bus, Luas, Bus Éireann and Irish Rail) and a dashboard to display the user's location as well as stop selections on a live map which includes the travel time to each stop and traffic dynamics.

**Project Area:** Mobile\_App  
**Project Technology:** Java, JavaScript, REST, SQL, XML

**Project Number: 29**

**Project Title:** Development of a road traffic simulator  
**Name:** Shane Carroll  
**Email:** shane.carroll43@mail.dcu.ie  
**Programme:** ICE  
**Supervisor:** Jennifer McManis

This project's aim was to create a road traffic simulator using NS-3 as the simulation environment. NS-3 is designed to simulate packet networks as opposed to road traffic. It uses a module called NetAnim to perform simulations based on data collected from NS-3 in XML files. Similar projects have been undertaken by existing road traffic simulators however they use NS-3 in conjunction with other software for example SUMO.

**Project Area:** Road Traffic Simulation  
**Project Technology:** NS-3

**Project Number: 30**

**Project Title:** TrainTogether  
**Name:** Niamh McCormack  
**Email:** niamh.mccormack6@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Stephen Blott

TrainTogether is an Android mobile application that aims to help users exercise together. Running, cycling and swimming are as much social activities as they are sports. Right now, many people train for races by themselves or, when training with a group, find they are at a different level to others and their training is compromised. This application allows a user to create an event detailing their workout. Other users can then search and attend events suitable for their level.

**Project Area:** Mobile\_App  
**Project Technology:** XML, PHP, Java

**Project Number: 31**

<b>Project Title:</b>	BronSports
<b>Name:</b>	Brian O'Neill
<b>Email:</b>	Brian.oneill28@mail.dcu.ie
<b>Name:</b>	Darren McCarthy
<b>Email:</b>	Darren.mccarthy@mail.dcu.ie
<b>Name:</b>	Graham Byrne
<b>Email:</b>	Graham.byrne32@mail.dcu.ie
<b>Programme:</b>	Enterprise Computing
<b>Supervisor:</b>	Markus Helfert

This project is a proof of concept for an application called BronSports. It is a sports news application that gathers news content on the user's selected favourite sports, teams and leagues. The app will gather news content from the most reliable major sports websites, newspapers and blogs which will be presented in news feed format on the app. The app will also allow users to share and receive recommended articles and see local news via GPS.

<b>Project Area:</b>	Mobile_App
<b>Project Technology:</b>	Java

**Project Number: 32**

<b>Project Title:</b>	Piece of Mind
<b>Name:</b>	John McCann
<b>Email:</b>	john.mccann8@mail.dcu.ie
<b>Name:</b>	Lloyd Shiels
<b>Email:</b>	lloyd.shiels4@mail.dcu.ie
<b>Programme:</b>	Enterprise Computing
<b>Supervisor:</b>	Dr Liam Tuohey

Piece of Mind is a cloud based pricing and analytics service for Android mobile devices that displays a real-time total for domestic utility bills. This prototype application is data-driven with instant totals replacing paper billing. Single use customers receive instant feedback from the application by checking their own meters. A standalone database allows premium users to log in to receive a running total with access to extra functions and a graphical interface representing current and projected spending.

<b>Project Area:</b>	Mobile_App
<b>Project Technology:</b>	Java

**Project Number: 33**

<b>Project Title:</b>	Energy saving in the Local Area Network
<b>Name:</b>	Udit Sharma
<b>Email:</b>	udit.sharma2@mail.dcu.ie
<b>Programme:</b>	ICE
<b>Supervisor:</b>	Jennifer McManis

The primary aim of this project is to conserve energy in 802.11 networks while maintaining network performance. Energy consumption of the network is very high even when a network node is in idle state. As a solution, if nodes can be put into sleep mode, energy can be saved during that time. NS-3 is used to show the energy conservation practically.

<b>Project Area:</b>	Wireless Local Area Networks
<b>Project Technology:</b>	NS-3

**Project Number: 34**

**Project Title:** RiftWorks  
**Name:** Colin Fitzsimons  
**Email:** colin.fitzsimons3@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Dónal Fitzpatrick

This project expands upon already existing technologies and provides a framework that enables the addition of virtual reality to games that do not natively support the functionality. This is achieved by creating or loading configurations that help tailor the functionality of the framework to the game being run. Using this technology, any first person game can be setup to operate using a virtual reality device.

**Project Area:** Virtual\_Reality  
**Project Technology:** C#

**Project Number: 35**

**Project Title:** IPM Wristband  
**Name:** Karla Mc Donnell  
**Email:** karla.mcdonnell25@mail.dcu.ie  
**Name:** Siobhan Tierney  
**Email:** siobhan.tierney3@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Stephen Blott

The main purpose of the Identify & Prevent Mistreatment Wristband is to inform family members if the wearer of the wristband is being subject to elder abuse where they are resident. It aims to give the family members and friends of elderly people peace of mind. The wristband's primary functionality includes monitoring movement, recording audio and sending urgent alerts to the mobile application.

**Project Area:** Wireless Technology & Mobile Application  
**Project Technology:** JQuery, JavaScript, HTML5

**Project Number: 36**

**Project Title:** Chinese character writing checker for Primary School Students  
**Name:** Meng Li  
**Email:** meng.li3@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Monica Ward

The project is an Android application that can be used by Chinese learners to assess and improve their Chinese characters writing skills. The application provides two main functions: a tutorial part where students can learn to write Chinese characters correctly; a quiz part where student's writing skills are accessed and scored according to its similarity to the correct form and the order of strokes. A teacher's interface is also developed to view and manage all students' records.

**Project Area:** Mobile\_App  
**Project Technology:** Java

**Project Number: 37**

<b>Project Title:</b>	Development of Cerebral Aneurysm Models for the in vitro Testing of New Treatment Methods
<b>Name:</b>	Jinchuan Xiong
<b>Email:</b>	jinchuan.xiong2@mail.dcu.ie
<b>Programme:</b>	BMED
<b>Supervisor:</b>	Caitriona Lally

The aim of this project is to develop in vitro models which mimic human cerebral aneurysms for use in testing of new aneurysm treatment methods, such as EnduraGel™, developed by DCU Biomaterials Research Group. Two types of aneurysm model are being developed: i.) Animal Model – porcine coronary artery treated with methyl salicylate for increase of optical transparency and ii.) Silicone Model – Sylgard® 184, having transparent appearance after curing.

<b>Project Area:</b>	Biomedical Engineering
<b>Project Technology:</b>	Materials Testing

**Project Number: 38**

<b>Project Title:</b>	Investigation of the Use of a Digital Video Broadcast TV Dongle as a Software Defined Radio
<b>Name:</b>	Ciaran Brennan
<b>Email:</b>	ciaran.brennan58@mail.dcu.ie
<b>Programme:</b>	EE
<b>Supervisor:</b>	Patrick McNally

The aim of this project is to investigate whether the Intel Galileo embedded system, alongside an RTL2832U DVB-T dongle and open-source software, is capable of operating as a standalone Software Defined Radio.

<b>Project Area:</b>	Software Defined Radio
<b>Project Technology:</b>	GNU Radio/Python

**Project Number: 39**

<b>Project Title:</b>	Arduino based pathfinding & environment mapping robot
<b>Name:</b>	Garry Walsh
<b>Email:</b>	garry.walsh33@mail.dcu.ie
<b>Programme:</b>	Computer Applications
<b>Supervisor:</b>	Alistair Sutherland

Autonomous Arduino based robot. A pathfinding algorithm allows the robot to navigate its environment using a sonar module (Ultrasonic range finder) on a pan/tilt servo to detect obstacles in a 180° arc in front of the robot. Uses sonar to map the environment as it moves through it. Employs techniques from mobile robotics e.g. dead reckoning. Calculates the robots odometry using IR rotary encoders on the wheels.

<b>Project Area:</b>	Robotics, Artificial Intelligence, Environment Mapping
<b>Project Technology:</b>	C/C++

**Project Number: 40**

**Project Title:** Reverse Engineering of Simple Products using Android and OpenCV  
**Name:** Liam Sexton  
**Email:** liam.sexton5@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Bryan MacDonald

The reverse engineering of a simple object into 2D CAD drawings offers a powerful tool to design engineers when travelling or away from the office. A contour based approach to the vectorisation using the Suzuki and Abe border-following algorithm is implemented on Android using the OpenCV library. This application allows the engineer to quickly produce a rudimentary CAD file that can be used for further design analysis.

**Project Area:** Engineering Design  
**Project Technology:** Android

**Project Number: 41**

**Project Title:** Community Area Alert System  
**Name:** Cian McCann  
**Email:** cian.mccann9@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Ray Walshe

This project aims to provide a cost free alternative to the Community Area Text Alert Scheme. It is made up of a cross platform mobile application and a desktop web application. The mobile app allows users to create and verify a user account to receive notifications of crime or suspicious behaviour. The desktop application can create reports and notify users based on their GPS location. Users of the mobile app can control the reports they receive using their account preferences.

**Project Area:** Web\_Application  
**Project Technology:** HTML5

**Project Number: 42**

**Project Title:** Real Time Volleyball Game Analysis Tool  
**Name:** Mateusz Skrzyniarz  
**Email:** mateusz.skrzyniarz2@mail.dcu.ie  
**Programme:** DME  
**Supervisor:** David Molloy

The project is a volleyball analysis tool. It will provide the user with game and player statistics based on the generated data. Its possible use would be for the coach to analyse the performance of his and the opponent's team during a game in order to make changes to the tactics of his team and decide on the focus of future training sessions. The generated data will be based on a live match to simulate a real life scenario.

**Project Area:** Software Development  
**Project Technology:** HANA DB

**Project Number: 43**

**Project Title:** Logix Vox  
**Name:** Amy Dromgoole  
**Email:** amy.dromgoole2@mail.dcu.ie  
**Name:** Mark Bagnell  
**Email:** mark.bagnell2@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Gareth Jones

Logix Vox is a business intelligence mobile application that enables users to gain quick answers to their business questions through natural language. The application interprets the user's question, which can be spoken into the mobile device, and displays the answer back to them along with a relevant interactive chart providing context relating to the answer.

**Project Area:** Natural\_Language\_Processing, Mobile Business Intelligence  
**Project Technology:** CSS3

**Project Number: 45**

**Project Title:** Energy conservation in curing systems  
**Name:** Conor Conroy-Murphy  
**Email:** conor.conroymurphy8@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Brian Corcoran

Using daily readings of fuel usage, average outside air temperature and production of material, it is possible to show the energy conservation in the curing systems in Kilsaran International as they have redeveloped their dated curing chambers. Discussion of the differences in the modern chambers in comparison to the dated ones shows which factors influence the energy consumption and/or excessive energy consumption.

**Project Area:** Energy Conservation  
**Project Technology:** Curing Systems

**Project Number: 46**

**Project Title:** Virtual Reality as a Platform  
**Name:** Glenn Seagrave  
**Email:** glenn.seagrave2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Alistair Sutherland

Virtual Reality as a Platform is a model for a game built around Virtual Reality. The project makes use of the Oculus Rift Virtual Reality Headset alongside the Razer Hydra Motion-Controllers to provide an immersive experience. The project implements mechanics which require the player to interact with the game world in a variety of ways which are not normally used in gaming, showcasing the ways in which future technology could allow for games designed specifically for virtual reality.

**Project Area:** Virtual\_Reality, Gaming  
**Project Technology:** C#



**Project Number: 47**

<b>Project Title:</b>	Using the DMAIC process to show it's application in compressed air systems, with the aim of generating direct cost savings by energy saving methods.
<b>Name:</b>	Barry James Byrne
<b>Email:</b>	barry.byrne39@mail.dcu.ie
<b>Programme:</b>	ME
<b>Supervisor:</b>	Brian Corcoran

Considerable money is spent in industrial application on compressed air, as it is essential to almost any manufacturing environment. Lean Six Sigma can improve the efficiency of a process, while also reducing the cost of production. In using the DMAIC method this project will aim to generate direct cost savings for the organisation by applying energy saving methods throughout the compressed air system.

