UWTSD: School of Applied Computing

Example Project Titles

PRIFYSGOL CYMRU
Y Drindod Dewi Sant
UNIVERSITY OF WALES
Trinity Saint David
SWANSEA - ABERTAWE

Contents

Dr Kemi Ademoye

Project title	Web Application Development with the ASP.NET MVC Framework
Project type	Development
Target degree lines	WD / CIS / SE
The aim here is to investigate the effectiveness of the ASP.NET framework for developing web applications. It will involve developing a web application and using unit testing, or other testing strategies, to validate the development.	

Project title	Single Page Web Application Development
Project type	Development
Target degree lines	WD / CIS / SE
The aim here is to study the effectiveness of using a single page web framework of your choice for the development of a web application. It will involve developing a web application and using unit testing, or other testing strategies, to validate the development.	

Project title	App Development with C# using Xamarin
Project type	Development
Target degree lines	WD / CIS / SE
The aim here is to explore the use of Xamarin for App Development. The project will involve developing a mobile app and using unit testing or other testing strategies to validate the development. Alternatively, you could focus on the challenges of interface design issues with a cross-platform development tool and develop and test an application to evaluate and analyse these challenges, but please be aware that the analysis is more than getting a few people to say it looks good or not. The suggested platform to target is Android because of its availability, or Windows simply because Xamarin uses C#.	

Project title	Using Web Technologies for Mobile Application Development
Project type	Development:
Target degree lines	WD / CIS / SE
Description: The aim here is to study the effectiveness of using Web Technologies for Mobile Application Development. For example, developing and testing an application with functionality that uses the different device APIs. Alternatively, you could focus on the challenges of interface design issues with a cross-platform development tool and develop and test an application to evaluate and analyse these challenges, but please be aware that the testing iinvolves more than getting a few people to say it looks good or not. The suggested mobile platform to target for this development is Android because of its availability.	

Project title	Educational Games Development with Unity
Project type	Development
Target degree lines	CIS / SE / WD
The aim is to study the effectiveness of using the Unity development platform for developing an educational game. For example, developing and testing an educational game application for teaching programming.	

Tim Bashford

Project title	Structured code analysis to grade code against best practice specifications and recommend improvements
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	SE/CIS/WD

- Code analysis resulting in a report of how well code measures up against best practice specifications.
  - May include a “grade” by way of a percentage.
- Suggestions for improvements to better meet best practice.
  - Automatic implementation of these modifications could be considered as an advanced feature.

Project title	Refactoring of an extant scientific code
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	SE/CN/CIS

- Taking an existing scientific code and refactoring it for speed, memory usage etc.
- May involve use of code analysis tools
- Requires a student competent in code analysis
- Requires a strong ability to program in C/C++

Dr Carlene Campbell

Project title	**Investigate, analyse and demonstrate the importance of network security and penetration testing**.
Project type (Delete as appropriate)	**Experiment**
Target degree lines (Delete as appropriate)	BIT / CG / CIS / CNets / SE / WD
▪ Design a prototype network scanner that will help novice network users run basic scans to uncover network vulnerabilities. Give novice users the information they will need to overcome most common network attacks so that they can secure their network. Simulate the affect different attacks have on a home network using a relevant network simulation and modeling software.	

Project title	**Develop a Computer Network Test-Bed to compare security between firewall and Access Control List (ACL)**
Project type (Delete as appropriate)	**Experiment**
Target degree lines (Delete as appropriate)	BIT / CG / CIS / CNets / SE / WD

- Use Linux to build own firewall. The Shoreline Firewall more commonly known as 'Shorewall' (a high level tool for configuring Net-filter to provide security, quality of service and network management) may be used or other Linux net-filter features for firewall configuration. The Webmin feature may also be installed to give a GUI. A machine/computer will be given to design the Linux firewall of your choice. The firewall should entails all or most of the following components:
  - Network Zone
  - Network Interfaces
  - Default Policies
  - Firewall Rules
  - Masquerading
  - Static NAT
  - Proxy ARP
- Set up test bed to carry out various penetration tests to examine the strength of security implementation and firewall entries.
- Do a comparison of both Firewall and network boundary ACLs results (critically analyses them). State the better method or should both work simultaneously? Full justify your statement.
- Recommend action to be taken in order to fortify the network against similar threats.

