Num	Project Name	Project description
1	Microsoft	Design and develop a mixed reality app for Microsoft HoloLens. Bring your app idea, design and develop in an emulated environment using Unity framework with support from our mentors and test on the HoloLens device on-site in our Microsoft Garage Lab.
2	Microsoft	Create a multilingual virtual assistant using Microsoft Azure Cognitive Services and Bot Framework to help with everyday actions like booking meeting rooms, submitting forms, requests etc. Come up with actions applicable to your college environment, design and build with support from our mentors.
3	Microsoft	Learn Deep Neural Networks using Microsoft Cognitive Toolkit. Build a self-driving system with Lane Detection and Tracking and train a neural network for object recognition/classification. Develop in a simulated environment with help from our mentors and then build a track and run your simulation using our Garage Lab hardware.
4	Microsoft	Learn concepts of quantum computing. Bring your idea, create a simulation using Microsoft Quantum Development Kit with support from our mentors.
5	Microsoft	Use Microsoft Azure Cognitive services and Cortana Text-to-Speech Api to create an email summarizer app for Office 365 mailboxes.
6	Keep Appy	Keep Appy uses artificial intelligence to improve people's mental wellness. Keep Appy gives users personalized tips based on metrics we measure. The app will launch mid-January. As part of the project, you will develop the Chabot's UX and wording. We are part of the TES incubator and Enactus TCD. We're looking for tech talents to join us
7	Execute Apparel	It's an online store for a clothing brand. The store would need to have a homepage, collections page featuring each of the three collections: t shirts, hoodies, caps. A product page for each individual product within each collection. A shopping basket, and checkout + payment options.
8	Greener Globe	Greener globe have developed a shower head to limit the amount of water used during a shower. They need help to develop a chip and the software on it to be able to monitor water usage and consumption and turn this into an app so users can observe their savings and usage. Not unlike a fitness app.
9	Ethics Model Canvas and Business Model	The ethics canvas is a free brainstorming tool for capturing and reflecting on the ethical implications of a technology development project. It is available free to use at https://www.ethicscanvas.org. Its design is inspired by the well-established Business Model Canvas: https://strategyzer.com/canvas/business-model-canvas

	Canvas Integration	For this project we propose extending the ethics canvas software so that both a business model canvas and an ethics model canvas can be created and edited in parallel for the same project. The ethics canvas support features for tagging text elements entered into the canvas, and this should be shared so that tags can be added to the corresponding business model canvas and shared between a linked pair of ethics canvas and business model canvas for a specifc project. Optional additional features to add could include: Exporting linked canvases and their tags and comments as a JSON-LD open data model. Revision tracking of canvas content, annotations and comments.
10	Guidance counsellor bot for secondary students	The bot could help students decide on 3rd level courses based on a variety of different factors and also provide course details (points & other relevant info). Maybe look at the same style bot for 3rd level students looking to further studies/employment? Would of course be looking to build on IBM Cloud and Watson.
11	Prototype Web Application for TA and Demonstrator Allocation	The application will present a number of "views" depending on role, for example: "TA or Demonstrator" "Lecturer" "Administrator" "Supervisor" (of PhD students) This could be done as a basic CRUD application, with additional application logic added as time permits, so its scalable.
12	Create a DAPP with Ethereum	One of the new focus areas for Orange Tribes going into 2018 is blockchain technology. That is why we are looking for inspiring ideas and projects. Create an DAPP (Decentralised App) using the Ethereum platform. This DAPP needs to focus on one of the following subjects: • Charity • Legal Documents • Supply Chain Management Deliverables 1. A well thought out concept

