



# Higher Diploma in Computer Science (online)



# PROJECT SHOWCASE 2022

# FOREWORD

The Higher Diploma in Computer Science (online) was the first fully online programme from WIT, now SETU. It was designed to be delivered online, with an emphasis on student experience, engagement, community and communications. The programme has pioneered the innovative Agile Semester approach to delivery. This showcase of projects presented in May 2022 highlights the diverse range of graduate capabilities from this programme. Students on the programme complete their studies while on a six month work placement. During this time they complete a capstone project. Students and graduates continue to be highly sought after. If your company is interested in mentoring a student on work placement please contact [joan.mangan@setu.ie](mailto:joan.mangan@setu.ie)

This year we've seen a large number of students developing native android apps, web apps, and a combination of both, in the one project. We also saw some leverage hybrid technologies to building both web and mobile apps. There were projects focusing on DevOps, creating cloud CI/CD pipelines, testing gradles, IOT and physical computing projects involving hardware sensors with web and mobile dashboards and even futuristic e-textiles, and crypto currencies. We had workplace projects including INDUSTRY 4.0, Microsoft Power BI, and a number of private workplace projects (the details of which are withheld under NDAs). We also had a research project based on accessibility. Projects use multiple APIs, and are deployed in different environments (AWS, AZURE, OpenShift).

This showcase document groups the projects into categories. A list of projects is provided for each category, and a page for each student project is presented in order. Student thumbnails link to project videos, Student Names link to the project page. The project pages summarise the project and includes links to gitub, youtube and web pages for the project. Qrcodes for each project are also provided.

In summary, we are often asked what our course is about and what can you do after completing it? Well, this showcase answers both questions through our students hard work. Enjoy the diversity, innovation and creation. From the entire team, we would like to thank the students for their work over the last few years, and we wish you every success which you will no doubt have in the future.