Project title	**Simulation of test-bed security utilities**
Project type (Delete as appropriate)	**Experiment**
Target degree lines (Delete as appropriate)	BIT / CG / CIS / CNets / SE / WD
With the use of simulation or test-bed explore **two main security utilities such as firewalls and ACL's** in networking. To investigate how each methods works and identify the best option to be used on a certain network. Provide an investigation report outlining how the test has been implemented and final results.	

Project title	**Wireless ATM (W-ATM)**
Project type (Delete as appropriate)	**Experiment**
Target degree lines (Delete as appropriate)	BIT / CG / CIS / CNets / SE / WD /CNT
1. Simulate the effects of noise on choosing a channel 2. Analyse the effects of mobility on a wireless ATM network	

Mike Dacey

Project title	Backbone.js
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD
Study the effectiveness of a JavaScript MVC framework “Backbone.js” in building mobile applications, by developing and testing an application for mobile devices. The application should also integrate twitter bootstrap to produce a responsive web design.	

Project title	Multiplayer Games
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD
Develop a multiplayer game and explore the process of synchronising object between the client and server. The results of this project should be an exploration of the methods that are used in such games and the performance of each technique i.e. amount of data sent, delays, etc. An existing game server may be used.	

Project title	Web 3D
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD
Use blender to create 3d assets as used in movies and games. Study the methods used to import these models into 3d applications and investigate how these models are best displayed on the web e.g. using three.js (WebGL). Alternatively, you may compare and contrast different methods, technologies, and libraries for displaying and interacting with 3d objects on the web e.g. Unity vs WebGL.	

Project title	Augmented Reality for Mobile Devices
Project type (Delete as appropriate)	Development/Study
Target degree lines (Delete as appropriate)	CIS / SE / WD
Hypothesis: Augmented reality will change the way we interact with the world. Study the use of augmented reality (e.g. Google Glass) and determine the how this technology changes the design rules for application development. Design and build an application demonstrating the effectiveness of augmented reality.	

Project title	Web Design for Small Screen Devices
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD
Investigate the best approach to mobile design, with specific focus on “mobile first” design principles. Construct web applications that demonstrate the design process from first principles, beginning with wire frame layouts. This project must include an investigation of the best method to test these designs across a range of devices.	

Project title	Node.js
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD
Use node.js to develop a web application and REST based web service using a MongoDB database. What are the benefits and drawbacks of using node.js, and does it have an advantage over PHP when dealing with JSON data.	

Project title	Client side performance
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD
Study the techniques used for increasing the performance of web applications e.g. by minimising and compressing JS files, asynchronous loading of JS files (e.g. Require.js), etc. Measure and analyse the effectiveness of these techniques.	

Project title	Asynchronous Web
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD

Why multithread server side code for web applications?

Study the technologies and techniques used to determine what benefits they bring and the types of applications that need this approach. Build and application that demonstrates the correct approach to designing and building multithreaded web applications. You may choose to compare and contrast different technologies.

Gordon Dickers

Project title	Language Teaching App Evaluation
Project type (Delete as appropriate)	Survey
Target degree lines (Delete as appropriate)	All
The aim here is to investigate a subset of existing language teaching software applications and to evaluate them identifying strengths, weaknesses, approaches, etc. You would be expected to create a small study to compare the effectiveness of two leading apps e.g. DuoLingo and Rosetta Stone so it will involve finding at least one other willing participant and the desire to learn a new language!	

Project title	Steganography – the art and science of hiding messages within messages.
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	SE, Web, CIS, Mobile, Nets, Games
The aim here is to investigate steganography methods and to develop steganographic software that can hide a text message within an image. It would also involve a review of existing software and methods. Would suit any student who has studied C, C++, C#, java, etc.	

Project title	AI Pathfinding
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	SE,Games, CIS, Mobile
Finding the best path through a dynamically changing environment and navigating this path in a realistic manner is an important goal for a good Game AI bot. You will review existing methods, select approach(es) suitable for a given game genre, implement and evaluate your solution(s).	