		a. Concept for the entire DAPP b. Concept needs to be documented 2. Technical Prototype • Smart contracts using Ethereum • Frontend to manage the smart contracts • The technical prototype must show the feasibility of the concept, but does not need to be a full implementation of the entire concept.
13	phone-based challenge-response system	It is a phone-based challenge-response system that would allow a person on one phone to challenge another user – that user would then formulate a response which would be returned to the sender and verified. The project would ideally work on both Android and ios – it might use a Bluetooth API (or piggbyback on apple's bonjour service) to establish a link between the phones. The challenger would then formulate a challenge – something like: "prove you are a member of this organization" "prove you are over 18" Etc. The challenge would appear on the screen of nearby phones – if they have the credential, that phone's user would press the "Respond " button and A reply message would be sent to the challenger, where it could be verified. There would be a set of routines : generate_challenge, generate_response, verify_response which could be loaded initially with a simple password-hash system, but could be something more complex.
14	A Technology Platform for Screening Tools in Autism Spectrum Disorder	The aim of this project is to develop a technology that incorporates extant screening tools for Autism Spectrum Disorder (ASD) to be employed in primary care (General Practitioners). It is envisaged that the technology will gather information from a parent at a routine timepoint marking any developmental concerns that may signal early signs of ASD. A range of tools are currently available (outlined below) but not currently utilised in Ireland. This project will construct a platform to make these tools available via tablet to collect data on aspects of a child's development. The technology will be required to have a layered content that will involve linking skill deficits or behavioural excesses, to standardised recommendations based on current best practice in early intervention.

15	Inhibitory stimulus control for the management of vocal and motor stereotypy in children with autism spectrum disorder	The aim of this project is to develop a technology that facilitates the implementation of inhibitory stimulus control procedures as a behavioural intervention for the management of stereotypy in children with repetitive behaviours. The technology will gather information on baseline rates of stereotypy through direct observation by a practitioner. It will employ an algorithm to calculate starting points on behaviour omission training (differential reinforcement of alternative behaviour) and will scaffold increasing intervals according to participant success. It will incorporate a Time Timer® as a visual support for start/stop interval signals. It will incorporate a Token Economy (reward system) as a behavioural intervention to motivate self-monitoring. It will gather data on successfully completed intervals and restarts where participants omit the target behaviour or fail to omit the target behaviour. It will provide a graphic display of data as participants succeed in inhibiting a stereotypy for greater intervals of time.
16	Calculate My Menu Allergens • Calorie Count • Full Nutritional Analysis	Since December 2014 Allergen Labelling (AL) has been mandatory across the EU. The onus is now on foodservice outlets to identify and post any of 21 specified allergens and sub-allergens that are contained in any foods and beverages that they serve non-packaged. Producers and distributors are legally required to provide and maintain allergen data for their customers and it is contained on labels. In conjunction with the SaaS that we are developing we would like to develop an app (Android and/or iOS) that will list these specific allergens when a bar code or QR code is scanned from the food label. The app should also give details of calories per 100g. Ideally the information would also be mapped to our database so that legally compliant menus can be complied and printed. The target users are busy chefs and managers in food outlets so the app would need to be user friendly.
17	Nutritics	Nutritics is the best way to manage recipes, analyse diets & activity, and create meal plans. We provide our software to thousands of forward thinking clients around the world in healthcare, education, food services, food manufacturing, and elite sport. We think that being able to source accurate and reliable nutrition software is a problem rooted in the disconnect between the best software developers and nutrition professionals. Our user-friendly products allow our clients to trust the information and focus on growing their business. OCR Project Nutritics have a requirement to build an Optical Character Recognition (OCR) system to interpret nutrition labels. The objective is to turn a photo of a food product's nutrition panel into text to assist with adding these products to the Nutritics database.
18	Corvil	Development of a high performance analytics plugin in C++ for decoding and analysing network protocol messages.