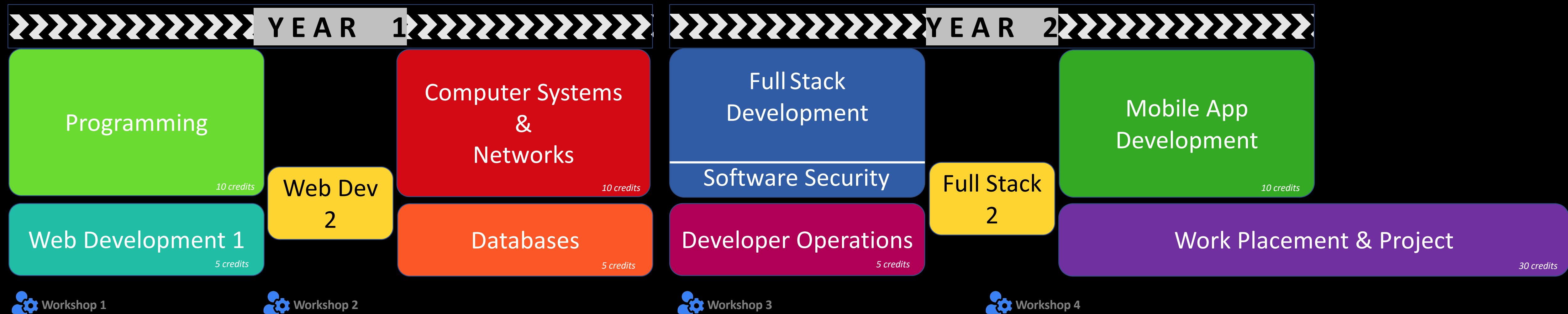
Regards,  
Colm Dunphy



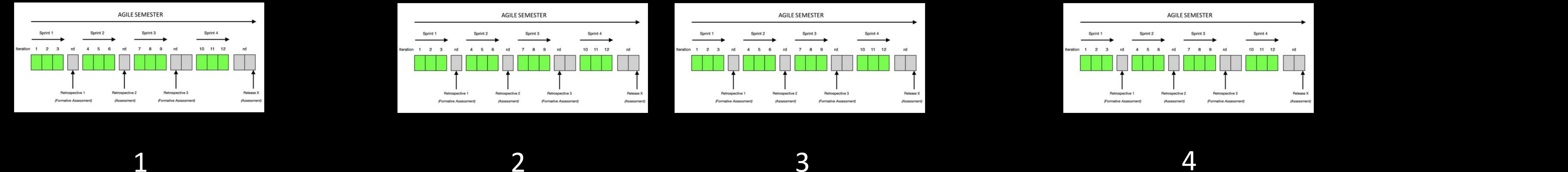
colm.dunphy@setu.ie

Project Co-ordinator

# Higher Diploma in Computer Science (online)



## Agile Semesters – Delivered Fully Online



*Thumbnails link to videos. Names link to pages*



**Adam Piasecki**



**Adelle McAteer**



**Ahmad Sabeh-Murphy**



**Aileen Drohan**



**Alvaro Sanchez Domingo**



**Cathal Henchy**



**Cian Dunne**



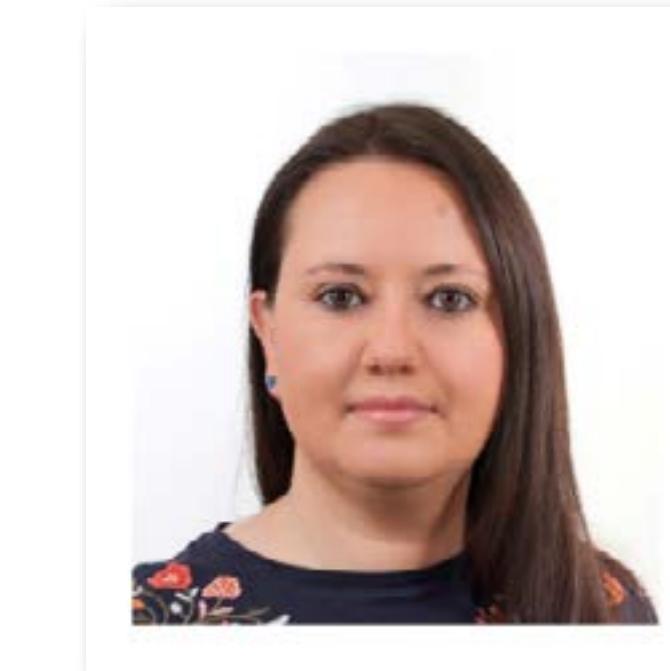
**Dan O'Brien**



**David Corrigan**



**Emma Kidney**



**Federica Fiorenza**



**Gary Houston**



**Ian Hutchinson**



**Ian Mullins**



**Ivan de Wergifosse**



**James Duggan**



**James Geraghty**



**John Cagney**

*Thumbnails link to videos. Names link to pages*



**John Dennehy**



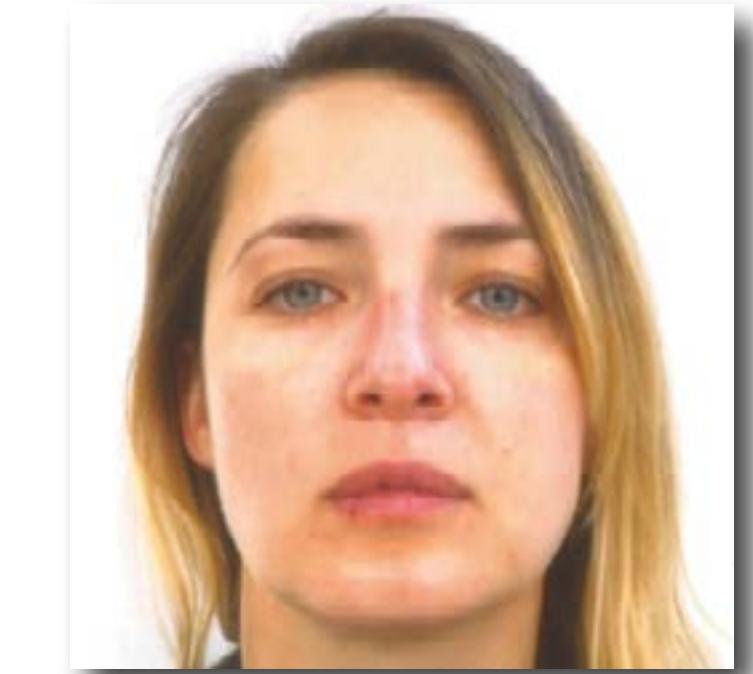
**Karolis Pliauskys**



**Kathleen McCarthy Kelleher**



**Maeliosa Leamy**



**Maryia Balbachan**



**Michael Kelly**



**Naoise O'Sullivan**



**Philip McNamara**



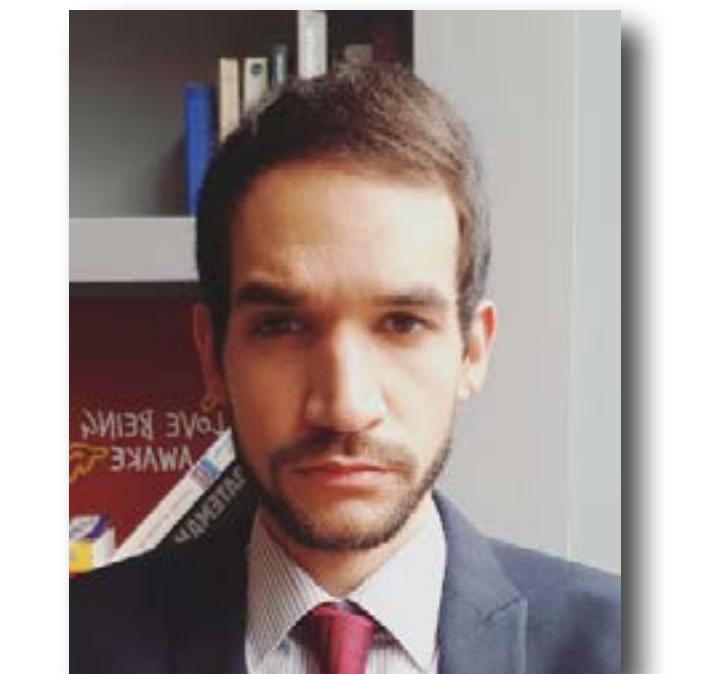
**Ruairí Byrne**



**Seamus McCarthy**



**Sean Crowley**



**Shady Attia**



**Shane Ryan**



**Sheamus Clifford**



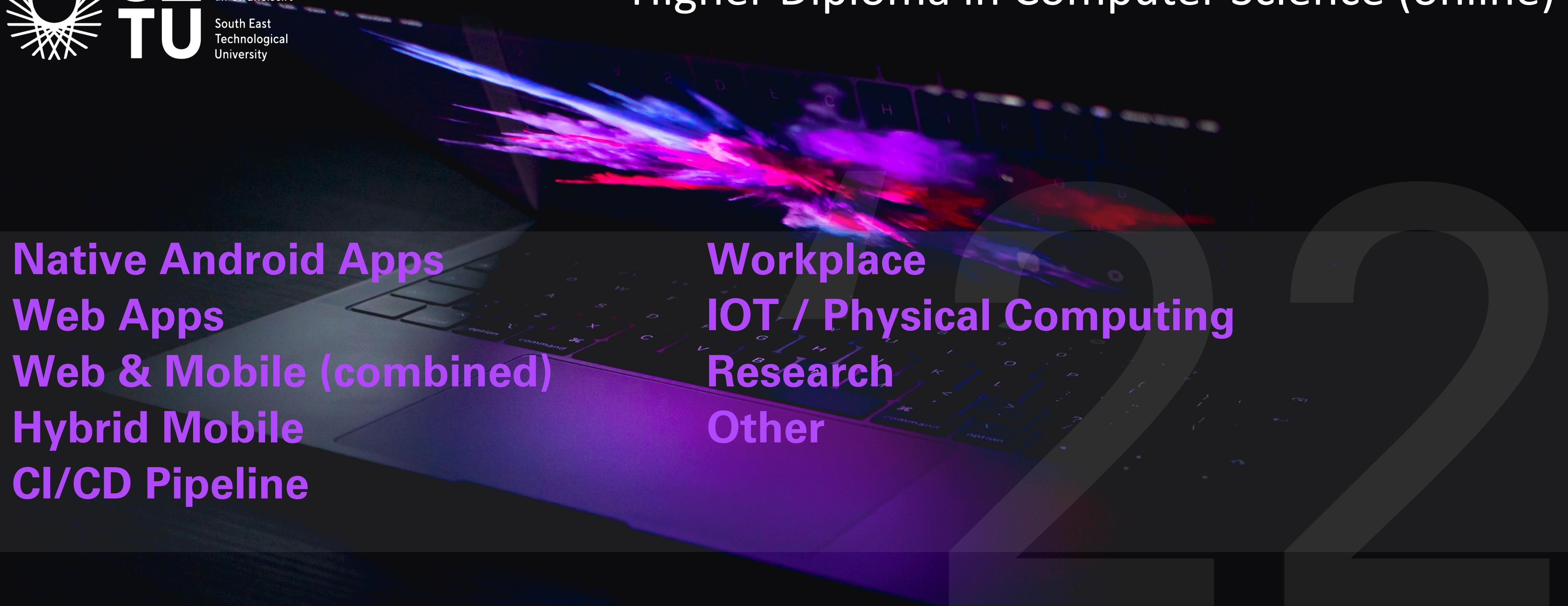
**Tadhg Conneely Murry**



**TJ Fitzpatrick**



**Tony Naughton**



**Native Android Apps**  
**Web Apps**  
**Web & Mobile (combined)**  
**Hybrid Mobile**  
**CI/CD Pipeline**

**Workplace**  
**IOT / Physical Computing**  
**Research**  
**Other**

## PROJECT CATEGORIES