<b>Project Area:</b>	Lean Manufacturing
<b>Project Technology:</b>	Ultrasonic Leak Detection

**Project Number: 48**

<b>Project Title:</b>	FitServ – Health & Fitness Application
<b>Name:</b>	Sukhrat Vaitov
<b>Email:</b>	sukhrat.vaitov2@mail.dcu.ie
<b>Name:</b>	Kevin Tambele Mustong
<b>Email:</b>	kevin.mustong2@mail.dcu.ie
<b>Name:</b>	Damilare Olowoniyi
<b>Email:</b>	damilare.olowoniyi2@mail.dcu.ie
<b>Programme:</b>	Enterprise Computing
<b>Supervisor:</b>	Jennifer Foster

Achieve your health and fitness goals faster with FitServ, a personal trainer booking app. With a few quick taps/clicks, locate and book professional trainers – anytime, anywhere. Straightforward tools make it easy for professional trainers to create exercise and diet plans, as well as easily manage their clients, resulting in a hassle-free, rewarding experience for everyone involved.

<b>Project Area:</b>	Web_Application, Mobile_App
<b>Project Technology:</b>	XML, SQL, REST, PHP, JQuery, JavaScript, Java, HTML5, Eclipse

**Project Number: 49**

<b>Project Title:</b>	FOG Fats, Oils and Grease traps
<b>Name:</b>	Fergal Gerard Craig
<b>Email:</b>	fergal.craig2@mail.dcu.ie
<b>Programme:</b>	ME
<b>Supervisor:</b>	Brian Corcoran

Grease traps are devices placed in drains to separate and retain Fats, Oils and Grease from waste water to prevent clogging in pipes. FOG is responsible for the majority of pipe blockages which lead to flooding and the pollution of the environment. The project aim is to evaluate the performance of current grease traps under various conditions and improve their efficiency.

<b>Project Area:</b>	FOG Traps
<b>Project Technology:</b>	Micro bubbles

**Project Number: 50**

**Project Title:** Passive Radon Device  
**Name:** Cian Henry  
**Email:** cian.henry22@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Brian Corcoran

Radon is a carcinogenic gas which is extremely hard to detect and remove. The aim of this project is to create a simple rig which will be capable of simulating different conditions for a vertical stack pipe similar to that in the sub-floor of a building. It will also involve testing various Passive Cowls and Ridge Terminals, determining the induced air volumes drawn through these types of systems and the associated static pressure which is developed within the duct.

**Project Area:** Radon Gas Reduction  
**Project Technology:** Flow Measurement

**Project Number: 51**

**Project Title:** Hydroforming of Micro-tubes  
**Name:** Xiong Feng Ou Yang  
**Email:** xiong.ouyang2@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Bryan MacDonald

Hydroforming is a metal forming process that uses internal pressure to form tubes into complex shapes with the use of a liquid. In this project small diameter tubes were hydroformed. The tubes were free formed meaning that they are simply held at both ends and no die is used to constrain the shape of the tube. A finite element analysis was also carried out to further examine the process. The application of the formed products is in the medical device sector.

**Project Area:** Manufacturing  
**Project Technology:** Hydroforming

**Project Number: 52**

**Project Title:** Sport Technique for All: Sprinting  
**Name:** Fergus Murtagh  
**Email:** fergus.murtagh4@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Cathal Gurrin

The android application is for the specialised area of improving the sprinting technique of athletes. Users record a sprinting profile and analyse it with various tools such as a highly sensitive seek bar, side by side comparison with an expert's technique, an outline frame to ensure correct starting position and drawing tools. All user videos are also stored on a cloud database and are easily accessed through a user's particular account. There is no other application offering this functionality.

**Project Area:** Mobile\_App  
**Project Technology:** Java

**Project Number: 54**

**Project Title:** EZ-Receipts  
**Name:** Declan Tyndall  
**Email:** declan.tyndall2@mail.dcu.ie  
**Name:** Mary-Kate Kavanagh  
**Email:** marykate.kavanagh25@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Qun Liu

This project aims to create a proof of concept for a system that will integrate with an EPOS (Electronic Point Of Sales) system and through NFC (Near field Communication), or additional manually entering a receipt number, allows the user to collect and store their receipts in the cloud. Receipts are accessible through a mobile application/web interface and all receipts will be run through data analytics to identify spending patterns for both the user and the retailer who implement the system.

**Project Area:** Cloud based text document storage with analytics  
**Project Technology:** SQL

**Project Number: 55**

**Project Title:** Finite Element Analysis of Catheter Balloon Expansion  
**Name:** Paul Hugh Sheridan  
**Email:** paul.sheridan22@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Bryan MacDonald

The objective of this project is determine the behaviour of catheter balloons under internal pressure and to, hence, attempt to predict the most likely mode of failure of these balloons. Balloons, supplied by Clearstream Technologies, were experimentally tested under various strain rates to determine the material behaviour of the balloon. A finite element model of balloon expansion was subsequently validated against experimental tests and observations regarding failure of the balloons were extrapolated from both the experimental and computation results.

**Project Area:** Biomedical Engineering  
**Project Technology:** Balloon Catheters

**Project Number: 56**

**Project Title:** A Finite Element Analysis of Stresses and Strains on a Hydrogel used to treat Cerebral Aneurysms in ANSYS  
**Name:** Killian Chellar  
**Email:** killian.chellar2@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Caitriona Lally

This project aimed to analyse the stresses and strains induced on a hydrogel, used for treatment of cerebral aneurysms. A simple finite element model of a cerebral artery and aneurysm was developed. Given the specific hydrogel properties, the aneurysm was filled. Stress analysis of the finite element model was carried out, giving insight into the behaviour of the hydrogel in situ, in terms of contracting and expanding vasculature and blood flow.

**Project Area:** Biomedical Engineering  
**Project Technology:** Finite element modelling

**Project Number: 57**

**Project Title:** Design of a control system to mimic physiological and near physiological shear forces on a material in a custom cone and plate shear tester.

**Name:** Alan James Cleary

**Email:** alan.cleary2@mail.dcu.ie

**Programme:** CAM

**Supervisor:** Caitriona Lally

The aim of this project is to produce reliable and repeatable shear stresses in an existing rheometer. An Arduino and optical encoder, by means of closed loop control system, will facilitate this goal. Proportional Integral and Differential (PID) libraries will be used to give better control and reliability. Data collected from the system will be logged and a user interface will be provided to visualise the results.

**Project Area:** Biomedical Engineering

**Project Technology:** Arduino

**Project Number: 58**

**Project Title:** Total Conference

**Name:** Shane Homan

**Email:** shane.homan2@mail.dcu.ie

**Name:** Eoin Cusack

**Email:** eoin.cusack4@mail.dcu.ie

**Programme:** Enterprise Computing

**Supervisor:** Dr. Markus Helfert

Total Conference is a proof of concept project, which aims to provide academic conference organisers with a customised mobile application for their conference, in order to create stronger interaction and communication between their delegates. The app has a number of core features that can be customised by the conference organiser through our web application. Delegates of the conference also have the ability to create a user profile on our web application where they can view their previous conference history.

**Project Area:** Mobile\_App, Web\_Application

**Project Technology:** Eclipse, Java

**Project Number: 59**

**Project Title:** AisleHopper – An application to reduce the time spent by consumers in stores.

**Name:** Philip Curran

**Email:** philip.curran9@mail.dcu.ie

**Name:** David Burke

**Email:** david.burke29@mail.dcu.ie

**Programme:** Enterprise Computing

**Supervisor:** Mark Roantree

Our mobile application is targeted at supermarket consumers with an aim to reduce the time spent searching a supermarket for specific products. Our application allows users to create a shopping list, and will then create a map with the location of each product on the users mobile device and display the route the user should follow to complete their shopping, allowing the user to check items off their list as they go.

**Project Area:** Mobile\_App

**Project Technology:** MySQL

**Project Number: 60**

**Project Title:** Mechanical and Rheological Analysis of a Novel Radiopaque Hydrogel for the Treatment of Cerebral Aneurysms  
**Name:** Ian James Richardson  
**Email:** ian.richardson2@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Caitriona Lally

A novel hydrogel, called EnduraGel™, has been developed as a new treatment for cerebral aneurysms. EnduraGel™ fills the aneurysm more completely than platinum coils, reducing rupture and recanalisation. The hydrogel consists of a glass and a polymer. The aim of this project is to develop a new glass to improve the radiopacity of the hydrogel and monitor the suitability of the new hydrogel in terms of mechanical and rheological properties.

**Project Area:** Biomedical Engineering  
**Project Technology:** Materials Testing

**Project Number: 61**

**Project Title:** Determination of the Freezing Effect on the Mechanical Properties of Decellularised Arteries  
**Name:** Gemma Thorne  
**Email:** gemma.thorne2@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Caitriona Lally

The aim of this project is to ascertain the effects that freezing the tissue and storing has on the mechanical properties of the tissue. The use of decellularised coronary arteries as a scaffold for tissue engineered blood vessels provides great opportunities for future clinical and current research applications. Decellularisation is a process which involves the removal of all vascular cells and only the extracellular matrix remains. However, concerns remain regarding the long-term preservation and sterilisation of these scaffolds because the use of fresh tissue in a clinical setting is extremely impractical. Freezing offers a means of overcoming these concerns. This project aimed to investigate different types of freezing over specified time periods in order to determine an optimum method for long term preservation; freezing in standard freezer Vs freezing in liquid nitrogen. The effects of freezing the tissue both before and after decellularisation were also be investigated.

**Project Area:** Biomedical Engineering  
**Project Technology:** Materials Testing

**Project Number: 62**

**Project Title:** Precision Robot Cart Sensor Platform  
**Name:** Deirdre Reilly  
**Email:** deirdre.reilly28@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Derek Molloy

This project involves the design and manufacture of a precision autonomous robotic cart platform. The platform will be used as the undercarriage for a professional video capturing environment in future Mechatronics projects. The main objective for the project was the construction of a stable, continuous movement robot that is aware of its environment. The project was divided into three main sections; Design/Manufacture of the physical platform, introduction of control electronics, and development of an embedded software ecosystem to control the robot.

**Project Area:** Robotics  
**Project Technology:** BeagleBone Embedded Single-Board Computer

**Project Number: 63**

<b>Project Title:</b>	Variable Parameter Car Steering Mechanism: Design & Manufacture
<b>Name:</b>	Claire Nally
<b>Email:</b>	claire.nally7@mail.dcu.ie
<b>Programme:</b>	ME
<b>Supervisor:</b>	Tamas Szecsi

This project comprises of the design and manufacture of a model car. This car has a variable track and wheelbase and will be used as a demonstration device for first year students. The aim of the device is to educate the first years on the steering mechanism.

<b>Project Area:</b>	Mechanical Engineering
<b>Project Technology:</b>	SolidWorks

**Project Number: 64**

<b>Project Title:</b>	Design and Test of A Low-Noise VLF Receiver System
<b>Name:</b>	Kilian Dolan
<b>Email:</b>	kilian.dolan8@mail.dcu.ie
<b>Programme:</b>	EE
<b>Supervisor:</b>	Patrick McNally

This project will create a low noise, smart, VLF receiver using a fibre optic link to a remote antenna to monitor natural and unnatural transmissions. The system will have intelligent control and digitisation, providing real-time local or remote analysis via spectrograms, FFTs and more.

<b>Project Area:</b>	Analog and Digital Circuit Design
<b>Project Technology:</b>	Mixed Signal Circuits & PCB Design

**Project Number: 65**

<b>Project Title:</b>	Galileo-Based Solar Tracker
<b>Name:</b>	Andrew Gerard Sexton
<b>Email:</b>	andrew.sexton7@mail.dcu.ie
<b>Programme:</b>	EE
<b>Supervisor:</b>	Patrick McNally

This solar panel's tracking mount is aimed to be low cost and highly efficient. The use of an equatorial mount for the panel positioning enhances the power conversion efficiency of the photovoltaic conversion system. It incorporates the internet functionality of an Intel Galileo board, to develop the project as part of an Internet of Things concept, thereby allowing remote monitoring of the Solar Panel.