Project title	Agent Based Modelling
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	SE, Games, Web, Moble, CIS.
Agent Based Modelling (ABM)is used to investigate the emergent properties of systems made up of thousands of interacting agents that follow a simple set of rules. Examples of systems simulated using ABM include epidemiological studies that model the spread of smallpox in a population; crowd panic scenarios and the famous “El-Farol bar” problem. Some well developed software tools such as Repast and NetLogo are used by many researchers and you would be expected to use one of these ABM tools to model one of several world problems.	

Please contact me for details. Several projects available.

Project title	Teaching through Motivation in Video Games
Project type (Delete as appropriate)	Survey / Development
Target degree lines (Delete as appropriate)	All streams
The use of computer games to facilitate teaching and learning has become fashionable in e-learning systems in part because it can motivate students to learn by satisfying the need for competence, autonomy and relatedness. This project aims to identify and evaluate the properties of video games that satisfy these psychological needs and select and apply them appropriately to develop a teaching game/app. If the project is selected as a dissertation then there will be no development of software, the goal might be a framework document and an evaluation of selected existing educational games against this framework. More than one project is available.	

Bev Holland

Project title	Statistical mapping (Epidemiology Studies) of Disease outbreak in Swansea and South Wales.
Project type (Delete as appropriate)	Development / Experiment
Target degree lines (Delete as appropriate)	BIT / CIS / SE / WD
For example develop a GIS database to model incidences of measles or and other outbreak of infectious disease e.g. swine flu in the Swansea or a case study area. Use GIS techniques to analyse this data. Examine correlations between datasets, deprivation indexes, and other socioeconomic factors, e.g. MMR vaccination uptake. This is known as epidemiology mapping	

Project title	Accident Monitoring Using GIS
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	/ CG / CIS / SE / WD
Build a GIS to map accident occurrences in a given location which could be used to analyse and plan road networks.	

Project title	Deprivation Studies using GIS
Project type (Delete as appropriate)	Development / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	BIT / CIS / SE / WD

Using UK census data to map the socio-economic patterns found in South Wales, or whole of the UK. This could be linked to several project idea and titles:-

- Analysis of student application statistics for SMU registry and marketing departments.
- Looking at the incidences of house fires and deprivation and interactive guide for the Fire service.
- Crime pattern analysis – is there a socio economic link could we build a database and a GIS to demonstrate this?

Project title	Compare Statistical analysis with and without A GIS reference
Project type (Delete as appropriate)	Development / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	BIT / CIS
A GIS will allow for statistical analysis of data. Is this an advantage? Could we produce the same results using conventional database management systems?	

Project title	3-D visualisation of Spatial data
Project type (Delete as appropriate)	Development / Experiment
Target degree lines (Delete as appropriate)	CG / CIS / SE / WD
Using GIS and or a spatial database with visualisation techniques to examine coastal / terrain data. This, for example, could be used to look at issues in environmental conservation.	

Project title	Web applications of GIS
Project type (Delete as appropriate)	Development / Experiment
Target degree lines (Delete as appropriate)	CIS / WD
Building and interactive web based GIS for a given application. How do we display 3-D geographical data on a website? Looking at spatial datasets and examining methods for web visualisation.	

Project title	Location based services LBS
Project type (Delete as appropriate)	Development / Experiment
Target degree lines (Delete as appropriate)	CG / CIS / SE / WD
What are location based services and how will they affect our lives? This could be linked to several project ideas:- • ***Estate management***. How do large organisations such as Universities or hospital sites track maintenance requirements? • Could the use of GPS and location technology help with this MIS system? • Use of GPS and Smart Phones to build a GIS for student union services.	

Project title	Geographical Timetable
Project type (Delete as appropriate)	Development / Experiment
Target degree lines (Delete as appropriate)	CIS / SE / WD
Could link to LBS or estate management link to room building location. Could be used by a university or school. Smart phone ap etc.	

Project title	A comparison of End User Development Environments
Project type (Delete as appropriate)	Development / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	BIT / CIS
Software such as Microsoft office allows for end user development (via VBA) research this development environment and compare and contrast the facilities offered by other software vendors for example Lotus smart suite.	