19	Speech therapy app	Developing a mobile or tablet app to support message banking for speech and language therapy in patients (specifically patients with progressive Motor Neurone Disease).
20	Obstacle race game: develop the 3D environment with Unity	develop the 3D environment with Unity: - building a circular race (2D plane with path and environment) - add 3D objects along the path (object that requires a jump, object that requires benching down and object that requires dodging) - move the camera according to the action made with the keyboard (move forward with up_arrow, dodge left/right with left/right arrow, jump with space, bench down with down_arrow) -> Unity manages alone physics so it should not be very hard to implement
21	Obstacle race game: developing gesture recognition with Kinect	The object of this project is to develop gesture recognition with Kinect for an obstacle race game: - run on the spot - jump - bench down - dodge left/right
22	The soup run organisation	The soup run organisation project entails the compilation of relevant data from soup runs in Dublin to allow the efficient self-organisation of soup runs. There have been many criticisms recently of the efficacy of soup runs in helping the homeless, this project hopes to improve the efficiency of soup runs to provide better services for the homeless and allow more efficient use of human resources in this regard. We hope to create a website that will allow organisations and volunteers to view the time, place and frequency of soup runs, as well as other relevant data such as number of service users encountered on each run, number of volunteers on each run and training required for volunteers. Our aim is to display this information publicly in a clear, accessible manner to enable assessments to be made about the efficiency of soup runs and improvements to be made accordingly.
23	Context Visualization and Editing	There is a need for researchers to understand how and where mobile devices are used, in order to improve current technologies. Although there are mobile applications that automatically record some aspects of users' technology usage and context, the data collected has little meaning in itself. This project attempts to address this through the creation of a website that lets both user and researcher visualize the data and make updates and comments that will help the data's interpretation.

		The project consists of the creation of a web application that: 1. Draws mobile usage data (e.g. applications used, timestamps, location coordinates, users' answers to questions) from an existing MySQL database, clears, processes and saves them into a different database. 2. Lets users see their own data in useful and interactive visualizations (e.g. maps where the users' visited locations are shown) and answer questions to complement the data. For example, it shows them locations they visited on the map and users can clarify where they were (e.g. at home or at a restaurant), with whom, or what they were doing there. 3. Lets researchers see the visualizations of each user's data to get a sense of their daily life, and define the summary statistics they want to see about grouped users' activities. For example, which users use Facebook and how long they use it for, on average, while they are at home, how many of them use messenger in a restaurant, how often they use Firefox to learn something, etc.
24	Location & Application-triggered mobile surveys	There is a need for researchers to understand where mobile devices are used, in order to improve current technologies. Although there are mobile applications that automatically record the coordinates of a user's location, the coordinates in themselves can only provide so much information. Two plugins for an existing recording application have been at least partially developed, that aim to get a deeper understanding of users' locations and applications respectively, by asking users more information about these at specific triggers. The project consists of completing the existing plugins, fixing issues, improving and extending functionality. For more information about the plugins, see below: The location plugin needs to ask the user - at pertinent times and locations - what location they are in, therefore categorizing the captured coordinates into distinctly named locations, types of locations and usual activities the user does in them and eventually ask fewer questions, as they learn the user's habits, focusing only on newer locations. It should deliver a survey - including different types of questions – triggered according to: 1. The coordinates detected at a particular time, compared to coordinates that have already been categorized 2. The accuracy of the automatically recorded coordinates 3. The time passed since the user entered the location 4. If the time is within time slots the user has declared they are willing to answer surveys The deliverable is a plugin ready to be integrated in the app, that triggers the questions according to the detected data, saves the user's answers both on the phone and in the same database the app already saves the automatically collected data and categorizes the

		coordinates into types of locations. By gradually expanding the coordinates' range for each distinct location, to gradually ask about fewer locations . The application plugin needs to ask the user at pertinent times, what they were trying to do while using applications that are of interest to the researcher. It uses different types of questions and can be triggered according to: 1. The application used 2. Whether the user just started or stopped using the application 3. The duration the application was used for 4. How many surveys the user has answered about the specific application during a day 5. How many surveys the user has answered about other applications of interest during the day
25	Gesture based game for learning on a mobile device	This project will be to develop a mobile game that will teach people to wash their hands properly and allow them to compete with their friends. It will be built using the existing SureWash hand hygiene gesture recognition engine and Unity. The app must run on IOS and Android. The priorities for the project are: 1. Develops a name for the app 2. Develop a user interface for the current racing game that: a. on board users b. play a single player version of the game c. develop a scoring platform d. develop a leader board system e. support the discovery of multi-players and support multi-player tournaments on the app 3. Devleop the gfx and game assets needed to support a multiplayer version of the racing game. Players joining across the network Mario cart style. 4. (for bonus only) Develop new gfx worlds or games concepts based on the core concept of hand gesture recognition
26	Database/CMS	Innovate circle want to build a database and analyse data that comes in from different sources. This will be used to help prospective members fill out their profile page, add innovations, sectors and areas of interest. It should also facilitate simplifying search by person, company, sector or type of innovator or innovation.