<b>Project Area:</b>	Analog and Digital Circuit Design
<b>Project Technology:</b>	Digital and Analog Circuit Design

**Project Number: 66**

**Project Title:** A Scalable Framework for Interacting with Electronic Devices over the Internet  
**Name:** Ian Harrison  
**Email:** ian.harrison2@mail.dcu.ie  
**Programme:** DME  
**Supervisor:** Derek Molloy

The project goal is to create a way of communicating with networked electronic devices over the Internet. The project investigates how to do so in a way that is scalable, low cost, low power, and easily extensible. The proposed solution framework consists of three tiers:

- Wireless communication with devices – Using the ZigBee standard
- Data collection and aggregation – Using the BeagleBone Black and embedded Linux
- Data presentation and user interaction – Using a centralised web server

**Project Area:** Internet of Things  
**Project Technology:** Node.js/Embedded Linux

**Project Number: 67**

**Project Title:** Study of dimensional accuracy and robustness of parts printed in Miicraft HR 3D printer.  
**Name:** Conor Boyle  
**Email:** conor.boyle25@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Dermot Brabazon

This project is aimed at investigating the capabilities and quality of prints produced by the Miicraft HR 3D Printer. In this project the dimensional accuracy of parts printed using this printer in the X, Y and Z axis is examined and also wear testing in the X and Y axis was conducted. Each of these tests were repeated several times to also test the printers consistency and robustness.

**Project Area:** Manufacturing  
**Project Technology:** Additive Manufacturing

**Project Number: 68**

**Project Title:** Characterisation of new stereolithography 3D printers for fabrication of microfluidic channels  
**Name:** Ciaran Hennessy  
**Email:** ciaran.hennessy7@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Dermot Brabazon

Characterisation of 3D printed microfluidic devices to include minimum channel dimensions, surface roughness, wettability, and permeability. In this project a newly purchased 3D printer will be used to print microfluidic channels in polymer resin. These channels will be characterised based on resin type, channel dimensions, surface roughness, wettability, and permeability.

**Project Area:** Microfluidics  
**Project Technology:** Additive Manufacturing/Stereolithography

**Project Number: 69**

<b>Project Title:</b>	Characterisation of new stereolithography 3D printers for fabrication of bioscaffold designs
<b>Name:</b>	Conor Brendan Martin
<b>Email:</b>	ciaran.martin38@mail.dcu.ie
<b>Programme:</b>	CAM
<b>Supervisor:</b>	Dermot Brabazon

The aim of this project is to produce bio-scaffolds using a rapid prototyping technique, in this case stereolithography (SLA) was used. The bio-scaffold designs are varied by changing its channel dimensions, porosity and shape e.g. cubic and hexagonal. Once all the bio-scaffolds are made they are then tested and characterised on their wettability, permeability and surface roughness. These tests are done with water and a water-glycerol mixture.

<b>Project Area:</b>	Manufacturing
<b>Project Technology:</b>	Additive Manufacturing

**Project Number: 70**

<b>Project Title:</b>	Quality of Experience Assessment of Synchronisation between 3D Video and Multisensorial Media Components
<b>Name:</b>	John Noel Monks
<b>Email:</b>	john.monks2@mail.dcu.ie
<b>Programme:</b>	EE
<b>Supervisor:</b>	Gabriel Muntean

The recent advances in 3D video technology have led to their increased popularity. Research has been performed on introducing additional senses into media alongside video and audio and is referred to as "MulSeMedia". This project analysed users' quality-of-experience (QoE) when exposed to 3D "MulSeMedia" content. Participants were tested using a test-bed developed to synchronise multiple media components (olfaction, haptic, air-movement) with 3D video. User QoE when viewing 3D and 2D "MulSeMedia" was comparatively studied.

<b>Project Area:</b>	3D multiple sensorial media
<b>Project Technology:</b>	C#, C++, Visual Studio

**Project Number: 71**

<b>Project Title:</b>	Quality of Experience Assessment of Synchronisation between 2D Video and Multisensorial Media Components
<b>Name:</b>	Aida Olaru
<b>Email:</b>	aida.olaru3@mail.dcu.ie
<b>Programme:</b>	ICE
<b>Supervisor:</b>	Gabriel Muntean

Human computer interaction technologies enable the creation and usage of "MulSeMedia" which extends multimedia by integrating non-traditional components such as: olfactory, haptic, skin-sensorial (air-flow). This project analyses how MulSeMedia content affects user quality-of-experience (QoE). A test-bed of synchronised 2D video-based MulSeMedia was created and used in order to gather results through tests involving human participants. These results are compared with those of a similar solution which includes 3D MulSeMedia content.

<b>Project Area:</b>	Multiple Sensorial Media (MulSeMedia)
<b>Project Technology:</b>	C#, C++, Visual Studio



**Project Number: 72**

<b>Project Title:</b>	Develop a fully integrated laser control system capable of manipulating the laser beam in X, Y and Z planes
<b>Name:</b>	Hiu Sen Poon
<b>Email:</b>	hiu.poon2@mail.dcu.ie
<b>Programme:</b>	ME
<b>Supervisor:</b>	Dermot Brabazon

The aim of this project was to design, using LabVIEW and other software to design and build, in compliance with industrial safety standards, an Nd:YAG 732nm laser that is capable of manipulating the laser beam in X, Y and Z planes. The components of the laser consist of the Nd:YAG 732nm laser, galvanometer, optical breadboard and computer control. Each of these components were sourced from standard commercial suppliers.

<b>Project Area:</b>	Manufacturing
<b>Project Technology:</b>	Laser Processing

**Project Number: 73**

<b>Project Title:</b>	Design and Evaluation of a Polymer regrind device
<b>Name:</b>	Colin Dowling
<b>Email:</b>	colin.dowling33@mail.dcu.ie
<b>Programme:</b>	CAM
<b>Supervisor:</b>	Garrett McGuinness

The rate at which at which plastics are being recovered and recycled is constantly increasing throughout the world. Regrinding of waste plastic is a fundamental step in mechanical plastic recycling and energy recovery methods such as incineration and feedstock recycling. The aim of this project is to design and construct a bench top plastics re-grinder. The design phase was followed by experiments to characterise the reground plastic granules, and evaluate the effect on tensile properties of injection moulded samples.

<b>Project Area:</b>	Device Design
<b>Project Technology:</b>	Solidworks, Mechanical Testing

**Project Number: 74**

<b>Project Title:</b>	An Investigation of using MATLAB with popular hardware platforms
<b>Name:</b>	Ronan Deery
<b>Email:</b>	ronan.deery2@mail.dcu.ie
<b>Programme:</b>	EE
<b>Supervisor:</b>	Jennifer Bruton

This project develops an Arduino-based DC motor control platform using a low power DC motor. The planned design allows the embedded system to be easily implemented in laboratory conditions. The Matlab control scheme allows for analysis of results from control and sensor data whilst the Simulink design highlights how control systems work without getting lost in code. The outcome will be a low-cost, safe laboratory platform for the investigation of mechatronic control systems.

<b>Project Area:</b>	Control Systems
<b>Project Technology:</b>	MATLAB & C

**Project Number: 75**

**Project Title:** Modelling Simple Societies – Game Theory  
**Name:** Graham Maxwell  
**Email:** graham.maxwell2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Alistair Sutherland

The aim of this project is to simulate a simple society in which people interact with each other, gaining or losing points with each interaction. Each person has a different strategy which determines how they will interact, and these strategies may evolve over time. The outcome of each interaction is decided using normal-form game theory. The main goal of the simulation is to determine which strategy proves to be most effective in the long run at acquiring points.

**Project Area:** Graphics,Artificial\_Intelligence  
**Project Technology:** Java

**Project Number: 76**

**Project Title:** Development of a Spinning Process for Fabrication of PVA ligaments  
**Name:** Karl Keogh  
**Email:** karl.keogh7@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Garrett McGuinness

PVA was used to fabricate synthetic ligaments and their mechanical properties were compared to normal ligaments found in the body (ACL). A simple device was designed to spin several PVA fibers into a single thread. Freeze thaw cycles and annealing were used to crosslink PVA fibers to improve their mechanical properties. Mechanical testing was carried out on the developed synthetic fibers to analyse their properties.

**Project Area:** Biomedical Engineering Design  
**Project Technology:** SolidWorks, Zwick tensile tester

**Project Number: 77**

**Project Title:** Efficient Hardware Implementation of the Lightweight Cryptographic Algorithm PRESENT  
**Name:** George Morcos  
**Email:** george.morcos2@mail.dcu.ie  
**Programme:** EE  
**Supervisor:** Xiaojun Wang

The project focusses on the hardware acceleration of the lightweight cryptographic algorithm PRESENT, along with its implementation and benchmarking against other known implementations

**Project Area:** Cryptography  
**Project Technology:** FPGA, VHDL

**Project Number: 78**

**Project Title:** Frictional Based Properties of PVA Based Cartilage Replacement Biomaterial  
**Name:** Sean Brian O'Neill  
**Email:** sean.oneill54@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Garrett McGuinness

Design and develop a rig with the ability to test the frictional properties of PolyVinyl Alcohol (PVA) based cartilage replacement biomaterials. PVA is being developed as a cartilage replacement biomaterial due to it having high water solubility, comparable compressive properties and comparable elastic properties. A varying amount of freeze-thawing was performed on the PVA to study the effect on the frictional properties and also the effect that varied loads have on the frictional properties of PVA.

**Project Area:** Material Science  
**Project Technology:** Labview

**Project Number: 79**

**Project Title:** ALT Goal Manager  
**Name:** Avril Dockery  
**Email:** avril.dockery4@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** John McKenna

ALT Goal Manager is a web application aimed at students to assist in managing their learning goals, through the use of agile and scrum methodologies, in order to give a sense of control and organisation over individuals' learning outcomes. The application allows the user to create their own online agile scrum board similar to those used in agile learning environments. The application frontend is built using HTML, CSS, AngularJs, with a REST backend utilising Spring and a MySQL database.

**Project Area:** Web\_Application  
**Project Technology:** REST

**Project Number: 80**

**Project Title:** Development of a Blow Spinning Apparatus for Biomaterial Development  
**Name:** David Savage  
**Email:** david.savage3@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Garrett McGuinness

Blow Spinning is a technique to fabricate fibrous biomaterials by elongating a liquid polymer from a needle tip using compressed gas. Fibres can be used as tissue scaffolds, wound dressing and drug release systems due to the high surface area to volume ratio and the high porosity. This project was aimed towards the design and manufacture a device capable of producing non-woven fibres and examining the morphology and diameter of fibres produced under SEM.

**Project Area:** Biomaterials development  
**Project Technology:** Blow spinning

**Project Number: 81**

**Project Title:** Development of an Android based Multimeter and Digital Oscilloscope  
**Name:** Rory Hewson  
**Email:** rory.hewson2@mail.dcu.ie  
**Programme:** DME  
**Supervisor:** Robert Sadleir

This project combines android application development, embedded systems, and electronic circuit design to implement the functionality of Oscilloscope & Multimeter devices. Hardware is used to interpret and process electronic signals. They are then safely presented to the audio system of the android device. The application measures and interprets the signals, accurately presenting them to the user as a voltage waveform over time and other various values just like the traditional devices.

**Project Area:** Mobile App Development  
**Project Technology:** Android/Java

**Project Number: 82**

**Project Title:** Modelling and Simulation  
**Name:** David Davitt  
**Email:** david.davitt4@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Harold Esmonde

The aim of this project was to create a model that represents the motion of a circular body or wheel that is rolling back and forth due to an eccentric mass. This model is simulated and animated using software such as Matlab to create a virtual representation of the dynamic behaviour.