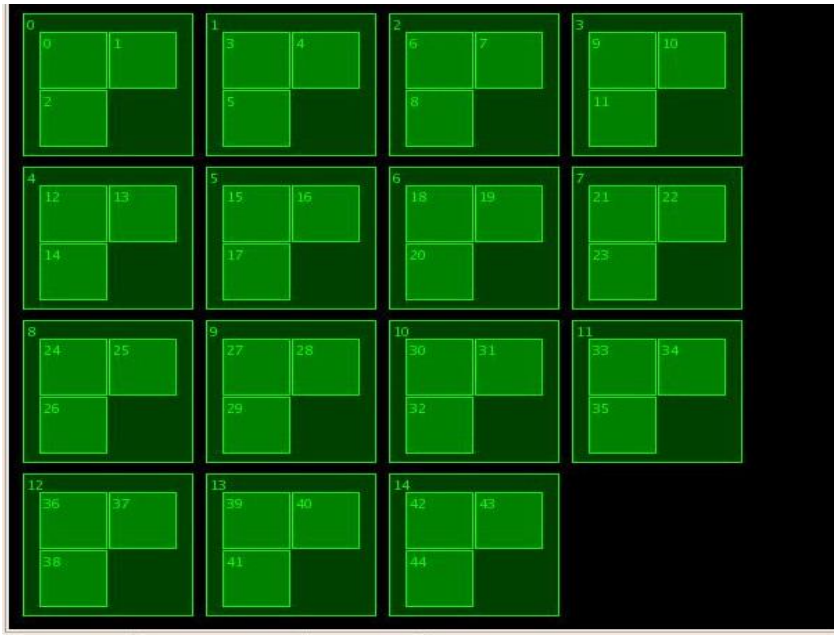
Project title	End User Computing in SMEs
Project type (Delete as appropriate)	Development / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	BIT / CIS
Small to medium size organisations have to adapt the way in which they operate to survive in today global market. How do these organisations implement IT strategies and do they make effective use of End User Development software (e.g. building applications using VBA)?	

Project title	Users / Managers perception of End User Computing / Development
Project type (Delete as appropriate)	Development / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	BIT / CIS
Research into the understanding of EUD/C, from a user's perspective and or from the management's viewpoint. How do organisations control EUD? Are we seeing a standard approach within organisation large or small to data analysis for example? What about quality issues with reference to the design of the end products being used?	

Dr Glenn Jenkins

Project title	Lab Monitoring and Visualisation using Ganglia
Project type	Development
Target degree lines	SE / Cnets / CIS

Lab monitoring software based around Ganglia (http://ganglia.sourceforge.net/) with the aim of producing real-time statistics for both laboratory machines and school servers. This could be extended to include clustering/failover/long term statics. Possibly look at different mechanisms for visualisation e.g. something graphical like that used by Eclipse for core debugging



Project title	Development of a XML Visualisation Software
Project type	Development
Target degree lines	SE / Games / CIS
Given the ever expanding use of XML for various applications, some visualisation software would be excellent. A nice tool exists but costs a huge amount of money, this project is to create an open source one. This could provide an opportunity to explore a new language (new to you) or technology.	

Gareth Jones

Project title	The impact of touch screen technology
Project type (Delete as appropriate)	Survey / Experiment
Target degree lines (Delete as appropriate)	BIT / CG / CIS / SE / WD

Project title	Alternative methods for data input and user interaction
Project type (Delete as appropriate)	Development / Survey / Experiment
Target degree lines (Delete as appropriate)	BIT / CG / CIS / SE / WD
Alternative methods for data input and user interaction (using touch input, Wii remotes, Microsoft Kinect, VR gloves etc)	

Project title	An investigation into DAM
Project type (Delete as appropriate)	Development / Survey / Experiment
Target degree lines (Delete as appropriate)	BIT / CIS / SE / WD
An investigation into DAM (Digital asset management) (dissertation)	

Project title	Construction of a DAM
Project type (Delete as appropriate)	Development / Survey / Experiment
Target degree lines (Delete as appropriate)	CIS / SE / WD
Construction of a DAM (digital asset management) system (software development)	