**MONDAY, MAY 9<sup>th</sup>**

**TJ Fitzpatrick**

**The 24/7 Gardiner**

**Sean Crowley**

**Medicine:** Native android application for tracking user medication

**Kathleen McCarthy Kelleher**

**Juggle:** Android app to manage busy families' calendars

**Ahmad Sabeh-Murphy**

**SuperStore:** Android e-commerce mobile application

**Ivan de Wergifosse**

**Geosite**

**Maeliosa Leamy**

**Schools Near Me:** App to search for Secondary Schools

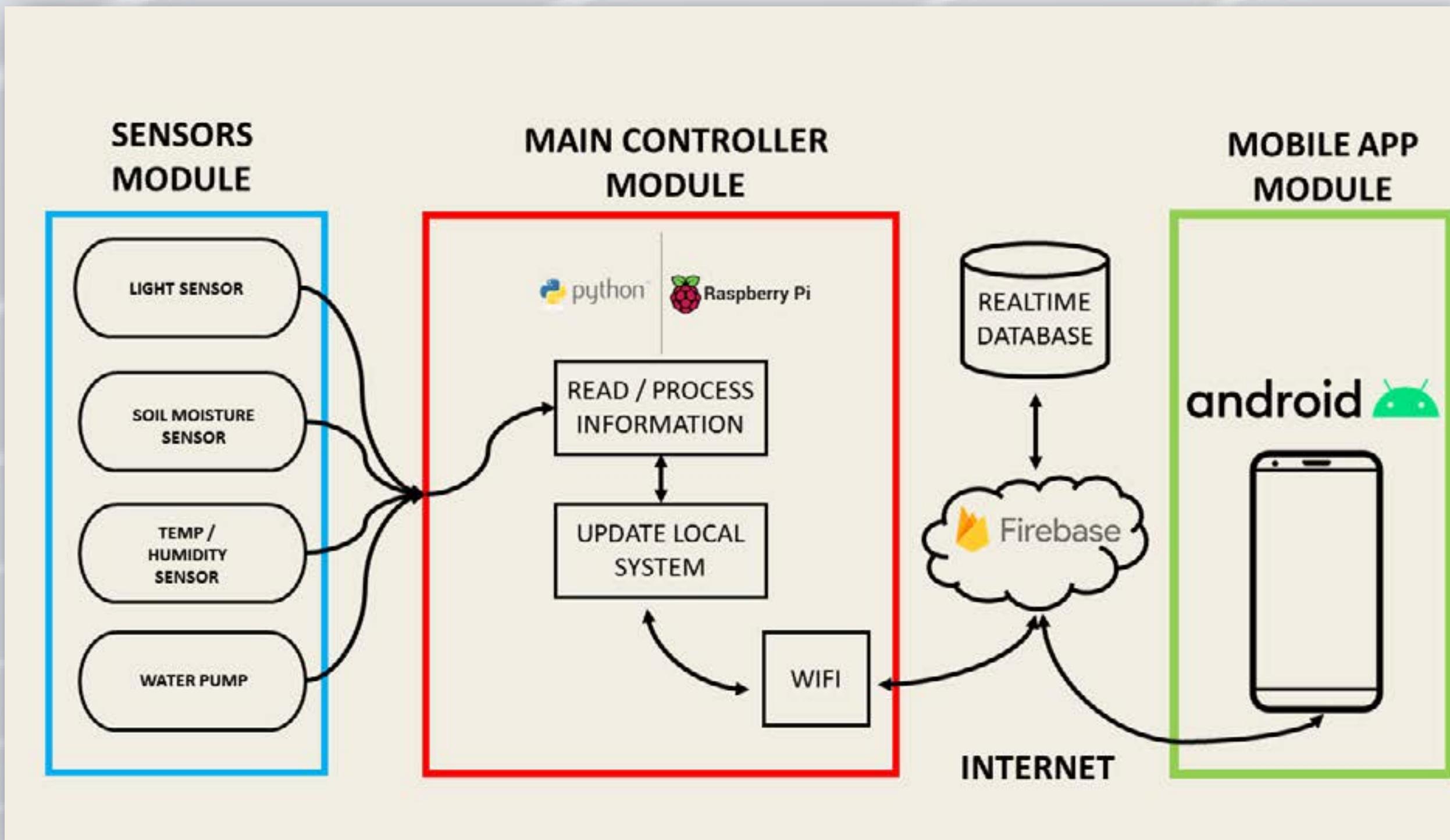
**Native Android Apps**

# The 24/7 Gardiner



TJ Fitzpatrick

HDip in Computer Science 2020 - 2022



[https://github.com/tjfitzster/HDIP\\_FinalProject\\_24-7Gardner.git](https://github.com/tjfitzster/HDIP_FinalProject_24-7Gardner.git)

[https://github.com/tjfitzster/HDIP\\_FinalProject\\_24-7Gardner.git](https://github.com/tjfitzster/HDIP_FinalProject_24-7Gardner.git)

<https://youtu.be/2qIoJKnuKVM>

Project Type:

Native Android app

The 24/7 Gardiner is an IOT / Android Application system that is used to useful information of the garden, such as luminosity, and humidity from various sensors and relay this information into a cloud database. Once the information is in the cloud, it can be accessed from anywhere using a smartphone app. The following are some of the key features of the garden:

Real-time feedback of the garden's various sensors.  
Database of the garden's health status.  
Global monitoring and operating capacities.  
App controlled water system.  
Automatic watering schedules.





