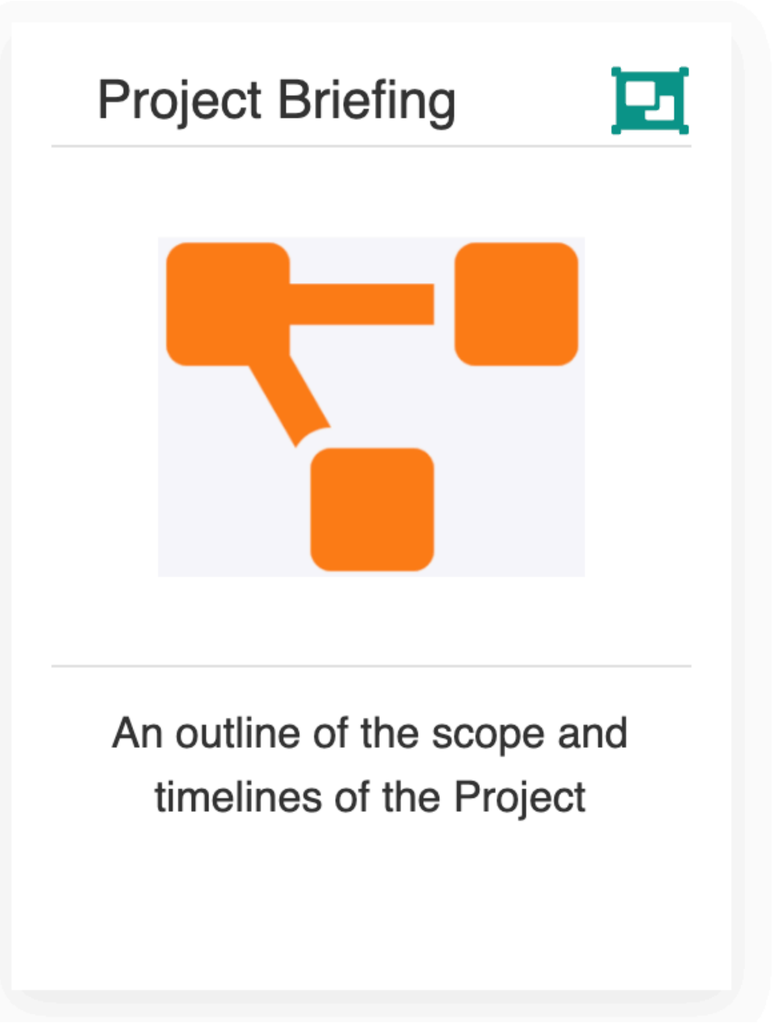
Project Samples - pre 2020



Examples - (Pre 2020)

moodle.wit

Higher Diploma in Computer Science 2018-2019

Project

Example Projects

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Sample Project 1:

ANAEROBIC DIGESTION CALCULATOR

The problem the application is attempting to solve is to develop an app that calculates the energy output from biogas generated through Anaerobic Digestion (AD).

AD is a process where bacteria break down organic materials in the absence of oxygen into biogas and digestate. The biogas can be used to produce electricity and heat in a Combined Heat and Power Plant, or purified and used as a vehicle fuel or in the gas grid. AD is a carbon neutral process.

Calculations include biogas output, methane output, heat output, electricity output, purified biogas volume, number of vehicles that could be fuelled, potential income and carbon dioxide savings from the various biogas end uses. The algorithms to calculate energy output form AD are not easily accessible to the general public.

Keywords: Ruby on Rails; **Web App**; Dynamic; Anaerobic Digestion Calculator;

ANAEROBIC DIGESTION CALCULATOR

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Sample Project 2:

HOME AUTOMATION OF A BUILDING ENVIRONMENT

The goals of home automation are to make a dwelling into a smart building. Our focus is on key features like security, comfort, ease of access and automation that will be provided by the integrated networked system for the inhabitant of the dwelling.

One of its primaries is to create a building environment automation system that fits the criteria of:

1. Cheap to purchase
2. Easy to install
3. Reliable
4. Accessible
5. Performance

To create a website application hosted on a Raspberry PI or cloud based web server. This Server will read the live data and time lined feeds of the environment within each room. So we can remotely control electrical output points to stop electrical use and inform us of electricity usage. Along with electricity (watts) other data the app can also read temperature (degrees Celsius).

This service will have its own database. To access this service remotely the user can dial into the internal server by web domain so as to maintain and monitor the dwelling environment. It is to provide users in the dwelling ease of access whilst in the dwelling or thousands of miles away with internet access.

With the user interacting with the user interface it should save money and do their part for a greener environment. The user can investigate history loads of electricity usage in the dwelling, so as to identify off peak loads.

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Home Automation of a Building Environment

Sample Project 3:

“MYITJOBS”

RECRUITMENT AGENCY WEBSITE & MOBILE APPLICATION SUITE

There has never been a better time for the Irish recruitment industry to implement more powerful Information and Communication Technology (ICT) tools to improve competitive advantage by reducing time and effort to find the most suitable Jobseekers and contacting them promptly using various online tools such as Instant Messaging (IM) and employing Activity Analytics techniques.

While there are companies in Ireland like Social Talent who provide online and social media training to Recruiters, there are very few agencies employing such tools into their websites.

Moreover, there are even fewer agencies with **mobile applications**. It is of particular interest, therefore, to explore the creation of an Application Suite (AS) – that is, the creation of a Web and Mobile Application bridged together with a REST Application Programming Interface (API).

MyITJobs

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Sample Project 4:

SKELETON TRACKING

The project I am currently working on within Mobile Services at Telecommunications Software and Systems Group (TSSG) requires a non-marker tracking system that automatically assesses an individual person performing a range of movements and prescribes a suitable corrective exercise intervention program. A Microsoft Kinect is being used by the client to assess these individuals. When the individual is doing a range of exercises in front of the Kinect for Windows sensor, the individual is displayed in a simplistic skeleton format in the application. This is better known as Skeleton Tracking.

Vitruvius is a framework that simplifies many aspects of the Kinect for Windows application development. This framework needs to be investigated to understand how this framework uses skeleton tracking. Once an understanding is in place, a new framework needs to be devised that can be used in an application to track participant's skeletal movements. Once this is complete, methods need to be investigated into calculating a participant's height, heart rate and blood pressure.

Skeleton Tracking

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Sample Project 5:

CARLOW/ KILKENNY ELECTION APP – ELECTION 2016

Background

The project is a hybrid mobile app using Ionic, Angular JS, Cordova, ngCordova, HTML, CSS and JavaScript based on the Irish General Election, 2016 but limited to the Carlow-Kilkenny electoral area. It is intended to fulfil the requirements of the H.Dip. in Computer Science curriculum of a final project.

Objectives

To be a subset and therefore demonstration version of an app providing full Irish coverage of a General Election, namely General Election 2016. To this end, the Carlow-Kilkenny election area, a five seat constituency, was covered.

- To provide information on parties and link to their websites, also highlighting the party that the User has pledged support to.
- To provide information on party candidates with links to their Twitter and Facebook accounts and the ability to email them.
- To enable the User to pledge support to a certain party and store this information locally.
- To enable the User to have Create Read Update Delete (CRUD) functionality for their Comments.
- To provide charting of party popularity using the D3 JavaScript library (D3.js).
- To provide authentication via email for logon, logout, signup and password reset purposes. The Firebase cloud backend server was used for this purpose.
- To use the Google Maps API to introduce maps to the app.

Carlow-Kilkenny Election App – Election 2016

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