Project title	Cloud computing: The pros and cons
Project type (Delete as appropriate)	Development / Survey / Experiment
Target degree lines (Delete as appropriate)	BIT / CIS / SE / WD

Project title	Strategies for maximising PC performance
Project type (Delete as appropriate)	Development / Survey / Experiment
Target degree lines (Delete as appropriate)	BIT / CG / CIS / SE /
Strategies for maximising performance or price/performance when designing a PC/Workstation out of commercially available components. (effect of overclocking, bus speeds, RAM timing, CPU efficiencies, RAID configurations etc)	

Project title	Changes in portable computing
Project type (Delete as appropriate)	Development / Survey / Experiment
Target degree lines (Delete as appropriate)	BIT / CG / CIS / SE / WD
Portable computing: A study into future trends and implications.	

Project title	Copyright violation detection tools
Project type (Delete as appropriate)	Development / Survey / Experiment
Target degree lines (Delete as appropriate)	BIT / CG / CIS / SE / WD
Net based Copyright violations and tools for detection (e.g. Tineye for web image searching) A study of, or construction of tools for detection.	

Project title	AI Music
Project type (Delete as appropriate)	Development / Survey / Experiment
Target degree lines (Delete as appropriate)	SE
The use of AI algorithms for the production of computer generated music	

Sue Maw

Project title	Development of a resource aimed at users with a given disability
Project type (Delete as appropriate)	Survey / Development
Target degree lines (Delete as appropriate)	BIT / CIS / WD
A survey would involve an evaluation framework for existing resources and would employ your choice of interface evaluation strategies such as observation, interview… A development project would include the design and development of a suitable software resource, for example an E-Commerce or E-Government site.	

Project title	Usability issues in e-government and e-voting.
Project type (Delete as appropriate)	Survey / Development
Target degree lines (Delete as appropriate)	BIT / CIS / WD
A survey could concentrate on voting behaviour or a structured review of a chosen range of e-government resources. A development project would include prototype development and evaluation in a suitable development environment.	

Project title	The design and evaluation of a prototype for a public use application.
Project type (Delete as appropriate)	Survey / Development
Target degree lines (Delete as appropriate)	BIT / CIS / WD
Public use applications are a challenge for developers and users. A development project would involve the design and evaluation of a suitable public use application such as one aimed at public transport users. Alternatively a survey based project could involve a user experience study of a public use application.	

Project title	Usability evaluation of an existing software application
Project type (Delete as appropriate)	Survey / Development
Target degree lines (Delete as appropriate)	BIT / CIS/ SE / WD
This is a fairly generic usability project idea aimed at students with experience of an existing system which could be based on work or other experience. A development project would involve the building of a prototype interface employing usability principles. A survey would mean the application of usability techniques and recommendations for improvement.	

Project title	Prototype home energy use display
Project type (Delete as appropriate)	Development / Experiment
Target degree lines (Delete as appropriate)	BIT / CIS / CNets / SE / WD
Ubiquitous interfaces are those embedded into objects in our environment. It would be possible to develop a mockup in Visual Studio or make use of electronics resources for development of a prototype. This could be conducted as a development project or an experiment involving comparison of alternative implementations.	

Project title	Prototype mobile interface for a given application
Project type (Delete as appropriate)	Survey / Development
Target degree lines (Delete as appropriate)	BIT /CIS /WD
With a focus on usability, this topic means the selection of a suitable task for a new mobile interface prototype. A survey would mean conducting analysis and developing and evaluating a paper prototype.	

Project title	A generic open source administration solution for administering a small charity
Project type (Delete as appropriate)	Survey / Development / Experiment
Target degree lines (Delete as appropriate)	BIT / CIS / SE / WD
Smaller charities are facing a challenge in the large volume of administration needed to keep track of service users and apply for funding. Many are run on a shoestring and cannot afford commercial software or services. As a development project this would mean requirements analysis and the development of an open source admin system. It would be realistic to allow time for the implementation and evaluation of the system by a local charity. A survey could include the development and evaluation of a simple open source database solution. An experiment would need the construction of two or more alternative solutions and a comparison.	