**Project Area:** System modelling  
**Project Technology:** Scilab

**Project Number: 83**

**Project Title:** Control of a Dynamic System  
**Name:** Alastar Doyle  
**Email:** alastar.doyle83@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Harold Esmonde

The system uses a real time programme interfaced with an Arduino microprocessor to control the location of a ball on a tilting beam. The project is split into two sections: modelling and identification of the system and implementation of optimal control.

**Project Area:** Control  
**Project Technology:** Labview

**Project Number: 84**

**Project Title:** Automated Weighing Process  
**Name:** Deirdre Kenny  
**Email:** deirdre.kenny28@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Harold Esmonde

This project is based on a weight calibration system, provided by the National Standards Association of Ireland (NSAI). The requirements include an upgrade to some of the current hardware, and the use of LabVIEW 2013 and Excel Macros in updating the current system in order to achieve an automated reporting of the results.

**Project Area:** Automation  
**Project Technology:** Labview

**Project Number: 85**

**Project Title:** Teleprinter demo  
**Name:** Ruairi O'Brien  
**Email:** ruairi.obrien28@mail.dcu.ie  
**Programme:** DME  
**Supervisor:** Ronan Scaife

The aim of this project is to integrate a teleprinter with the modern gsm network. The teleprinter was the backbone of the Telex network, enabling easy worldwide communications from the 1930s. This project is part of an interactive museum display allowing visitors to text the machine and see the message printed in front of them.

**Project Area:** Telecommunications  
**Project Technology:** Arduino

**Project Number: 86**

**Project Title:** Actuation of dissolvable film valves on a lab on a disc using mechanical fluting  
**Name:** Abhishek Vembadi  
**Email:** abhishek.vembadi2@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Dermot Brabazon

This project involved the development of a new, instrument activated valve using the event-triggered architecture. This valve was sealed by a thin adhesive film on the top surface of the disc. By piercing this thin adhesive film, the pneumatic chamber was vented and the valve actuated. To implement this design a robotic arm was designed, built (using 3D printing) and programmed (using LabVIEW) to move a knife to contact the top surface of the disc, to implement a centrifugal microfluidic bioassay on-disc.

**Project Area:** Microfluidics  
**Project Technology:** SolidWorks

**Project Number: 87**

**Project Title:** Investimate  
**Name:** Donal Ryan  
**Email:** donal.ryan46@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr Martin Crane

The objective behind INVESTmate is to dynamically build and re-adjust trading systems that use forecasting indicators and exit rules and open and exit buying positions using their unique trading strategies. The trading strategies are generated using GANN, a component of this system, which optimises their profitability within the trading system using GA, Naïve Bayes and Feed Forward/Back-propagation algorithms.

The system consists of:

- A Web Server: Django web framework.
- GANN: A C/C++ application (Python bindings).
- An Android Application

**Project Area:** Artificial\_Intelligence, Technical Analysis, Genetic Algorithms  
**Project Technology:** C/C++, Python, XML

**Project Number: 88**

**Project Title:** Automated Assembly  
**Name:** David Ramsey  
**Email:** david.ramsey2@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Harold Esmonde

A design project that is aimed to produce a device that is capable of adding a key tab to a key ring. The project's development required the consideration of part feeding & part handling, combined with various other aspects associated with automation.

**Project Area:** Design  
**Project Technology:** Solidworks

**Project Number: 89**

**Project Title:** Android based vision control  
**Name:** Vincent Yegenoglu  
**Email:** vincent.yegenoglu2@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Harold Esmonde

The goal of this project was to use an android embedded system to tilt a platform along two axes to control the position of a ball. This was accomplished using a mobile phone to track the ball's location on the table via the camera and then command servo motors to adjust tilt angle accordingly.

**Project Area:** Embedded Systems  
**Project Technology:** Android

**Project Number: 90**

**Project Title:** Combining Accelerometer and Gyroscopic Signals using a Microprocessor as part of a Sensor subsystem design for a light-aircraft AHRS

**Name:** Niall Tiernan

**Email:** niall.tiernan2@mail.dcu.ie

**Programme:** DME

**Supervisor:** Noel Murphy

This project is concerned with the design and prototyping of an attitude and heading reference system (AHRS) for a light aircraft. The system will use miniature solid state MEMS sensors that include three-axis accelerometers and three-axis gyros. The aim of this project is to design and prototype a microcontroller-based interface system to these sensors that will provide robust, fault-tolerant, accurate and real-time attitude and heading data.

**Project Area:** Sensor data acquisition

**Project Technology:** Digital signal processing

**Project Number: 91**

**Project Title:** Sensor exploration for positioning control systems

**Name:** Zac Lennon

**Email:** zac.lennon2@mail.dcu.ie

**Programme:** ME

**Supervisor:** Jennifer Bruton

With the growing importance of the Internet of Things, analysing how objects interact with the world in which they reside over network connections is becoming increasingly relevant. Manipulators and mobile robots are becoming more advanced and precise through sensory perception resulting in the likes of autonomous vehicles and robotic prosthetics. This project aims to explore characteristics and effectiveness of inertial measurement sensors.

**Project Area:** Sensor Data Acquisition

**Project Technology:** MEMS devices

**Project Number: 92**

**Project Title:** TaskPortal project management social network

**Name:** Kirill saliev

**Email:** kirill.saliev2@mail.dcu.ie

**Programme:** Computer Applications

**Supervisor:** Dr Claus Pahl

TaskPortal is a cloud based software development project collaboration tool which combines features found in most modern social networks such as instant messaging, friend relationships and assist with software project management tasks. project specific items include file system, real time issue tracking, instant messaging group, access restrictions and more. Each project has a project analyser feature which is able to analyse all project activity such as instant messaging or document uploads, display results and notify user of potential problems.

**Project Area:** Web\_Application

**Project Technology:** Asp.net, SignalR, Javascript, jquery, SQL Server, NoSQL Cloud based Solutions.

**Project Number: 93**

<b>Project Title:</b>	Gluco24
<b>Name:</b>	Shalom Osiadi
<b>Email:</b>	shalom.osiadi2@mail.dcu.ie
<b>Name:</b>	Dzino Olenczuk
<b>Email:</b>	Dzino.olenczuk2@mail.dcu.ie
<b>Name:</b>	Yuki Leung
<b>Email:</b>	yuki.leung2@mail.dcu.ie
<b>Programme:</b>	Enterprise Computing
<b>Supervisor:</b>	Cathal Gurrin

This project is a 2-part prototype that consists of a prototype hardware mock-up and a fully functional software application. Gluco24 is designed to help diabetes patients continuously monitor their blood glucose levels in a non-invasive manner. Using transdermal electrochemical sensor technology, Gluco24 combines a chemical sensing wristband with a smartphone application to manage the data. The software aspect of the project (mobile and web application) have been developed using Apache Cordova making it cross platform.

<b>Project Area:</b>	Sensor_Technology
<b>Project Technology:</b>	JQuery,JavaScript

**Project Number: 94**

<b>Project Title:</b>	Hazard Awareness System
<b>Name:</b>	Grace Reidy
<b>Email:</b>	grace.reidy3@mail.dcu.ie
<b>Programme:</b>	EE
<b>Supervisor:</b>	Paul Whelan

This project aims to develop a solution using image processing and computer vision techniques to reduce cyclist accidents on the roads. This will be done by using a Raspberry Pi, programmed with Python and SimpleCV, to analyse traffic behind the cyclist and alert them to oncoming hazards.

<b>Project Area:</b>	Computer Vision
<b>Project Technology:</b>	Python

**Project Number: 95**

<b>Project Title:</b>	Vision System Development for Image Analysis in Fluid Flow
<b>Name:</b>	Faheem Shah
<b>Email:</b>	faheem.shah2@mail.dcu.ie
<b>Programme:</b>	BMED
<b>Supervisor:</b>	Yan Delaure

When the Microsoft Kinect was released back in 2010, very soon it claimed the Guinness World Record of being the "fastest selling consumer electronics device". The cheap and robust device became easily accessible to everyone. Engineers and Hackers found the potentials of this technology and explored it to the best of their creativity in the fields of Health and medicine, Exercise, Education, Music, e-commerce and much more. Similarly my project aims to assess the suitability for analysing deformation on thin surfaces, this project involves designing a water tunnel made from transparent acrylic, which is used to analyse and track an object with the Microsoft Kinect sensor or a web camera. An algorithm is made through programming capable of detecting the object and tracking it. Analysing the tracking data, the deformation of an Object [rag] can be determined.

<b>Project Area:</b>	Computer Vision, Design
<b>Project Technology:</b>	Solidworks, Image Processing, Microsoft Kinect



**Project Number: 96**

<b>Project Title:</b>	Alzafind Wristband – GPS Tracking for Alzheimer’s Patients
<b>Name:</b>	Shane Griffin
<b>Email:</b>	shane.griffin33@mail.dcu.ie
<b>Name:</b>	Jacques Fay
<b>Email:</b>	jacques.fay7@mail.dcu.ie
<b>Name:</b>	Levon Vasilyan
<b>Email:</b>	levon.vasilyan2@mail.dcu.ie
<b>Programme:</b>	Enterprise Computing
<b>Supervisor:</b>	Dr. Stephen Blott

This project provides a detailed, clear business model for implementing a comfortable solution to the increasing problem that is wandering episodes among Alzheimer’s patients. This is a rapidly growing problem as our population ages. The proposed device, the Alzafind Wristband, will have GPRS connection, which it will use in conjunction with GPS capabilities to determine when an Alzheimer’s patient is leaving a pre-designated Geo-fence, or “safe zone”. The wristband will then alert the caregiver/relative of Alzheimer’s patients.

<b>Project Area:</b>	GPS_GIS
<b>Project Technology:</b>	SQL,PHP

**Project Number: 97**

<b>Project Title:</b>	“Frictionless” Shearing Apparatus
<b>Name:</b>	Lucian Nanau
<b>Email:</b>	lucian.nanau2@mail.dcu.ie
<b>Programme:</b>	ME
<b>Supervisor:</b>	Jeremiah Murphy

The aim of this Project is to design, build and test the rig for various very soft materials (e.g brain tissue). Because of the small forces involved, friction has to be minimal.

<b>Project Area:</b>	R&D
<b>Project Technology:</b>	Magnetic Levitation

**Project Number: 98**

<b>Project Title:</b>	Upstream Impact of Demand Variability
<b>Name:</b>	Warren Behan
<b>Email:</b>	warren.behan2@mail.dcu.ie
<b>Programme:</b>	MWB
<b>Supervisor:</b>	John Geraghty

There is often variability in the arrival of demands for the finished products of a manufacturing system. It is of interest to know how this propagates upstream from the finished products buffer to the raw materials buffer in a Kanban controlled manufacturing system. Using computer software Extendsim8 the aims of this project is to find the best way to set the Kanban systems settings to avoid variability and to optimise the system to achieve the lowest inventory level required to achieve a target service level.

<b>Project Area:</b>	Lean Manufacturing
<b>Project Technology:</b>	ExtendSim 8

**Project Number: 99**

**Project Title:** Replenishment strategies in Mizusumashi systems  
**Name:** Peter Francis Fisher  
**Email:** peter.fisher2@mail.dcu.ie  
**Programme:** MWB  
**Supervisor:** John Geraghty

This project sought to investigate key replenishment strategies, then assess and develop algorithms which can be used to optimise the content loading of Mizusumashi vehicles based on vehicle capacity, supplied item dimensions and workstation demand. The project then sought to compare the algorithms in terms of reducing the number of journeys required by the Mizusumashi between inventory and local storage points using a MATLAB model.

**Project Area:** Lean Manufacturing  
**Project Technology:** Matlab

**Project Number: 100**

**Project Title:** Algorithms for Job Shop Scheduling Problems  
**Name:** Seamus Lane  
**Email:** seamus.lane5@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** John Geraghty

This project involved analysing two existing algorithms coded in Python which are used for job shop manufacturing, namely an Ant Colony Optimisation and a List Scheduling algorithm. Both algorithms were to be investigated, with a number of complex scenario experiments so that improvements could be implemented into the algorithms functionality.