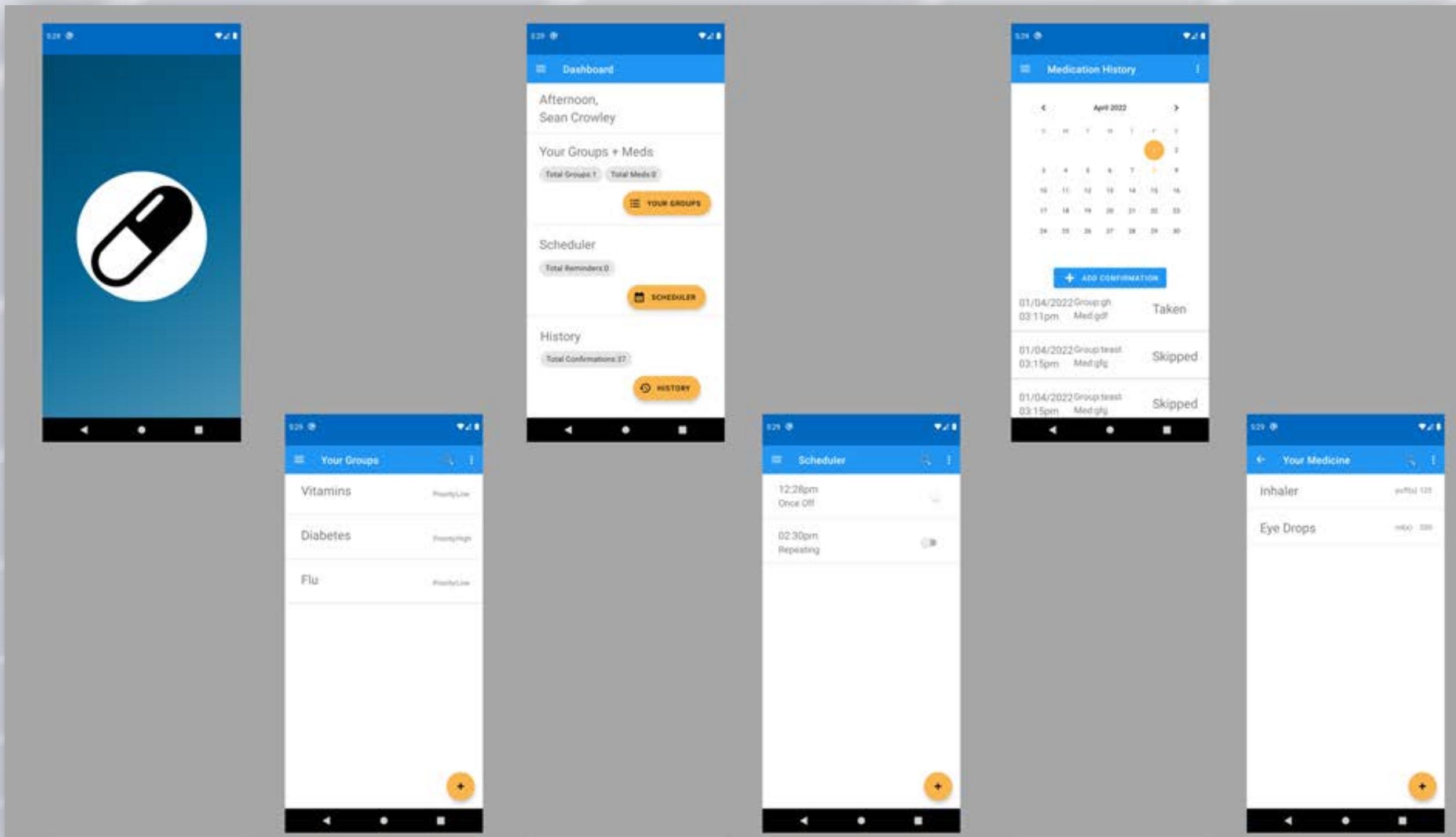
# Medicine: Native android application for tracking user medication

Sean Crowley

HDip in Computer Science 2020 - 2022

Project Type:

Native Android app



[bit.ly/3xdCzKT](http://bit.ly/3xdCzKT)



<https://github.com/seancrowley-jpg/MedicineApp>



<https://youtu.be/WvjBfomA5SU>

The Medicine app is an android app that allows users to schedule reminders and track their medication. Users input their medication that they want to track with details such as quantity and usage directions. Users can group medication together based on the illness being treated and set a priority for the group. This determines the type of notifications the users receives when they schedule a reminder. Users can also view their history of all medication that has been taken or skipped.





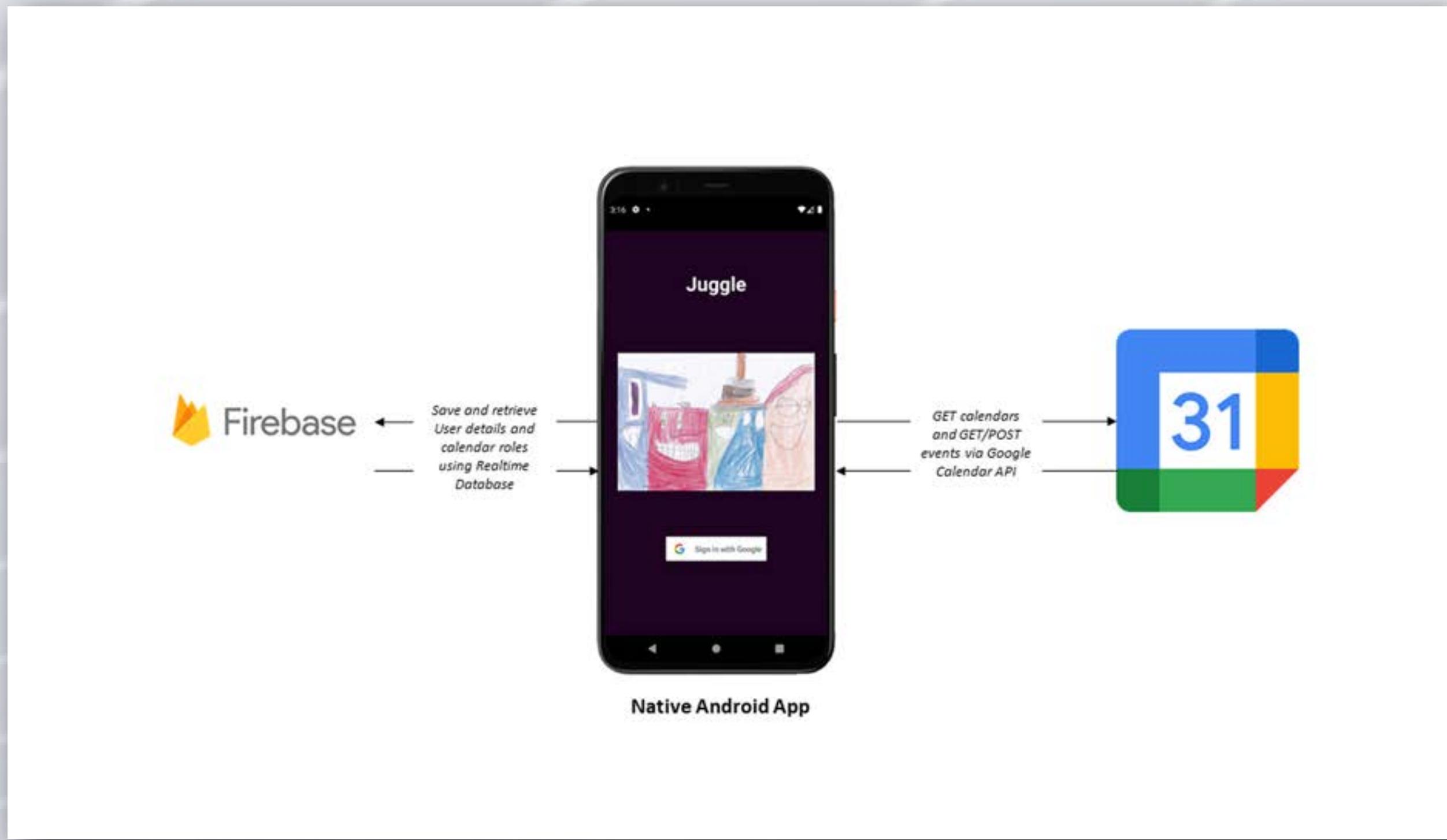
# Juggle: Android app to manage busy families' calendars

Kathleen McCarthy Kelleher

HDip in Computer Science 2020 - 2022

Project Type:

Native Android app



- [https://kathleenmk.github.io/android\\_app\\_juggle/](https://kathleenmk.github.io/android_app_juggle/)
- [https://github.com/KathleenMK/android\\_app\\_juggle](https://github.com/KathleenMK/android_app_juggle)
- <https://youtu.be/Zm30F79KrHc>

Inspired by the constant juggle of children's activities and the assignment of related tasks for their parents. Juggle is a native Android application that upon Google Sign-In retrieves and displays the calendars for which the user has owner access, the user can assign a Juggler (responsible adult) or Juggled (child) role to each calendar. Juggled events can be viewed within the app and related events (e.g. getting there) added to one of the Jugglers' calendars.