Project title	Smart city technology
Project type (Delete as appropriate)	Survey / Development
Target degree lines (Delete as appropriate)	BIT / CIS / WD
In smart cities, investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable development and a high quality of life, through participation and engagement. A survey based project in this area would mean the analysis of demand and of existing smart city application and recommendations for the employment of smart city technology, for example based in Swansea. A development project would mean the construction of a smart city prototype on a suitable platform (perhaps mobile), for example around smart transport.	

Dr John Rees

Project title	Develop a Social Media Web App for Home Living Support
Project type (Delete as appropriate)	Development/ Review:
Target degree lines (Delete as appropriate)	CGD / SE / BIT / CIS / CNets / WD
Description: Develop a web app using existing social media facilities to provide a communication facility for home living support (assistive technology). This will necessitate taking account of cultural and social factors, and particularly limitations and characteristics in the interfaces in terms of usability issues. Create a suitable questionnaire for use with social services students and staff to highlight what facilities can be created and to gauge acceptability to the professional side (the client side is not readily accessible because of the time needed for ethical approval).	

Project title	A Web App or Native OS App for Medication Reminders
Project type (Delete as appropriate)	Development/ Review:
Target degree lines (Delete as appropriate)	CGD / SE / BIT / CIS / CNets / WD
Description: Develop an app, using HTML5 and CSS, iOS or Android, integrated with calendar facilities, to implement automated reminders for taking medication. This is targeted at people likely to be prone to forgetting medication schedules (specific illnesses are a good example). The app could include automated reordering (via pharmacists and GP practice), automated recall (often medicines require regular tests for side effects, e.g. blood pressure tests with the contraceptive pill), and limited advice on side effects and common problems. Investigation of the best options for client and server side split, back end implementation and reliable confirmation of messaging are an important element of the work.	

Project title	A Web App for Personal Security Support during Home Visits
Project type (Delete as appropriate)	Development/ Review:
Target degree lines (Delete as appropriate)	CGD / SE / BIT / CIS / CNets / WD
Description: Develop a web app using HTML5 and CSS, integrated with a timing mechanism and notification features, to confirm safe arrival and departure for social services staff visiting potentially hazardous clients. This is targeted at people working with violent offenders and unstable mental illnesses. The app could include automated notification of arrival, set appointment time with “nudge” extension, automated recall on exceeding visit period, emergency services reporting on alarm triggering or specific non-compliances with operating procedures. The work will include client side coding (smartphone or tablet as the target device) and server side development.	

Project title	Web Analytics for the Analysis and Improvement of a Facebook Site
Project type (Delete as appropriate)	Development/ Review:
Target degree lines (Delete as appropriate)	CGD / SE / BIT / CIS / CNets / WD
Description: The School's Facebook page has built-in analytics capability from Facebook's Insights tool. The project will be to investigate the available options for Facebook analytics, select a suitable toolset and implement a full set of analytics as a site A/site B test to run in comparison with the existing set up. The work will then require implementation either on the School's Facebook page or the creation of an alternative presence using the chosen analytics toolset	

Project title	Web Analytics for the Analysis and Improvement of a Website
Project type (Delete as appropriate)	Development/ Review:
Target degree lines (Delete as appropriate)	CGD / SE / BIT / CIS / CNets / WD
Description: The School's forthcoming research pages will require a full set of analytics to be built in (using Google Analytics or another suitable toolset). Having analysed the client need, the student will implement a suitable set of compound analytics to assess the performance of the web presence, suggesting as part of the final report any particular improvements or changes that would enhance visitor numbers, community and progression to application.	

Dr Nik Whitehead

Project title	Speech synthesis using a Raspberry Pi
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE
This project will look at speech output and how the sound output can be manipulated to simulate emotional voices.	

Project title	Hieroglyphic OCR
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE
Optical character recognition has been performed for many scripts, but not Egyptian hieroglyphics. Since there are over 4000 individual characters in the language this means that Egyptologist need to use very large virtual keyboards to enter texts from photographs of objects. It would be so much easier if they could photograph an inscription and let a character recognition system do the hard work for them. This project will attempt to create an OCR system for a small subset of common hieroglyphics.	