**Project Area:** Optimisation  
**Project Technology:** Python

**Project Number: 101**

**Project Title:** Simulation modeling of a lean Heijunka Box  
**Name:** Shane Mc Carthy  
**Email:** shane.mccarthy38@mail.dcu.ie  
**Programme:** MWB  
**Supervisor:** John Geraghty

This project aimed to develop the 'Heijunka Box' scheduling tool that will level the production volume and mix of a mixed model automotive component assembly line using real historical data. The Heijunka box was transferred to an electronic version with the aim to simulate its effectiveness against current rule based production methods.

**Project Area:** Lean Manufacturing  
**Project Technology:** MS Excel VBA

**Project Number: 103**

**Project Title:** Final Commissioning of Sectioned Car Engines  
**Name:** Islam Bisayev  
**Email:** islam.bisayev2@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Joseph Stokes

The main objective and aim of this project is the final commissioning of the existing sectioned petrol and diesel Car engines, which are fixed to display stands to be used in the DCU Engineering/Stokes Building on permanent show, and during open days to attract future Mechanical and Manufacturing Engineering prospective students. These displays will increase ones interest in Engineering, through interactive displays and an explanation of the Thermodynamic combustion engine

**Project Area:** Educational Display  
**Project Technology:** Android

**Project Number: 104**

**Project Title:** Energy & Space Audit of the School Of Manufacturing Engineering  
**Name:** Owen Connolly  
**Email:** owen.connolly3@mail.dcu.ie  
**Programme:** MWB  
**Supervisor:** Joseph Stokes

The aims of this project were: To analyse the use of space withing the MME in school and visualise data in order for improvements to be made to the flow of students in classrooms over future years., To analyse the energy consumption of the MME school, Compare the consumption to a similar establishment, estimate the total cost and propose areas to improve upon.

**Project Area:** Energy Conservation & Eco Auditing  
**Project Technology:** Excel

**Project Number: 105**

**Project Title:** Super Word-A-Day  
**Name:** Brendan Byrne  
**Email:** brendan.byrne36@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** John McKenna

Super Word-A-Day is an Android app that assists English speakers in broadening their vocabularies. It does this by retrieving content from a word-a-day website, presenting this to the user for memorising, testing them on what they've learnt using speech recognition, then analysing the results in various ways and scoring them according to a user-set difficulty level.

Other features include user analysis using an Apache server, revision, and a word archive.

**Project Area:** Data  
Analytics, Educational, Mobile\_App, Natural\_Language\_Processing, Network\_ Applications, Software\_Development, Speech\_Recognition  
**Project Technology:** Eclipse, Java, PHP, XML

**Project Number: 106**

**Project Title:** The Bike Bug: the Simulation of a Bicycle-Powered Phone Charger  
**Name:** Sean Burke  
**Email:** sean.burke33@mail.dcu.ie  
**Programme:** EE  
**Supervisor:** Pascal Landais

Revolutionary, innovative, efficient and inexpensive source of renewable energy. Simulation so far shows voltage can reach steady state which is ideal. Potential for this product is enormous – vast target market. Future plans to change the parameters in Simulink to optimise the efficiency of charging. Based on results, a real model can be built. Time-management and testing is key.

**Project Area:** Electric generator  
**Project Technology:** Matlab

**Project Number: 107**

**Project Title:** Betting Data Analysis  
**Name:** Kevin Sweeney  
**Email:** kevin.sweeney9@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr Martin Crane

The proliferation in the number and popularity of online betting exchanges has been accompanied by a vast and growing amount of betting odds data online. This project is directed at the analysis of such data in sport such as Football with a view to detecting trends in the data and hence inconsistencies in conventional Bookmaker odds.

**Project Area:** Data Analytics  
**Project Technology:** Python

**Project Number: 108**

**Project Title:** Picture Messaging Android Application And Service  
**Name:** Mark Macken  
**Email:** mark.macken6@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Cathal Gurrin

The purpose of this project is to successfully create and implement an image messaging service for mobile devices using the Android mobile operating system. The project will allow its users to send messages to each other, by allowing them to choose a receiver by list, proximity, or using random selection. This messaging application will use a point system for viewing images and a rating system for viewed images.

**Project Area:** Mobile\_App  
**Project Technology:** SQL,PHP,Java,XML

**Project Number: 109**

**Project Title:** Fónetic  
**Name:** Anna Sargent  
**Email:** anna.sargent2@mail.dcu.ie  
**Name:** Hayley Manning  
**Email:** hayley.manning2@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Monica Ward

Fónetic is a proof of concept application run on the Android platform designed as a fun way to learn the Irish language in primary schools. It is based around the Irish curriculum and covers the four main strands; hearing, speech, reading and writing. There are lessons and games designed around the curriculum. Fónetic is tailored for 4-6, 7-9 and 10-12 age groups. It assists in pronunciations of words through the use of phonetic spelling, game interaction and audio clips.

**Project Area:** Mobile\_App  
**Project Technology:** SQL,PHP,JavaScript,HTML5

**Project Number: 110**

**Project Title:** Efficient Hardware Implementation of the Lightweight Block Encryption Algorithm CLEFIA  
**Name:** Laura Mary Murphy  
**Email:** laura.murphy47@mail.dcu.ie  
**Programme:** DME  
**Supervisor:** Xiaojun Wang

This project is to design an efficient hardware implementation of the lightweight block cipher CLEFIA. It involves learning how to use the Xilinx environment, understanding the algorithm as described by SONY, learning the VHDL language and programming the algorithm in VHDL.

**Project Area:** Cryptography  
**Project Technology:** FPGA, VHDL

**Project Number: 111**

**Project Title:** MoodleFUSE  
**Name:** Darren Brogan  
**Email:** darren.brogan2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Kevin Casey

Handling Moodle resources can take time for lecturers and students. MoodleFUSE aims to provide a simple way to map Moodle resources to a local filesystem. The application is developed in Python for a Linux system. It uses FUSE to build a virtual user space filesystem that corresponds to a specific user defined Moodle implementation. The list of supported operations that can be carried out on the remote Moodle resources locally are add, remove, rename & modify.

**Project Area:** Content Management System,Educational,Filesystems,Web\_Application  
**Project Technology:** FUSE,Python,SQL,XPath

**Project Number: 112**

**Project Title:** Low Temperature Deposition Gun  
**Name:** Opeideth Elsheikh  
**Email:** opeideth.elsheikh2@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Joseph Stokes

Thermal Spraying is used to deposit coatings with enhanced properties onto components subjected to hostile environments. The project involves the design and build of a low temperature deposition gun for coating applications, by attaching the nozzle to a standard Heat Gun. Adjusting the current design and carrying out experiments to determine the optimum location for the flow of powder to the nozzle at the desired temperature.

**Project Area:** Material Science  
**Project Technology:** Coating

**Project Number: 113**

**Project Title:** Smart bracelet  
**Name:** Eimhin Smyth  
**Email:** eimhin.smyth22@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** David Sinclair

This project consists of a bracelet that connects to a phone and an Android app responsible for communicating with the bracelet. The bracelet uses visual feedback and vibration motors to let the user know when they have received calls, texts or emails. The bracelet is also capable of sending some simple commands to the phone.

**Project Area:** Mobile\_App  
**Project Technology:** Java

**Project Number: 114**

**Project Title:** Heads-up Computer Poker  
**Name:** Conor McCarthy  
**Email:** conor.mccarthy54@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. David Sinclair

The project is a heads-up (one on one) poker game where the blinds keep rising as the game progresses which puts pressure on the player to bluff when they would normally fold. The main aspect of the project is the poker AI which provides a strong enough opponent for the player to go head to head with. The AI is designed on a desktop environment and works off a rule based system taking in multiple inputs before making its move.

**Project Area:** Artificial\_Intelligence  
**Project Technology:** Java

**Project Number: 115**

**Project Title:** Real Time Twitter Sentiment analysis  
**Name:** Richard Kavanagh  
**Email:** richard.kavanagh7@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr Mark Humphrys

Social media sites like Twitter have evolved to become a huge source of varied kinds of information. This large source of available data provides an opportunity to view and track people and groups reaction to events in real-time.

This project will allow users to track specific topics/individuals and provide real time sentiment analysis and metrics of their tweets.

This project is built in Java using 'Apache Storm', and uses Elasticsearch and Kibana, the front end was developed using AngularJS.

**Project Area:** Data Analytics,Natural\_Language\_Processing  
**Project Technology:** Java,NoSQL

**Project Number: 116**

**Project Title:** Wise Owl Prepositions  
**Name:** Clare Faughey  
**Email:** clare.faughey2@dcu.mail.ie  
**Name:** Nikita Puri  
**Email:** nikita.puri2@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Jennifer Foster

This project involves the development of a prototype Android app which allows learners of English to practise their preposition usage. The app provides a stimulating learning environment where users undertake multiple choice cloze tests which test their ability to choose the correct preposition in a given context. This area of English grammar has been shown to be particularly difficult for learners of English as a second language and this app provides a way for learners to practice and gain confidence.

**Project Area:** Mobile\_App  
**Project Technology:** Java

**Project Number: 117**

**Project Title:** MARS – Test Management and Recommendation System  
**Name:** Dylan Lee  
**Email:** dylan.lee9@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Claus Pahl

The Test Management and Recommendation System [MARS for short] is being developed using a combination of Java and a MySQL database. The system allows the user to manage their test case data in a number of ways for a number of different test types. It also provides recommendations based upon user behaviour and available test case data. Once enough information has been provided, the system will recommend to the user the group of test cases that they should execute next.

**Project Area:** Test Analytics  
**Project Technology:** Java

**Project Number: 118**

<b>Project Title:</b>	EveryBar – An event driven, bar management web application for hotel bars
<b>Name:</b>	Emmet Donnelly
<b>Email:</b>	emmet.donnelly8@mail.dcu.ie
<b>Name:</b>	Greg Collins
<b>Email:</b>	greg.collins6@mail.dcu.ie
<b>Programme:</b>	Enterprise Computing
<b>Supervisor:</b>	Martin O'Connor

EveryBar is an event driven, bar management web application for hotel bars. This application targets the management of hotels who are involved in the behind the scenes running of the bar. The application will be highly integrated with the main modules including an events module, staff roster module, stock-take module and stock ordering module. The goal of this application is to make the running of the hotel bar more efficient and organised.

<b>Project Area:</b>	Web_Application
<b>Project Technology:</b>	Java

**Project Number: 119**

<b>Project Title:</b>	Letter Recognition
<b>Name:</b>	Nicolas Chovelon
<b>Email:</b>	nicolas.chovelon2@mail.dcu.ie
<b>Programme:</b>	Computer Applications
<b>Supervisor:</b>	Monica Ward

This project is a letter checker for primary school students. It checks to see if the student has written a letter correctly. The student draws the letter on a tablet and the program will determine if it is written correctly. There are different levels, with varying levels of hints (dots) to the student. The person must follow the dots. The program gives a score based on the accuracy of the letter. It works on smartphones, and tactile Android tablets.

<b>Project Area:</b>	Image_Video_Processing
<b>Project Technology:</b>	Java

**Project Number: 120**

<b>Project Title:</b>	Wastewater treatment plant design selector tool
<b>Name:</b>	Sean Cairns
<b>Email:</b>	sean.cairns2@mail.dcu.ie
<b>Programme:</b>	ME
<b>Supervisor:</b>	Lorna Fitzsimons

Wastewater treatment is an energy intensive process and choosing the most appropriate plant design is very important to reduce operating (energy and resource) and maintenance costs. Factors such as scale of the plant, incoming water quality, discharge location, local climate and topology influence the design choice. The objective of this project was to identify and characterise the variables that influence plant design and, based on this assessment, to develop a design selector software tool (MS Excel based or other).