The app utilizes the Google calendar APIs and so the Android family can continue to use all the Google calendar event functionality.





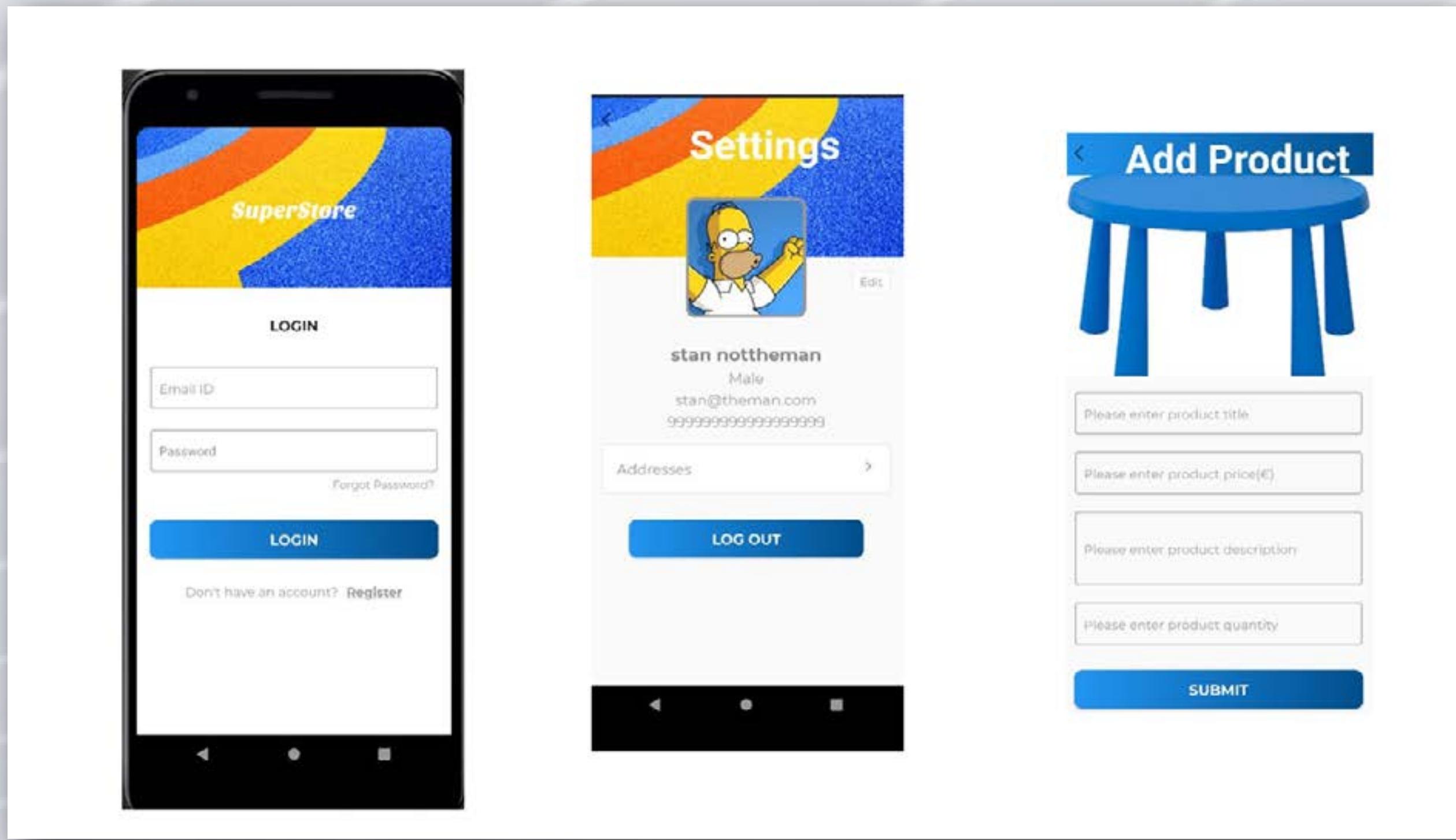
# SuperStore: Android e-commerce mobile application

Ahmad Sabeh-Murphy

HDip in Computer Science 2020 - 2022

Project Type:

Native Android app

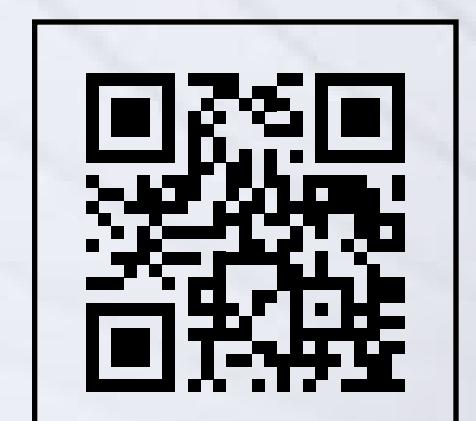


Superstore is an android native mobile e-commerce app where users can buy/sell products available on the app or user uploaded products that would be delivered to the user purchasing the product.