		Members could also have companies and people they might be interested suggested by analysing data they have inputted and search options that they are interested in.
27	Architecture/application/Infrastructure.	The aim of this project is to find a programmable architecture or application which runs our website to support all the functions in the back end. Currently we have built a MVP in wordpress and realise it limitations. We are happy to create a sandbox with our project to date to analyse and programme in missing features..
28	Pimp That Voice (Eliminate Annoying Accents from Audio/Video or Live Talks)	Problem / Background: You watch a movie on YouTube or on Coursera, and the person that talks in the video has a horrible voice. For instance, the person might have a terrible accent (e.g. German), a super-high pitch voice that hurts your ears, or the person starts every sentence with ‘so’, ends every sentence with ‘right?’ and uses the word ‘like’ in every sentence twice. Solution / Goal of the project: You develop either a software library or an entire application that gets a video (or audio) file as input and returns the file with the “pimped” audio. The “pimping” could focus on: 1. Removing the speaker’s accent or simply replacing the voice with a completely different one. This means, from a user’s perspective, a user could either select to “make the original voice more pleasant” or “replace the original voice with a completely new one”. 2. Improving the speaker’s grammar, i.e. remove unnecessary words such as ‘so’ or unnecessary uses of ‘like’. Ideally, the tool works in real-time, i.e. it could process videos streams e.g. from YouTube while watching a video, or even when a public speaker talks with a microphone. However, for this project it is also ok to work with normal videos files, and if the processing takes a while. You could also slightly shift the focus of the application from improving the voice to helping people to become better speakers. This means, a user would talk with a microphone in private, and whenever the user starts a sentence with e.g. "So, " or ends a sentence with a rhetorical "right?), a beep would occur to remind the speaker to not do that. A very simple version of this project could be that you simply count how often a user says some of the "prohibited" words and at the end of the talk you display some statistics. Other variations include to change the problem from video/audio to phone calls (e.g. with customer support centres). Your goal would then be to develop a tool that allows a company having e.g. a call centre in India and giving all employees a British accent, or the same voice, when they talk to customers. There is a huge business potential in this. See also http://nationalpost.com/news/canada/canadian-speech-software-could-make-thickly-accented-overseas-operators-easier-to-understand
29	Photo2Location (Guide a User to the Location a	Problem / Background: When people visit a nice restaurant or sight seeing spot, they usually take photos. However, when they look at the photos some days, weeks, or even months later they often do not remember where the photo was taken exactly, or, how to get there to e.g. eat again in that nice restaurant. Solution / Goal of the project: You develop an app for iOS and/or Android that allows opening a

	Photo was taken)	photo in that app, and then the app displays the location of the photo on a map, and guides you there. This way, users can easily find e.g. the nice restaurant where they have eaten some weeks ago. The project as describes here is probably not comprehensive and novel enough to justify a Final Year Project. So, you would have to come up with some additions to extend the project scope and make it a bit more original (maybe add a recommender system?).
30	Temporary Two-Factor Authentication	To increase security on websites, many websites offer a two-factor authentication for users. Two-factor authentication requires a user not only to provide a user name and password to log into the website, but additionally a one-time PIN that the user's mobile phone. Current solutions require a user to enter his/her password on the potentially insecure computer. Even if the mobile phone is additionally needed for the login this is not an ideal solution. In particular if the user has the password on several websites of which some may not use two factor authentication this process is not ideal because an attacker may get access to the user's password. we propose an alternative login process that websites may offer to users. Users would select this alternative process on computers they do not fully trust. The workflow would be as follows. Instead of entering the entire password a user only enters the four last characters of the password. The remaining process is identical to two≠factor authentication; a PIN being sent to the user's mobile phone
31	Now & Then Cam (Mobile Phone Camera App to Ease The Process of Taking Photos Over Time)	Media, researchers but also "normal" persons often use "Now and Then" photos to illustrate changes in persons, landscapes, and urban areas over time. The problem in creating such photos is to find the exact location and angle in which the original photo was taken. Proposed Solution A mobile phone app that a) shows on a map where exactly a photo was taken (ideally with information how many meters above ground) b) displays the original photo on the mobile phone screen with some transparency, and also displays the live image of the mobile phone camera.
32	The Late Early-Adapter (Service that registers user accounts)	Billions of websites require users to register, and typically users have to choose a user name, which, obviously, has to be unique. For users with common names such as "John Smith" this means that their ideal user name (johnsmith or john_smith) is usually taken when they register. In some situations, user names (and even numeric IDs) become a valuable good that is sold for significant amounts of money.