<b>Project Area:</b>	Environmental Engineering
<b>Project Technology:</b>	Plant design selector tool



**Project Number: 121**

**Project Title:** INTRA Portal System  
**Name:** David Mc Hugh  
**Email:** david.mchugh7@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Renaat Verbruggen

The INTRA (INtegrated TRAIning) programme has played a key role in the DCU student experience for over 25 years. This project aims to provide a Customer Relationship Management system that can be used by all parties involved and provide them with the necessary functionality during the INTRA process. The system uses a CakePHP MVC framework alongside a MySQL database with jQuery and Bootstrap assisting in the UI design and system functionality.

**Project Area:** Content Management System  
**Project Technology:** PHP

**Project Number: 122**

**Project Title:** NFCOpen  
**Name:** Peter Morgan  
**Email:** peter.morgan4@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Mark Roantree

This project explores the feasibility of using two Near Field Communications (NFC) enabled Android devices to implement a secure locking system, using the industry standard ISO/IEC 14443-4 currently adopted by the majority of NFC enabled door lock providers in the marketplace. Two Android applications will be developed to explore this. The first application will simulate a user access card, the second application will act as an NFC reader by simulating a door access point responsible for verifying access credentials.

**Project Area:** Mobile\_App, Web\_Application  
**Project Technology:** Java, JavaScript, Node.js, REST

**Project Number: 123**

**Project Title:** Dota 2 Statistics App  
**Name:** Niall Gaffney  
**Email:** niall.gaffney4@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Gareth Jones

The project is an application which aims to provide a means by which mobile users can keep up to date with ongoing professional Dota 2 games. It will also provide statistics for teams, players, and different characters in the game.

**Project Area:** Mobile\_App  
**Project Technology:** Java, PHP, Python, SQL

**Project Number: 124**

**Project Title:** Energy Analysis of Cleanroom Areas  
**Name:** Johanna Glynn  
**Email:** johanna.glynn8@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Lorna Fitzsimons

Completion of this project required: Energy audit of packaging facilities in a pharmaceutical plant, Analysing collected data further to find the main drivers of energy, Identification of energy saving opportunities, Economic assessment of energy reduction including cost payback

**Project Area:** Energy Engineering  
**Project Technology:** eTracker energy metering

**Project Number: 125**

**Project Title:** Knights Of Alliance: A 2D Game  
**Name:** Ciaran Duffy  
**Email:** ciaran.duffy38@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Alistair Sutherland

Knights of Alliance is a 2D side scroller game developed using the Unity Game Engine for Windows platforms. Within the game, players are given a number of different characters to use and are tasked with reaching the end of the level with a least one character still alive. In order to progress, players must avoid harmful traps, defeat dangerous enemies that they encounter and make use of the ability to swap between characters.

**Project Area:** Gaming  
**Project Technology:** C#

**Project Number: 126**

**Project Title:** Check-It-Out  
**Name:** Mark O'Sullivan  
**Email:** mark.osullivan72@mail.dcu.ie  
**Name:** Sean White  
**Email:** sean.white25@mail.dcu.ie  
**Programme:** Enterprise Computing  
**Supervisor:** Brian Stone

This is a mobile application, a Mobile Click in Brick Solution to shopping. The application allows users to "Scan" items in a supermarket. The application keeps a running total of all items scanned. The user can also use and store vouchers and receives shopping reminders. When the user is finished they go to the checkout, the cashier downloads the shopping information from the phone to the physical till. The app eliminates postal voucher expenses and expensive scanners.

**Project Area:** Mobile\_App  
**Project Technology:** iBeacon, Barcode Analysing, SQL, PHP, HTML5, JavaScript

**Project Number: 127**

**Project Title:** Video Game Maker  
**Name:** Conor de Buitlear  
**Email:** conor.debuitlear2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Prof. Heather J. Ruskin

This project was designed to allow any user, potentially, to create his/her own video game using a simple and intuitive interface. The user will be able to create and edit level scenarios, enemies, items and the player character itself, as well as actions of the entities and interactions between them within the scope of the game.

**Project Area:** Gaming  
**Project Technology:** Java

**Project Number: 128**

**Project Title:** Cleanroom Energy Efficiency 1  
**Name:** Marc Mc Donald  
**Email:** marc.mcdonald62@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Lorna Fitzsimons

Cleanrooms are widely used in industry and research to ensure appropriate environmental and cleanliness conditions for advanced processes and technologies. Maintaining a cleanroom at specific environmental conditions is an energy intensive process, however. The key energy drivers in cleanrooms include chillers, air handling units and extraction. The aim of this project is to reduce the energy consumption of a cleanroom while maintaining the same classification and environmental conditions.

**Project Area:** Energy Conservation  
**Project Technology:** NuWave Particle Sensors

**Project Number: 129**

**Project Title:** Packaging, Modelling and Validation of an Autonomous Sensing Device (Nutrient Sensor)  
**Name:** Conor Gerard Osborne  
**Email:** conor.osborne4@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Lorna Fitzsimons

This project concerns the development of a low cost, autonomous sensing device for nitrate in water. Building on prior research, the aim is to optimise the packaging of the device while adhering to design criteria. By testing and validating the system functionality, it will ensure the optimum efficiency and performance. Successful production of the device has significant possibilities for environmental monitoring of nitrate

**Project Area:** Environmental Monitoring  
**Project Technology:** Autonomous Nutrient Sensor

**Project Number: 130**

**Project Title:** Dynamic Routing System  
**Name:** Shane Carolan  
**Email:** shane.carolan7@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Liam Tuohey

This project aims to provide a system to aid couriers and other delivery personnel in generating an efficient route for them to follow when carrying out their deliveries. A mobile application and a website was developed for this system. The website allows depot managers to create new routes and edit current routes. The mobile application allows couriers to view their routes in a Google Maps interface. The approach being used to generate efficient routes is the Lin-Kernighan heuristic.

**Project Area:** Web\_Application, Mobile\_App, Databases  
**Project Technology:** XML, JSP/Servlets, Java, HTML5

**Project Number: 131**

**Project Title:** Check It Out  
**Name:** Shauna Marie Naughton  
**Email:** shauna.naughton6@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dónal Fitzpatrick

Check It Out is a price comparison web application. It compares the price of a product on Argos.ie with the price of the same product on Argos.co.uk. The application allows the user to search for a product by keyword or product ID and presents the products from each store to the user when they select a product they are interested in. The application is designed to be highly accessible in order to facilitate various user groups.

**Project Area:** Web\_Application  
**Project Technology:** XPath, Python, JQuery, JavaScript, HTML5

**Project Number: 132**

**Project Title:** Wastewater treatment energy optimisation strategy selector tool  
**Name:** Anthony Shanley  
**Email:** anthony.shanley2@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Lorna Fitzsimons

Wastewater treatment (WWTPs) is an energy intensive process. Moreover, the energy requirements increase as wastewater is treated to ever higher standards, driven by more stringent environmental regulations. With this in mind, the aim of this project is to identify opportunities to upgrade and retrofit existing WWTPs in order to reduce their energy consumption. The key output of this project will be an Excel-based energy optimisation selector tool.

**Project Area:** Water science and technology  
**Project Technology:** Excel (visual basic)

**Project Number: 133**

**Project Title:** Design and implement a device to measure aerodynamic slip, and convey the measured data to the pilot by means of tactile feedback.

**Name:** Cian Nolan

**Email:** cian.nolan48@mail.dcu.ie

**Programme:** ME

**Supervisor:** Noel Murphy

Information in the cockpit is represented almost entirely through the visual channel. Environments such as this have been shown to cause a form of sensory overload, which is a contributor to pilot error. An increasing amount of research is emerging which proves tactile communication to be highly beneficial for human-computer interactions in situations such as this. This project involves the design and implementation of a system which measures the 'slip' flight parameter, and conveys the data to the pilot through tactile feedback via the rudder pedals on a light aircraft.

**Project Area:** Embedded systems

**Project Technology:** Haptics

**Project Number: 134**

**Project Title:** Vimable – Efficient Text Editing in Chrome

**Name:** Robert Devereux

**Email:** robert.devereux3@mail.dcu.ie

**Programme:** Computer Applications

**Supervisor:** Stephen Blott

Productivity is of major concern for Developers and Technical Staff of all disciplines. It is sometimes necessary that they write a large number of emails or fill out long web forms in order to catalogue the work that they are doing. Vimable is a Chrome Extension that gives developers the text processing capabilities of Vim, in their browser. It enables fast text processing and browser navigation all with the aim of increasing productivity for developers and other technical staff.

**Project Area:** Developer Productivity

**Project Technology:** JavaScript

**Project Number: 135**

**Project Title:** Crazy Kayaking

**Name:** Damian Downes

**Email:** Damian.downes3@mail.dcu.ie

**Programme:** Computer Applications

**Supervisor:** David Sinclair

This project is a mobile runner app. The game is top down, and looks upon a kayaker on a river. The user plays the game using swipes on screen to simulate moving a paddle in water. Repetitive strokes on a single side moves the character the opposite direction, the same as if the user was kayaking in real life. The landscape of the river creates hazards for a player to avoid.

**Project Area:** Gaming

**Project Technology:** JavaScript

**Project Number: 136**

**Project Title:** Basketball Shot Tracking App  
**Name:** Kevin O'Neill  
**Email:** kevin.oneill27@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Monica Ward

This tablet application enables basketball coaches to keep track of detailed shooting statistics for each player on a basketball team. The app helps coaches to identify the strengths and weaknesses of a team and individual players by displaying the shooting statistics for the team/players from different sections on a basketball court.

**Project Area:** Mobile\_App  
**Project Technology:** JQuery,JavaScript

**Project Number: 137**

**Project Title:** Pal-2-Pal  
**Name:** Emmet Delaney  
**Email:** emmet.delaney9@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Stephen Blott

This project is an Android location based application which notifies the user of the close proximity of personal friends. The app gives the users control of how and when their location is shared with family and friends. The Android application connects to the back-end (written in Java) which is deployed on Google's App Engine and stores user location using a NoSql database.

**Project Area:** Software\_Development,Mobile\_App  
**Project Technology:** XML,NoSQL,SQL,Java

**Project Number: 138**

**Project Title:** Design of Wind-driven Generator for light Aircraft.  
**Name:** Stelin Thomas  
**Email:** stelin.thomas8@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Noel Murphy

The Project involves the design, implementation and testing of a small light-weight ducted wind turbine generator for light aircraft which do not have an inbuilt engine-driven alternator. The turbine is designed to work effectively with an airspeed in the range of 100-120km/hr to generate a regulated output power of 8V at 1A to charge a 6V battery. This power from this battery could be used to power on-board instruments. This 6V system is being used as a proof-of-concept for a more commonly required 12V system.

**Project Area:** Wind-driven generator  
**Project Technology:** Solidworks

**Project Number: 139**

**Project Title:** PowerScout  
**Name:** Laura Browne  
**Email:** laura.browne8@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Mark Roantree

This project utilises the Intel Galileo Arduino with attached energy sensors to monitor the power consumption of various household appliances. Data is periodically gathered from the electrical appliances and stored in a database. The stored data is analysed and trends are identified. Using the data gathered, suggestions are provided to the user on how to reduce household energy consumption. These suggestions are visible to the user on the dashboard along with current and historical energy consumption data.

**Project Area:** Web Application, Sensor Technology, Data Mining  
**Project Technology:** Java, C/C++, Javascript, Ruby, REST, SQL

**Project Number: 140**

**Project Title:** Design of a laser microphone for photoacoustic signal detection  
**Name:** Abiola Ogunde  
**Email:** abiola.ogunde2@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Patrick McNally

This project shows how a targeted laser beam can be used to detect sound vibrations in a remote object. We will show the design, build and test of a low-cost "laser microphone", which is capable of converting vibrations induced by an audio source placed behind a glass surface into an audible audio signal. This device can be used to locate abnormalities in mechanical machinery, dangerous cracked pipes, high voltage insulator failures, all from a safe distance.