Project title	Smartphone voting tool for lectures
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / WD
Some universities are now adding interaction to lectures by giving students special devices that allow them to 'vote' on answers to questions raised by the lecturer during a lecture in such a way that the result of the vote can be fed back to the main screen in real time. This project aims to create this functionality via a smartphone so as to remove the requirement for expensive specialist devices.	

Project title	Nabaztag/OpenNab service development
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD
The Nabaztag is a 'smart object', designed to connect to a server and consume a variety of web services, producing output in lights, speech and wiggling of its ears. Several of these 'wifi bunnies' exist within the School, but work needs to be done to a) discover what services would be useful, and b) to set up the server and create these services using the OpenNab software.	

Project title	Web-based remote-control of lunar exploration robots
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	BIT / CIS / WD
Most interplanetary exploration is done with autonomous vehicles because the communication delay makes it impractical to allow for real-time operations. The communications delay for a vehicle on the Moon being controlled from Earth is only 2.6 seconds – short enough that real-time control us possible. This project will create a simulator to train operators to control a Lego Mindstorms robot via the Internet while applying a realistic delay to all communications.	

Project title	A game-based usability demonstrator
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	BIT / CGD / CIS / WD
There is a massive variation in visibility when objects of one colour are placed on top of a different background colour. This project aims to produce game-based demonstrator of this phenomenon that will also allow users with colour vision deficiencies to identify colour combinations that are particularly clear to them.	

Project title	A Pebble-based air quality monitor
Project type (Delete as appropriate)	Development
Target degree lines (Delete as appropriate)	CIS / SE / WD
The Pebble watch allows users to receive information from the Internet via a Bluetooth connection to a smartphone, and is programmable in C and/or JavaScript. This project aims to scrape data on air quality from a website plus location data from the smartphone in order to provide the user with a haptic or audio alert when they walk/cycle into areas of low air quality.	

James Williams

Project title	Evaluation of IHM **emWave Technology** to enhance well-being learning and creativity for personal and professional development.
Project type (Delete as appropriate)	Development / **Survey** / **Experiment** / Review
Target degree lines (Delete as appropriate)	**BIT** / CG / CIS / CNets / SE / WD
Your research would investigate the research and practical use of the emWave Technology to manage psychological and physiological processes to enhance well-being learning and creativity for personal and professional development.	

Project title	Investigation and evaluation of **Social Media promotion strategies** for Organisations.
Project type (Delete as appropriate)	Development / **Survey** / **Experiment** / Review
Target degree lines (Delete as appropriate)	**BIT** / CG / CIS / CNets / SE / WD
Your research would investigate the various social media technology platforms and promotion strategies available for Organisations today. A Guide of Best practices for Businesses today will also be produced.	

Project title	Evaluation of **Computer Game development** via cloud-based GUI environments.
Project type (Delete as appropriate)	Development / **Survey** / **Experiment** / Review
Target degree lines (Delete as appropriate)	**BIT** / CG / CIS / CNets / SE / WD
Today, we are seeing more sophisticated Cloud-based development environments that allow application development via a Graphical User interface. Your research would assess the effectiveness of these software tools for building a Computer Game. Post evaluation, the creation of a promotional Game for a Case-study Organisation can be developed.	

Project title	Investigation and evaluation of **Mobile Application development** via cloud-based GUI environments.
Project type (Delete as appropriate)	Development / **Survey** / **Experiment** / Review
Target degree lines (Delete as appropriate)	**BIT** / CG / CIS / CNets / SE / WD
Today, we are seeing more sophisticated Cloud-based development environments that allow application development via a Graphical User interface. Your research would assess the effectiveness of these software tools for building a Mobile application. Post evaluation, the creation of a promotional App for a Case-study Organisation can be developed.	

Project title	Investigation and development of a Promotional **Casual Game** for a Case-study Organisation (AC).
Project type (Delete as appropriate)	**Development** / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	**BIT** / **CG** / **CIS** / CNets / **SE** / **WD**
Your research would investigate and select an appropriate software technology to build a promotional Casual Game for a Case-study Organisation. The implementation would also select and follow a software development life-cycle to build the application for the Case-study Organisation.	