<https://bit.ly/3vbdSNS>

<https://github.com/ahsa91/superstore-main.git>

<https://www.youtube.com/watch?v=27LaIoN6QbI>





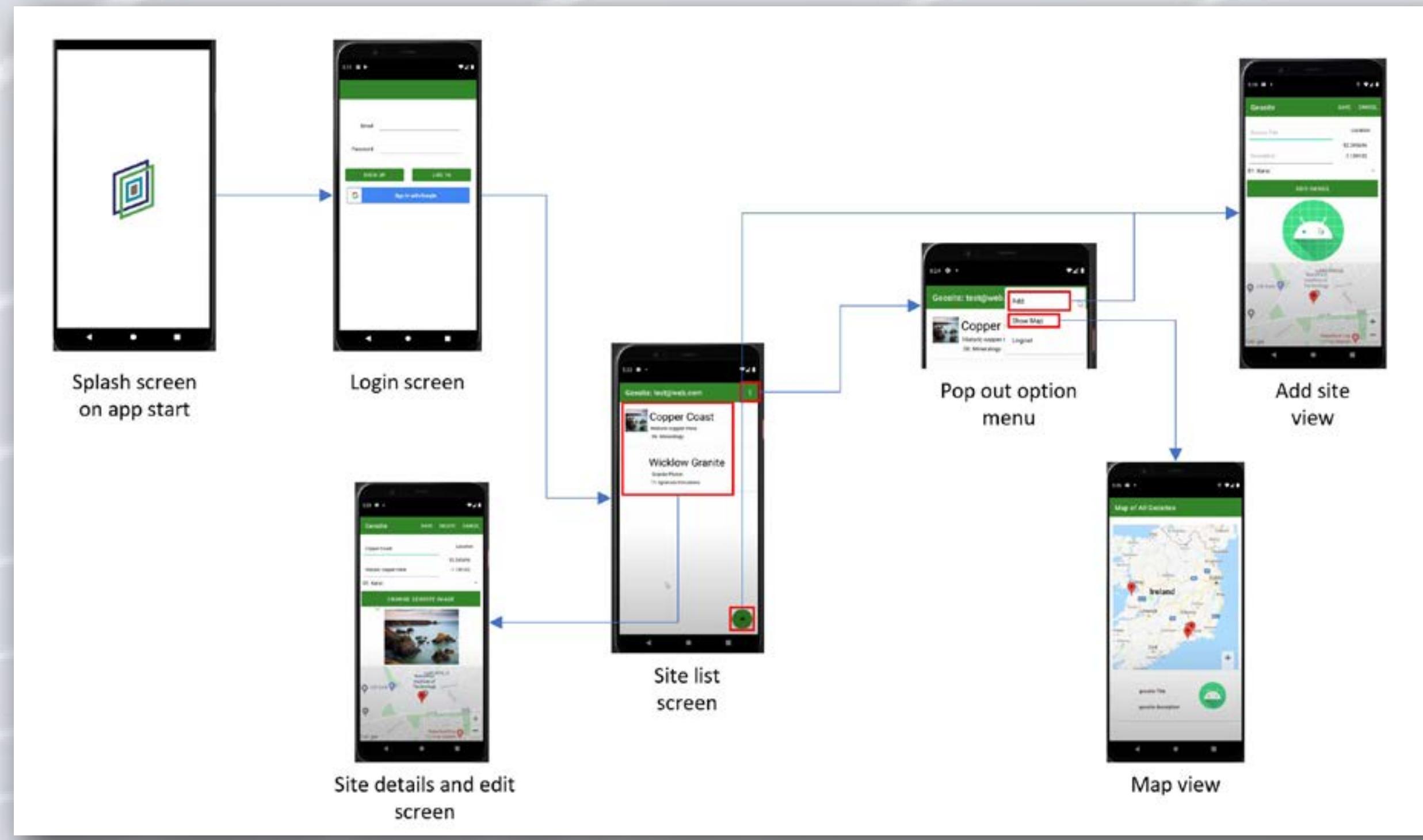
# Geosite

Ivan de Wergifosse

HDip in Computer Science 2020 - 2022

Project Type:

Native Android app



Geological Survey Ireland (GSI), requires a method to record potential drill sites for ground surveying. This is done by a staff member going and surveying appropriate sites in a study area, recording suitable locations, requesting permissions, and then returning that information for further action by the drilling team. To date, there is no easy method, with locations being recorded as google pins and landowner details being stored in a non-secure manner. The aim of this project is to offer a secure and central method for drill site surveying.

<https://bit.ly/3rCGjSp>

<https://github.com/WergiForce/geosite>

[https://youtu.be/f1n\\_pXA8Q6E](https://youtu.be/f1n_pXA8Q6E)





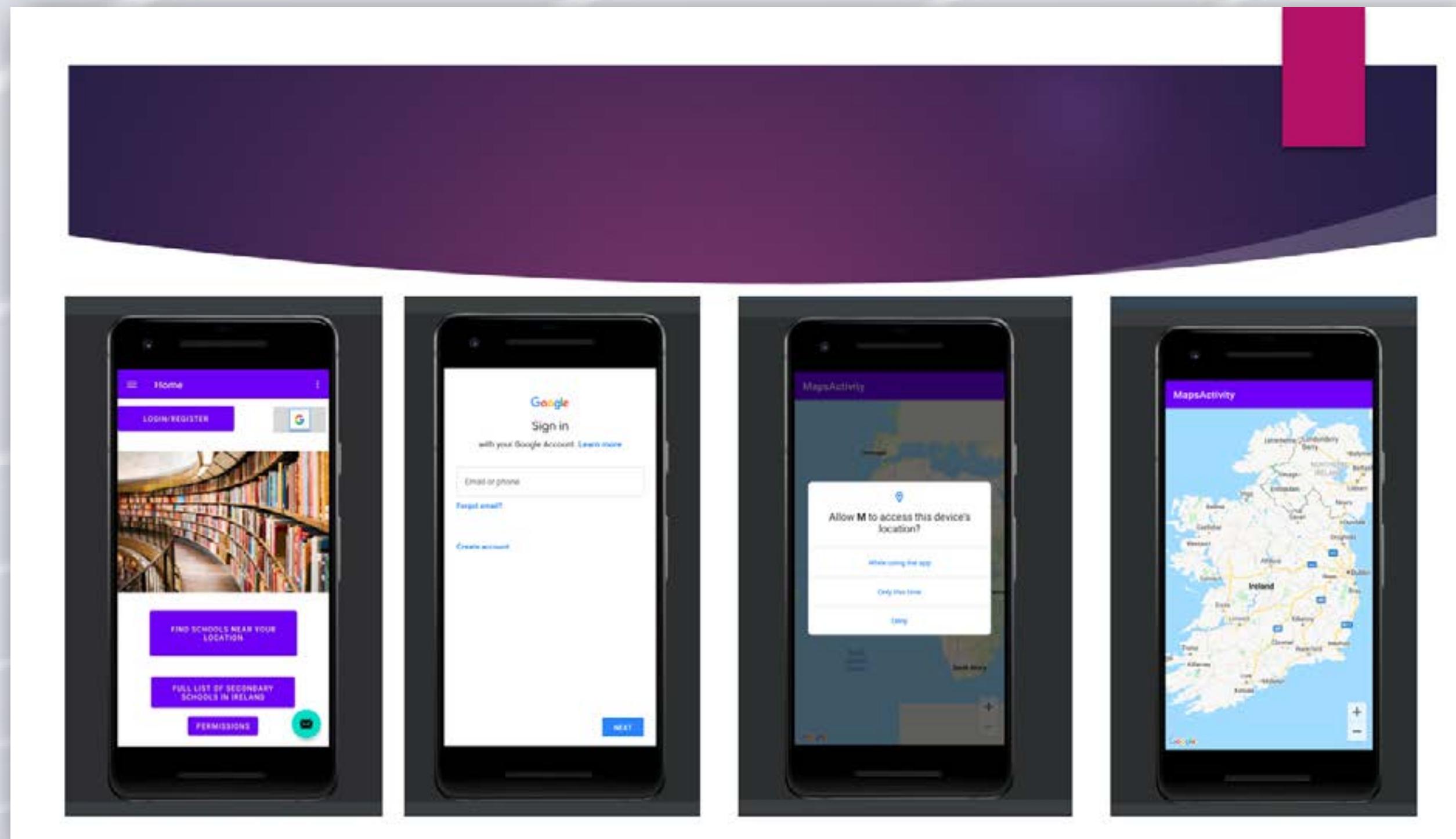
# Schools Near Me: App to search for Secondary Schools

Maeliosa Leamy

HDip in Computer Science 2020 - 2022

Project Type:

Native Android app



Android app using kotlin. My project isvan an android app for finding and enrolling children in secondary schools near the user's location or within their county. A login/logout activity, maps activity searching google maps for schools located near me or particularly my device/location, also contains an enrolment form being saved to a database, so that the user only fills out the form once and sends to the chosen schools for their child. And an external website link to a full list of all Secondary Schools in Ireland.