**Project Area:** Metrology  
**Project Technology:** Laser Optics

**Project Number: 141**

**Project Title:** Pac-Man VR  
**Name:** Padraig Kearns  
**Email:** padraig.kearns5@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dónal Fitzpatrick

Modern gaming is one of many computing sectors about to embrace the power of virtual reality. Pac-Man VR explores the potential behind this new technology, building upon a game that has stood the test of time for over 30 years. Staying faithful to the original gameplay design, Pac-Man VR offers players a completely new way to play Pac-Man, and a chance to experience virtual reality inside a familiar game.

**Project Area:** Virtual Reality  
**Project Technology:** Unreal 4

**Project Number: 142**

**Project Title:** Hazard Awareness System II (internal)  
**Name:** Andrew Mc Phee  
**Email:** andrew.mcphee2@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Paul Whelan

Autism is a lifelong disability that affects the development of certain areas of the brain such as social interaction and communication. A major characteristic of autism, and one of the main reasons of this project, is the fact that it impairs their ability to make sense of the world around them. The objective is to develop a computer vision system to detect hazards around the home for people with autism using the RGB-D camera system found in the Kinect V1.

**Project Area:** Computer Vision  
**Project Technology:** C++

**Project Number: 143**

**Project Title:** Event Finder – Android Events Application  
**Name:** John Molloy  
**Email:** john.molloy9@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Gareth Jones

This is an android application aimed at giving users of all ages quick, easy, and in-depth access to a range of events and attractions including concerts, nightlife, and tourist attractions. The application features an in depth search including a range of criteria to quickly search for events of interest. Users have the ability to create profiles within the app, which allows them to add other users as friends.

**Project Area:** Mobile\_App  
**Project Technology:** Java,PHP,SQL

**Project Number: 144**

**Project Title:** Chasing Returns  
**Name:** Gareth Murphy  
**Email:** gareth.murphy39@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** John McKenna

Chasing Returns is a financial risk management tool for independent or 'retail' traders. It uses advanced data analytics techniques to determine likely behaviour that will assist in better investment and trading decisions. Today's trading execution platforms offer limited reporting or ability to analyse trades. As a result traders don't understand their trading strengths and weaknesses, and typically don't manage their money or their risk correctly. The Chasing Returns platform acts as their digital risk manager to support better trading decisions.

**Project Area:** Web\_Application  
**Project Technology:** Go, Docker,NoSQL,REST,Python,Node.js,JavaScript,HTML5



**Project Number: 145**

**Project Title:** Automated classification of cell structure using image analysis  
**Name:** Anthony Joseph Smyth  
**Email:** anthony.smyth29@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Paul Whelan

The aim of this project is to create a fully automated algorithm using Matlab and VSG toolboxes to successfully and most accurately classify images of cells into their respective classes. The algorithm incorporates reanalysis techniques for first round failed images. User feedback ensures the algorithm is not unfairly challenged. Graphical and analytical representation of algorithm's results and accuracy are available post analysis.

**Project Area:** Image Analysis  
**Project Technology:** Matlab

**Project Number: 146**

**Project Title:** TickIt  
**Name:** Feargal Karney  
**Email:** feargal.karney2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Dónal Fitzpatrick

TickIt is a task management web application. The main idea of this system is to provide a web solution for users to create and manage 'tickits'. Once signed in a user can create a tickit and view it on an interactive taskboard. Tickit status (e.g. done, doing etc) can be updated by dragging the tickits on the taskboard from one column to another. Technologies used in this project include NodeJS, Express and Passport, MongoDB, Mongoose, AngularJS, HTML5, CSS3, Bootstrap.

**Project Area:** Web\_Application  
**Project Technology:** Node.js

**Project Number: 147**

**Project Title:** Design of a battery driven electric loading shovel  
**Name:** Gearoid Dennis De Cleir  
**Email:** gearoid.decleir2@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Paul Young

A loading shovel designed to work together with an existing 1 tonne dumper to provide greater efficiency. The project designs the lifting mechanism and explores the ranges of motion as it tilts and raises using SolidWorks to verify its capabilities and suitability. The final model is tested in Ansys for the ability to carry the load of 250kg. The project was chosen due to the increasing interest in electric vehicles.

**Project Area:** Mechanism Design  
**Project Technology:** SolidWorks

**Project Number: 148**

**Project Title:** Graze-Even  
**Name:** David Valentine  
**Email:** david.valentine53@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Prof. Alan Smeaton

The purpose of the project is to develop an android system that allows monitoring of grazing animals within a defined area and herd them using drones to ensure the area is grazed evenly. Each animal is fitted with a 'slave' device that acts as a GPS and motion sensor and relays data to a master device which processes data to issue commands to the drones to gently nudge the grazing animals around the field with a visualisation to the user.

**Project Area:** Mobile\_App  
**Project Technology:** Java

**Project Number: 149**

**Project Title:** Vibration Sensor and Data Logger for Use in an Industrial Situation.  
**Name:** Laura Mc Inerney  
**Email:** laura.mcinerney4@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Paul Young

In any manufacturing facility the main goal is the optimisation of; efficiency and high yield rates, these aims can be hampered by negative inputs e.g. vibration. By implementing preventative maintenance procedures these negative inputs can be reduced. The objective of this project is to build a working sensor capable of measuring vibrations in an industrial setting. The device must be; robust, wireless, have a GUI and have data logging capabilities.

**Project Area:** Preventative Maintenance  
**Project Technology:** Data Analysis and Validation

**Project Number: 150**

**Project Title:** Data Analysis using Android-based Smartwatches  
**Name:** Ryan Moody  
**Email:** ryan.moody2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Mark Roantree

Wearable technology is considered by many to be the next step in personal computing. The recent advent of smart watches running Android OS has lead to computing becoming much more of an extension of the human body than ever before. The aim of this project is to first gather data based on the movements of the user's watch then to apply data analysis techniques to that data in order to reach a meaningful conclusion.

**Project Area:** Data Analytics  
**Project Technology:** Java

**Project Number: 151**

**Project Title:** Improvement of Station performance on the FMS Rig  
**Name:** Derek Morris  
**Email:** derek.morris25@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Paul Young

Previous projects have shown that the FMS rig cannot be run continuously for a length of time without problems occurring with the supply of parts and the movement of the pallets on the conveyor belt. This project aimed to improve the control of the movement of the pallets to prevent any collisions and to improve the supply of parts to the stations.

**Project Area:** Automation  
**Project Technology:** PLC Control/Programming

**Project Number: 152**

**Project Title:** Gaelic Player Data Analysis  
**Name:** James Hackett  
**Email:** james.hackett3@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Mark Roantree

This project investigates the affects of the repeat strains of a Gaelic football match on the bodies of the players to try and discover the patterns that emerge from the unique nature of the sport. The project uses the players bio metric data including their heart rate, time recorded, zone, speed, distance and their accelerometer data on the X & Y axis. These values are cleaned and put in a MySQL database. Once ready they are analysed.

**Project Area:** Data Analytics  
**Project Technology:** Java

**Project Number: 153**

**Project Title:** Manufacturing System Dashboard for FMS Rig  
**Name:** Ali Imran Yawar  
**Email:** ali.yawar2@mail.dcu.ie  
**Programme:** MWB  
**Supervisor:** Paul Young

This project builds on previous work which demonstrated the use of EXCEL to replay a captured set of information. This required updating of the PLC controller to allow the communication from the rig to the PC to enable automatic collection of relvant data from the rig for presentation on the dashboard.

**Project Area:** Flexible Manufacturing Systems  
**Project Technology:** PLC

**Project Number: 154**

**Project Title:** WordPlay  
**Name:** Haider Mir  
**Email:** haider.mir2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Dr. Gareth Jones

Word Play, is a web application, designed to make learning fun through gamification techniques. The application is mainly aimed at children aged 10 and up. The primary focus of the application is mainly to help children learn the key aspects of English language. That is, helping children to build up their vocabulary, grammar, and spelling knowledge of the English language. The system was developed using Javascript JQuery, HTML5 and PHP and SQL

**Project Area:** Educational,Web\_Application  
**Project Technology:** HTML5,JavaScript,JQuery,PHP,SQL

**Project Number: 155**

**Project Title:** Development of an embedded system based multisport monitor  
**Name:** Ross Harry Boland  
**Email:** ross.boland3@mail.dcu.ie  
**Programme:** ME  
**Supervisor:** Robert Sadleir

The aim of this project is to develop a device that is capable of determining the type of activity an athlete is engaged in. The device will use measurements derived from accelerometer/gyroscope data to assign an activity to one of several categories that the device has been trained to recognise. The aim of this project is to develop a device that is capable of determining the type of activity an athlete is engaged in. The device will use measurements derived from accelerometer/gyroscope data to assign an activity to one of several categories that the device has been trained to recognise.

**Project Area:** Embedded Systems  
**Project Technology:** Sensor Fusion

**Project Number: 156**

**Project Title:** InShip – Automatic Supplier Invoice Process and Document Control  
**Name:** Glenn Murphy  
**Email:** glenn.murphy43@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Kevin Casey

InShip, an application developed with a focus on UX, Design and Modern Web Technologies. Implemented with foundations in AngularJS, NodeJS, and many supporting libraries, InShip strives to provide a business solution which is both wonderfully user-friendly, yet functionally extremely powerful. InShip automates the accounts payable process of a small-medium size business by retrieving invoices/statements from a client's email, applying OCR to extract information, routing documents for approval/review, then finally processing data through the client's accounting software.

**Project Area:** Cloud\_Computing,Document\_Processing,Optical\_Character\_Recognition,Web\_Application  
**Project Technology:** HTML5,JavaScript,JQuery,Node.js,REST,NoSQL

**Project Number: 157**

**Project Title:** Car Steering Design Comparison  
**Name:** Cillian Byrne  
**Email:** cillian.byrne84@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Tamas Szecsi

This projects aim is to analyse a number of different steering mechanisms and see how they compare to the classic Ackerman steering condition. The mechanisms will be compared by obtaining a mathematical description of each mechanism and then comparing these to each other as-well as using graphical means by plotting each mechanisms Ackerman curve.

**Project Area:** Mechanical Analysis  
**Project Technology:** Matlab

**Project Number: 158**

**Project Title:** 'Einfach erlernt' – Easy to learn  
**Name:** Aistinn Moorhouse  
**Email:** aistinn.moorhouse2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Monica Ward

The project, 'Easy to learn', is a German language e-learning teaching aid for upper-level primary school students. It focuses on assisting teachers in monitoring student progress. Exposure to a foreign language at a young age is ideal considering the broad capacity for development early on, as such providing the opportunity for a language base to be grasped prior to secondary school. Accordingly, this web application introduces simple concepts by lessons, whereby knowledge acquired is tested via various quizzes.

**Project Area:** Databases, Educational, Web\_Application  
**Project Technology:** HTML5, PHP, SQL

**Project Number: 159**

**Project Title:** Siemens Green-power challenge  
**Name:** Michael Kinsella  
**Email:** mikey.kinsella24@mail.dcu.ie  
**Name:** Oluwatosin Emmanuel Odekeye  
**Email:** oluwatosin.odekeye2@mail.dcu.ie  
**Programme:** CAM  
**Supervisor:** Brian Corcoran

**Project Technology:** This project is a two person project. The aim of it is to design and build an electric car using only two 12V DC batteries and a 24V Fracmo motor to run it. The car must be built in accordance with specific rules and regulations set by the Greenpower committee.

**Project Area:** Sustainable Energy  
**Project Technology:** Steering (Michael Kinsella), Motors (Oluwatosin Emmanuel Odekeye)

**Project Number: 160**

**Project Title:** ScorePundit  
**Name:** Kevin  
**Email:** kevin.mcmahon8@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Markus Helfert

Score pundit is an online application which allows for the creation of a sports tournament so that anyone with an internet connection can check the scores as they happen. This project is to demonstrate that I have a good understanding of programming and the various frameworks used throughout. The project itself is infinitely expandable because it is applicable to any competitive sport with a few minor adjustments. I also made use of GitHub Version Control throughout the development lifecycle.