Project title	Investigation and development of a Promotional **Mobile App** for a Case-study Organisation (AC).
Project type (Delete as appropriate)	**Development** / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	**BIT** / **CG** / **CIS** / CNets / **SE** / **WD**
Your research would investigate and select an appropriate software technology to build a promotional Mobile application for a Case-study Organisation. The implementation would also select and follow a software development life-cycle to build the application for the Case-study Organisation.	

Project title	Investigation and development of a Promotional **Casual Game** for a Case-study Organisation (AC).
Project type (Delete as appropriate)	**Development** / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	**BIT** / **CG** / **CIS** / CNets / **SE** / **WD**
Your research would investigate and select an appropriate software technology to build a promotional Casual Game for a Case-study Organisation. The implementation would also select and follow a software development life-cycle to build the application for the Case-study Organisation.	

Project title	Investigation and development of a Promotional **Mobile App** for a Case-study Organisation (AC).
Project type (Delete as appropriate)	**Development** / Survey / Experiment / Review
Target degree lines (Delete as appropriate)	**BIT** / **CG** / **CIS** / CNets / **SE** / **WD**
Your research would investigate and select an appropriate software technology to build a promotional Mobile application for a Case-study Organisation. The implementation would also select and follow a software development life-cycle to build the application for the Case-study Organisation.	

Projects from Industry

Leigh Thomas, UWTSD Health and Safety Manager

Project title	Data Management
Project type (Delete as appropriate)	Development/Experiment/Review:
Target degree lines (Delete as appropriate)	CGD / SE / BIT / CIS / CNets / WD
Description: The university has a very large number of assets that require statutory tests – e.g. fire alarms, emergency lighting, PAT testing etc… We need to keep track of all of the certification that we get surrounding the tests. A database is needed to hold the compliance information: date the test was carried out, date of next test and details of what company carried out the test and if there are further actions required following the test (remedial actions). The system needs to have the functionality to run reports and to remind key personnel (via email) when new testing is needed with details. A user-friendly front end to accompany the system would also be needed.	

Project title	Online Enquiry Management
Project type (Delete as appropriate)	Development/Experiment/Review:
Target degree lines (Delete as appropriate)	CGD / SE / BIT / CIS / CNets / WD
Description: Online form (on the intranet) needed for staff to be able to fill in with details of their enquiry. The details need to populate an online database which can be accessed by authorised personnel to update. There needs to be a system for keeping the history of action relating to an enquiry – i.e. who did what and when relating to each enquiry. Once an enquiry is dealt with it can be closed out. Monthly reports will be needed on how many enquiries are still 'open' which ones have been 'closed' and how long it took to close actions out. A user-friendly front end to accompany the system would also be needed.	

Other Industrially-based Projects

Project title	Microsite Builder
Project type (Delete as appropriate)	Development:
Target degree lines (Delete as appropriate)	BIT / CIS / WD
Description: Develop a platform using Drupal or Wordpress that will allow the rapid development and deployment of partner websites, based on a range of page templates and plugins, as well as embeddable PCW widgets	

Project title	Smartphone/Tablet apps
Project type (Delete as appropriate)	Development:
Target degree lines (Delete as appropriate)	SE / CIS / WD
Description: Develop a series of apps to allow the easy recording/capture of PCW Items (Images, Audio, Trails, Collections) and their associated metadata, and then publish to PCW. *An interesting angle might be to investigate the auto-transcription of audio files.*	

Project title	HTML Widget Builder
Project type (Delete as appropriate)	Development:
Target degree lines (Delete as appropriate)	CIS / WD
Description: Develop an interface to allow members of the public to develop their own customized PCW widgets for use within external websites.	

Project title	Crowdsnap Cymru
Project type (Delete as appropriate)	Development/Review:
Target degree lines (Delete as appropriate)	SE / BIT (Review Project) / CIS / WD
Description: Refine existing platform (web and Android app) to improve usability and implement bilingual interfaces to allow public launch, then solve any bugs/issues post Live.	

Project title	Health Informatics Wales
Project type (Delete as appropriate)	Development/Review:
Target degree lines (Delete as appropriate)	BIT / CIS
Description: Investigate approaches to workforce modelling, implementing demonstrator examples for established modelling approaches and evaluating (bench research and personal experience) the utility or benefit of each for particular scenarios and types of data.	