<https://sites.google.com/view/witproject-snm/home>



<https://github.com/red28mil/SNM.git>



**Wednesday, MAY 11<sup>th</sup>**

**Karolis Pliauskys**

**Krypto:** Crypto Portfolio

**Seamus McCarthy**

**Kollektor:** MERN web app for music equipment catalog/discourse

**Ian Hutchinson**

**Field Service Engineering Solutions**

**Adelle McAteer**

**Woofsit:** A web app connecting pet sitters & owners

**Philip McNamara**

**Digital Lean:** A problem solving Web App

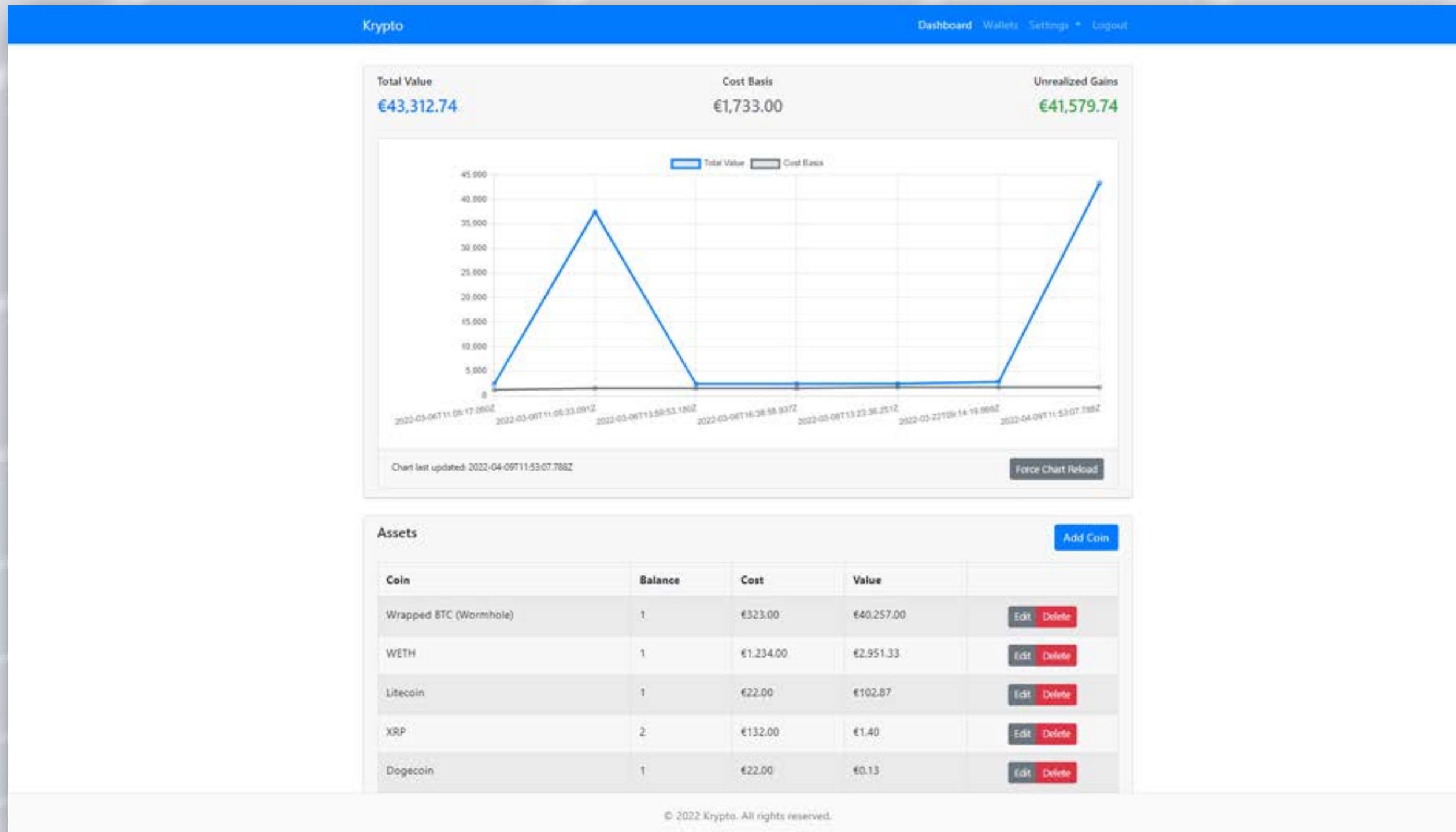
**Web Apps - 1**



# Krypto - Crypto Portfolio

**Karolis Pliauskys**

HDip in Computer Science 2020 - 2022



<https://bit.ly/3umv56v>

<https://github.com/karolispkx/krypto-backend>    <https://github.com/karolispkx/krypto-frontend>

<https://youtu.be/YlBwlS3qZks>

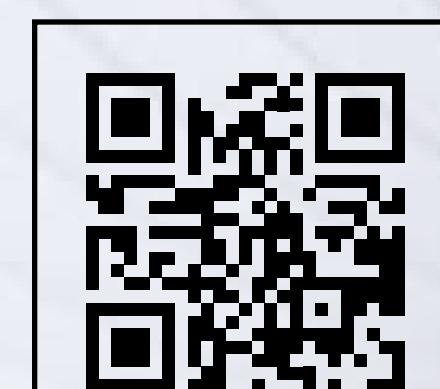
Project Type:

Web app

A crypto portfolio application that allows users to manage their crypto currencies. This application focuses on allowing users to maintain their assets, rather than transactions which simplifies the process. This project consists of three main parts;

1. The frontend of the application
2. The web server
3. The hardware display

The miniature display will connect to the application using a secure link, and will display portfolio statistics to the user on an LED screen.





# Kollektor: MERN web app for music equipment catalog/discourse

Seamus McCarthy

HDip in Computer Science 2020 - 2022

### Kollektor web-app

Landing page

Geo-coded addressing

Entry details

Social media sharing

Automated tests & A11y testing

- <https://bit.ly/3DsSaXS>
- <https://github.com/SeamusMcCarthy/Kollektor-frontend>
- <https://github.com/SeamusMcCarthy/Kollektor-backend>
- <https://www.youtube.com/watch?v=RU0VzdzBeeM>

Project Type:

Web app

Kollektor is a MERN full-stack web app which allows users to signup and create catalogs of their musical equipment across a variety of categories. The site allows others to browse these entries by category/user, search for entries, check images, reviews, useful purchase information and comment/reply on the entries to encourage discussion. The project also contains a suite of automated end-to-end tests which includes an element of testing for accessibility. These were mostly written in Cypress with some in Playwright.