**Project Area:** Web\_Application  
**Project Technology:** Groovy, Spring MVC, Angular/backbone JS, Javascript, SQL

**Project Number: 162**

**Project Title:** Trend Analysis of Wikipedia Articles  
**Name:** Adrian Dornan  
**Email:** adrian.dornan2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Gareth Jones

Wikipedia is one of the most popular websites in the world. This project identifies what this large number of users are looking at. A web application was built that displays in real time the most popular articles in terms of views, as well identifying what is trending at the moment. This application is made up primarily of a JavaScript front-end and back-end as well as a NoSQL database and will be viewable on both desktop and mobile devices.

**Project Area:** Data Analytics  
**Project Technology:** JavaScript

**Project Number: 163**

**Project Title:** Micro-bubble generation for aeration  
**Name:** Mija Thomas  
**Email:** mija.thomas5@mail.dcu.ie  
**Programme:** BMED  
**Supervisor:** Yan Delaure

Aeration is used in a variety of applications – waste water treatment, food industry, fish farming etc. There are new technologies that help improve efficiency of micro-bubble generation for aeration but maintaining bubble diameter remains a challenge when using water or oil as a medium. The project aimed to design and build a micro-bubble generator using a variant of the system invented by Sadatomi.

**Project Area:** Fluid Mechanics  
**Project Technology:** Solidworks

**Project Number: 166**

**Project Title:** Car Deal Analyser  
**Name:** Jinnyre Malazarte  
**Email:** jinnyre.malazarte2@mail.dcu.ie  
**Programme:** Computer Applications  
**Supervisor:** Renaat Verbruggen

The Car Deal Analyser is a project helping the user to find a good deal on used car purchases. This is achieved by collecting data, storing the data in a database, and presenting the deals to the user. The first part is to use a web scraper and collect the data from the website. After successfully collecting the data, it is then stored to the database. Finally, it is then presented to the user on a configurable front end.

**Project Area:** Data Analytics  
**Project Technology:** Python

**Project Number: 167**

**Project Title:** Implementation of Transforms for Electromagnetic and Biomedical Applications  
**Name:** Hesham Ahmed  
**Email:** hesham.ahmed4@mail.dcu.ie  
**Programme:** ICE  
**Supervisor:** Marissa Condon

Representing signals in an efficient manner is very important in computer simulation. This project implements efficient forms of various mathematical transforms and functions to approximate signals. It investigates their use in representing biomedical signals and investigates their use for broadband modeling of high frequency systems. In particular, it looks at Fourier transforms, fractional fourier transforms and Hermite transforms.

**Project Area:** Signals and systems  
**Project Technology:** MATLAB

## CPSSD – Our New Degree – Special Project

**The B.Sc. in Computational Problem Solving and Software Development (CPSSD) is a new degree programme and we mean 'new' in many respects:**

- ▶ It's the first of its kind in Ireland.
- ▶ It recruits students who, before entering DCU, can demonstrate a passion for, and prior ability in, computer programming and ICT.
- ▶ CAO points for are not considered for entry; entry is by portfolio, interview and a high maths requirement.
- ▶ Over half of the programme comprises significant software development projects (typically carried out in teams as in the real world of software development).
- ▶ Our first intake was in 2013.
- ▶ Students have considerable input into the direction their studies take.
- ▶ INTRA placements are 10-15 months long.

### Check it out!

To give you an idea of what this programme is about, we present some of the work our first years have produced in their large, team-based practicums.

### More about CPSSD

The larger projects undertaken in all years of the programme develop the much-in-demand 21st century skills espoused by DCU's Generation 21 initiative: independent learning, communication, teamwork, creativity, flexibility, adaptability and, of course, problem-solving and software development. The remainder of the degree programme is a selection of taught modules which will complement the skills acquired in the large projects. CPSSD graduates will be expert computer programmers that love constant challenge and relish new problems to be solved. While problem solving underpins software development, the leadership and problem-solving skills acquired on this degree will be applicable to non-ICT scenarios, facilitating graduates to become active, problem-solving citizens and creative future shapers.

### What's in it for employers?

This new, innovative degree programme is designed to produce more graduates with the skill-sets necessary to fill the ICT skills gap and meet the demands of employers.

### We invite you to get involved

Students are mentored closely, particularly in the first two years, and we invite you to get involved in any of:

- ▶ mentoring student projects;
- ▶ interviewing applicants to the programme;
- ▶ offering INTRA placements and/or summer internships;
- ▶ offering ideas for, or feedback on, the programme;
- ▶ presenting seminars/workshops on new technologies;
- ▶ offering students access to hardware, software and services.

If interested, leave your name, specifically mentioning CPSSD, and any or all of the ways you would like to get involved.





**Engaging Content**  
Engaging People

## **Wanted: Bright Minds and Innovative Thinkers**

Funded research positions with ADAPT, the global centre of excellence for digital content technology

### **PhD Studentships – Research Assistants – Research Programmers**

ADAPT combines the expertise of researchers at four universities (DCU, TCD, UCD and DIT) with that of its industry partners to produce ground-breaking digital content innovations.

With €50 million in new research funding, ADAPT is seeking talented individuals to join its growing team in areas including:

- Web Content Technologies
- Natural Language Processing
- Data Analytics
- Machine Translation
- Web Personalisation
- HCI, Dialogue and Robotics
- Artificial Intelligence
- Knowledge & Data Engineering
- Information Retrieval
- Speech Processing
- Graphics, Video and Image Processing

**Positions are available across ADAPT's four academic partner institutions.**



---

## **New for Sept. 2015: Check out our new M.Sc. in Computing – Human Language Technology Major at DCU**

- Further your career in an exciting, high-growth area with unrivalled prospects
- Choose from flexible delivery modes: full-time or part-time
- Hone employment-enhancing skills through the programme's hands-on approach
- Benefit from reduced fees for EU students

For programme details, see [www.dcu.ie/dc836](http://www.dcu.ie/dc836)

**Many thanks to the following companies for sponsoring prizes:****ERICSSON****Ericsson**

Ericsson is the driving force behind the Networked Society – a world leader in communications technology and services. Our long-term relationships with every major telecom operator in the world allow people, business and society to fulfil their potential and create a more sustainable future. Our services, software and infrastructure – especially in mobility, broadband and the cloud – are enabling the telecom industry and other sectors to do better business, increase efficiency, improve the user experience and capture new opportunities.

Ericsson has been in Ireland since 1957 and we are the market leader in the provision of telecommunications infrastructure and services. We currently employ more than 1,500 people across Research and Development, Global Services and Sales in two geographical locations, **Dublin and Athlone**.

With approximately 115,000 professionals and customers in 180 countries, we combine global scale with technology and services leadership. We support networks that connect more than 2.5 billion subscribers. Forty percent of the world's mobile traffic is carried over Ericsson networks and our investments in research and development ensure that our solutions – and our customers – stay in front.

Ericsson has been a prize sponsor at DCU for more than 15 years. For more information on Ericsson, visit **[www.ericsson.com](http://www.ericsson.com)**

**OPENET****OPENET**

Openet is one of the largest privately owned software companies in Ireland. The ambition and vision of Openet's senior team including, Founder and CTO Joe Hogan and CEO Niall Norton, has been essential to the organisation's continued success. Openet has more than 80 customers in 32 countries and now has a workforce of more than 830 people globally with offices in the US, Malaysia and Brazil. A significant number of Openet staff are DCU graduates, according to Joe Hogan, a proud graduate of DCU's BSc in Computer Applications (1989). "Openet has long recognised the calibre of graduates produced by DCU, particularly from the School of Computing, and more recently we have been working to strengthen the relationship links between Openet and the University. We are keen for DCU students to view Openet as an employer of choice when they graduate".

Openet software enables the world's largest network operators to innovate service offerings in an increasingly mobile, data-driven society. Openet entered the telecommunications industry with high performance software that enabled network operators to more efficiently and flexibly harness the "big data" generated across large, heterogeneous networks. Their performance innovations still lead the industry, easily processing more than 10 billion daily network transaction records at a single network operator. Openet is truly an international company with over 99 percent of revenues coming from outside of Ireland.

For more information see: **[www.openet.com](http://www.openet.com)**



## Fidelity

Fidelity Investments is one of the world's largest providers of financial services. Founded in Boston in 1946, our goal is to make our financial expertise broadly accessible and effective in helping people live the lives they want. At Fidelity Ireland, we provide middle and back office support to our business partners and design, build and implement technology that maintains Fidelity's continued global success. We harnesses our cutting-edge technology capabilities and resources to continuously innovate in ways that create better outcomes and experiences for our customers.

Leap is Fidelity Investments' exciting training and development programme for new IT graduates. The programme is designed to accelerate the development of recent IT graduates to become best-in-class IT professionals. The six month programme starts each September and upon completion of the training, graduates are placed in dynamic roles across Fidelity's diverse technology project teams in Dublin or Galway. At Fidelity Investments, you'll discover exciting challenges as you develop professionally and explore career paths based on your interests and abilities. The organisation rewards ambitious, talented individuals with a work environment that fosters teamwork and collaboration while encouraging innovative ideas and fresh thinking.

Discover more at: [www.fidelityinvestments.ie](http://www.fidelityinvestments.ie)



## IBM

We're the largest IT and consultancy company in the world. We employ over 430,000 people in over 170 countries. We're a company that fosters inventors and innovators, that not only empowers our employees to dream but equips them to deliver... From the PC, the memory chip, and the calculator to NASA technology that saw man land on the moon, to super computers that beat the world chess champion and Jeopardy champions, ...we've been powering world firsts for over 100 years.

IBM Ireland Lab is one of IBM's largest R&D Labs outside of the US. We are located at three sites – Dublin, Cork and Galway. Our Dublin site is located at our 100 acre Technology Campus in Mulhuddart, which is IBM's largest campus in Europe and home to a broad range of IBM missions. At IBM Ireland Lab, more than 1700 software professionals use innovative technologies to design, build, deploy, test & support, solutions for IBM's global customer base, across our core solution strategies of Cloud, Analytics, Mobile, Social and Security.

We hire a large number of graduates every year across our Development, Technical Support and Cloud Operations teams. Come work for IBM and build your portfolio while working on some of society's most pressing issues.

<http://www-01.ibm.com/software/ie/irelandlab/index.html>



### **FINEOS**

FINEOS Corporation is one of the world's leading providers of claims management software solutions. We are headquartered in Ireland, with offices also based in North America, Europe and Australasia. We are always seeking IT and Business graduates to join our team as Developers, Testers, Consultants and Interns. Indeed, our founder and CEO, Michael Kelly, is a graduate of Computer Applications in DCU.

Working as a Graduate in FINEOS provides an excellent opportunity for you to acquire real-world experience of the software industry. FINEOS offers comprehensive training for all graduates geared towards long term career progression and personal development. Based in EastPoint Business Park, Dublin 3, we offer a great work environment with flexible working, monthly sports & social club events, scrum areas, exercise and games rooms.

Discover more at: **[www.fineos.com](http://www.fineos.com)**



### **GLEMSEER Technologies**

Founded in 1987, Glemser Technologies provides IT solutions and services for the life sciences industry. Glemser Technologies has 3 main practices.

#### **Content Management**

We provide solutions to manage pharmaceutical content to comply with regulatory and quality requirements using Documentum and SharePoint enterprise content management technology platforms.

#### **Quality Management**

We provide solutions to manage quality records and reporting for life sciences clients to comply with health authority requirements using TrackWise enterprise quality management technology.

#### **Consulting Services**

We offer a wide variety of consulting services designed to help life science clients assess, plan for and deploy software, solutions to meet their critical business requirements.

We are looking for DCU graduates to join our Quality Management practice at Glemser's EMEA headquarters based in Dublin, Ireland.

For more information please visit **[www.glemser.com](http://www.glemser.com)**





For further information, please contact:

Christine Stears  
Faculty of Engineering  
**Dublin City University**  
Dublin 9

**Tel:** +353 (0)1 7005237

**Email:** [Christine.Stears@dcu.ie](mailto:Christine.Stears@dcu.ie)

**Web:** [www.dcu.ie/computing](http://www.dcu.ie/computing)