		Proposed Solution A service that registers user names on new platforms as soon as they go online. Users of this particular service can specify their preferred user names (e.g. "johnsmith") and the service registers this name on every known web platform. If the user eventually decides to use the platform, he or she can simply use the already registered user name
33	The Cryptocurrency Donation Calculator	Recently, hackers found a new way to make money: they hijacked a user's browser and let the browser mining cryptocurrencies such as Bitcoin. https://www.wired.com/story/cryptojacking-cryptocurrency-mining-browser/ . Sometimes, the website operator intiated this to make money, sometimes hackers distributed the malicous code through hacked websites, i.e. the website operator also wasn't aware of what was going on. Obviously, this behavior is malicious. However, what if both the user and the website operator would agree that the user mines crypto currencies for the benefit of the website operator? Project Idea A service that allows users to "donate" their computing power while they visit a website. This computing power is then used to mine cryptocurrencies (e.g. bitcoins) for the website owner. This concept could open a complete new revenue stream for website operators, in addition to classic advertisement and subscription models.
34	Dragbase: Bringing File Manager and Drag & Drop Functionality Directly into Applications	Imagine that you write a Word Document, and you want to send this document via email to a colleague. The typical Workflow would be 1. Save the Word document on the hard drive (Select "Save" from the menu, browse to a folder location, type a file name, press "Save" button) 2. Attach file to email (Create new email, select "Attach File", browse to the location of the file, select the file, select "attach"). This is rather many steps for a simple task. Solutions: An icon in e.g. the Word Processing software, whereas this icon represents the currently opened file. The icon allows "drag & drop" functionality. This means, a

		user can simply drag & drop the icon to e.g. an email application, and the email application would then automatically create a new email and attach the document. I have implemented a simple demo already and the software library is, more or less, ready to use. For more details including a video see http://dragbase.com Imlementation The students' task is to use the existing Dragbase library, and integrate it into one or two real applications. In addition, they might need to adjust the Dragbase library if necessary.
35	Text analysis in Social Media Networks (SMN)	In recent years Social Media Networks (SMN) have become a common environment during our daily lives. In there, users display valuable information regarding their own believes, opinions and conceptions of the world. To do so, platforms offer a variety of options to convey it as chain of transmission meaning: text, pictures, videos, emojis, etc. This project aims to develop a web-based tool that let users to identify patterns of behaviour based on information written in SMN.
36	Android application to enable non verbal people to use voice assistants such as Siri.	This application will allow the user to add buttons to a grid layout. Each button will have a user defined command such as "Hey Siri, play Havana by Camille Cabello". This command will be spoken using the system text to speech API. The user should be able to delete these buttons at will. The user should be able to rearrange the buttons. The grid layout should be 3x3 buttons. User should be able to swipe left for a new page of buttons. This project will be done under git version control and hosted on github. There will already be a repository and a document detailing acceptable work flow available.
37	GUI analytics	We have large datasets regarding software engineer individual and team performance and want to develop cool visualisations of these data sets for consumption by engineer users. So cool GUI analytics stuff back ending to heavy data sets.

38	Management system for mentors and students on placements	The project involves creating a management system for mentors and students on placements for use by the Marino Institute of Education> The system is meant to go live at an off-campus site, such that data is protected and lives unambiguously only with them