# Field Service Engineering Solutions



Ian Hutchinson

HDip in Computer Science 2020 - 2022

The screenshot displays a multi-page web application built with Svelte, Go, and PostgreSQL. The top navigation bar includes links for Home, About, Services, Products, and Contact. The main content area features a Golang dashboard with a Gopher icon, a Svelte component with a red 'S' logo, and a JSON API endpoint showing user data.

```
{
  "sub": "c6cb1d00-ae5c-4eba-8254-c7bcb3ac5744",
  "email_verified": false,
  "name": "Foo Bar",
  "preferred_username": "customer1",
  "given_name": "Foo",
  "family_name": "Bar",
  "token": "eyJhbGciOiJSUzI1NiIsInR5cCIgOiAiSldUIiwia2lk"
}
```

<https://bit.ly/35qGXdw>

<https://github.com/hdip-comp-science>

<https://youtu.be/RGiCbY2dAzy>

Project Type:

Web app

This project explores the idea of creating a tailored made application using open-source software for a small-medium size business. It aims to improve UX for engineers, admins, and customers by bringing together core resources into a single application. Document storage and customer booking are the main focus. Completing these serves as a model for implementing the remaining. The front-end (Svelte) is decoupled from the back-end (Go) and database (PostgreSQL). HTTP protocol is used to communicate between the FE & BE. The app is secured using Keycloak IAM. Depending on a user's role, views are tailored.



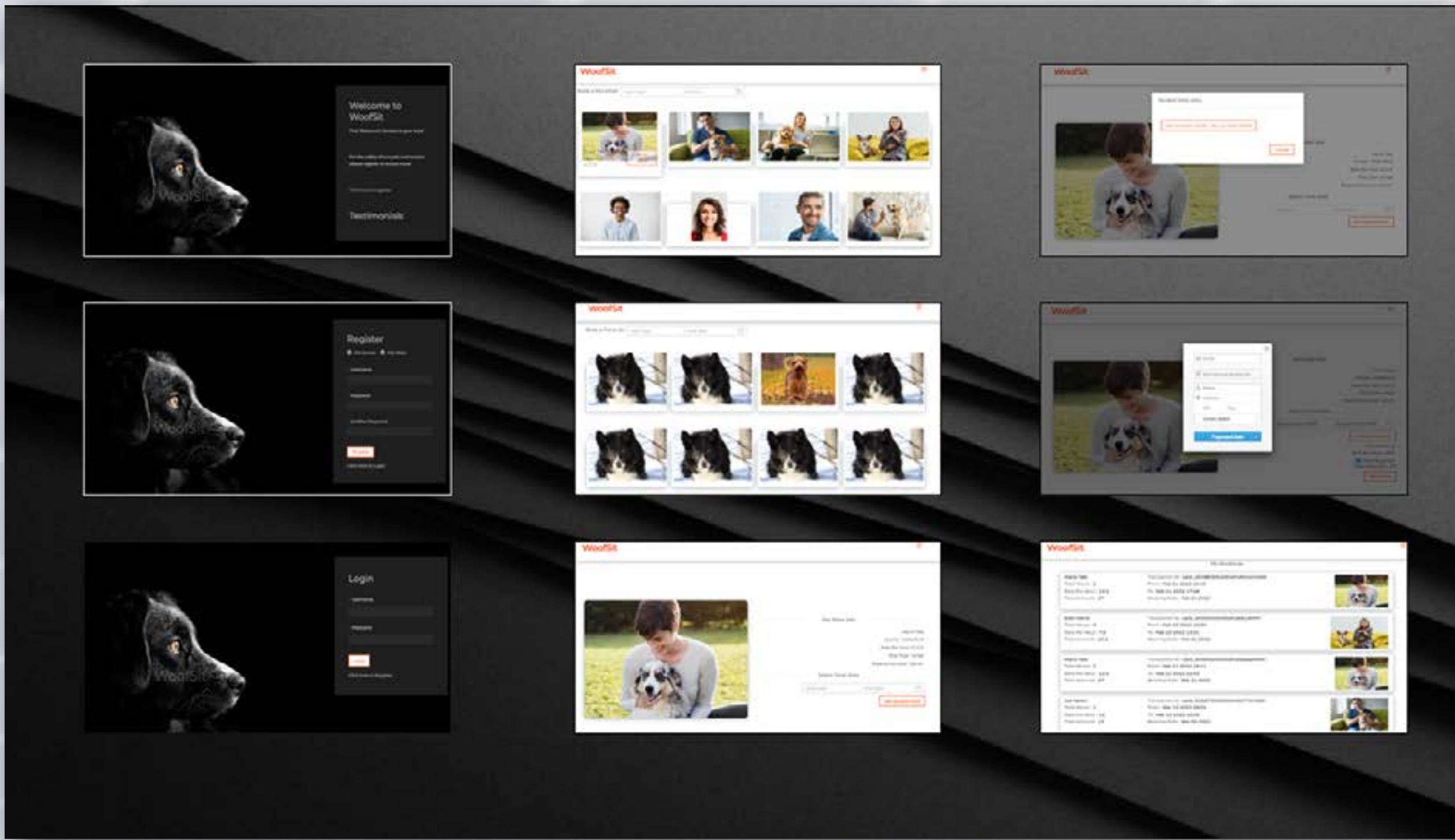
# WoofSit

## A web app connecting pet sitters & owners



**Adelle McAteer**

HDip in Computer Science 2020 - 2022



Project Type:

Web app

WoofSit is a web application which allows pet sitters and pet owners to signup, login, view, and book pet sitters. Pet sitters can book pets to sit. Sitter/pet availability and booked time slots are visible. Payments can be made to pet sitters via Stripe. Pet sitter payments are handled offline. The back-end application is built with Node.js, The front-end technologies are React.js and Express.js. Data is stored in a database hosted on MongoDB. The application provides a basis for further development and may be tailored in future to other business areas such as childcare.

<https://bit.ly/3J4n1v9>

<https://github.com/AdelleMcateer/woof-sit.git>

<https://youtu.be/VgPNVrEecSA>





# Digital Lean: A problem solving Web App

Philip McNamara

HDip in Computer Science 2020 - 2022



<https://philipmcnamara-website2.herokuapp.com/>



<https://github.com/philipmcnamara/FinalProject.git>



<https://www.youtube.com/watch?v=e41aka0Hr2I&t=10s>

<https://www.youtube.com/watch?v=Wzx1GH6NtLg&t=12s>

Project Type:

Web app

Digital Lean, a Web application for digitalizing and trending lean projects. Lean Project managers can spend hundreds of hours reviewing and measuring the effectiveness of ongoing projects. Most projects are recorded on A3 pages or in excel files. The data has to be extracted before it can become useful. Digital Lean, guides users through the problem-solving process and also automatically trends the data recorded in an easy-to-use dashboard created using the industry leading Microsoft Power Bi Application. This application is embedded into the Digital Lean site for easy access and review.



Thursday, MAY 12<sup>th</sup>

Adam Piasecki

[tradegame.org](http://tradegame.org)

Federica Fiorenza

\$Marketplace: Login and Pay

John Dennehy

Group Activity Planner

Cathal Henchy

Uathcruthrú

Tony Naughton

FPL Zone: A Fantasy Premier League companion app

Dan O'Brien

Fibber: A children's story making application

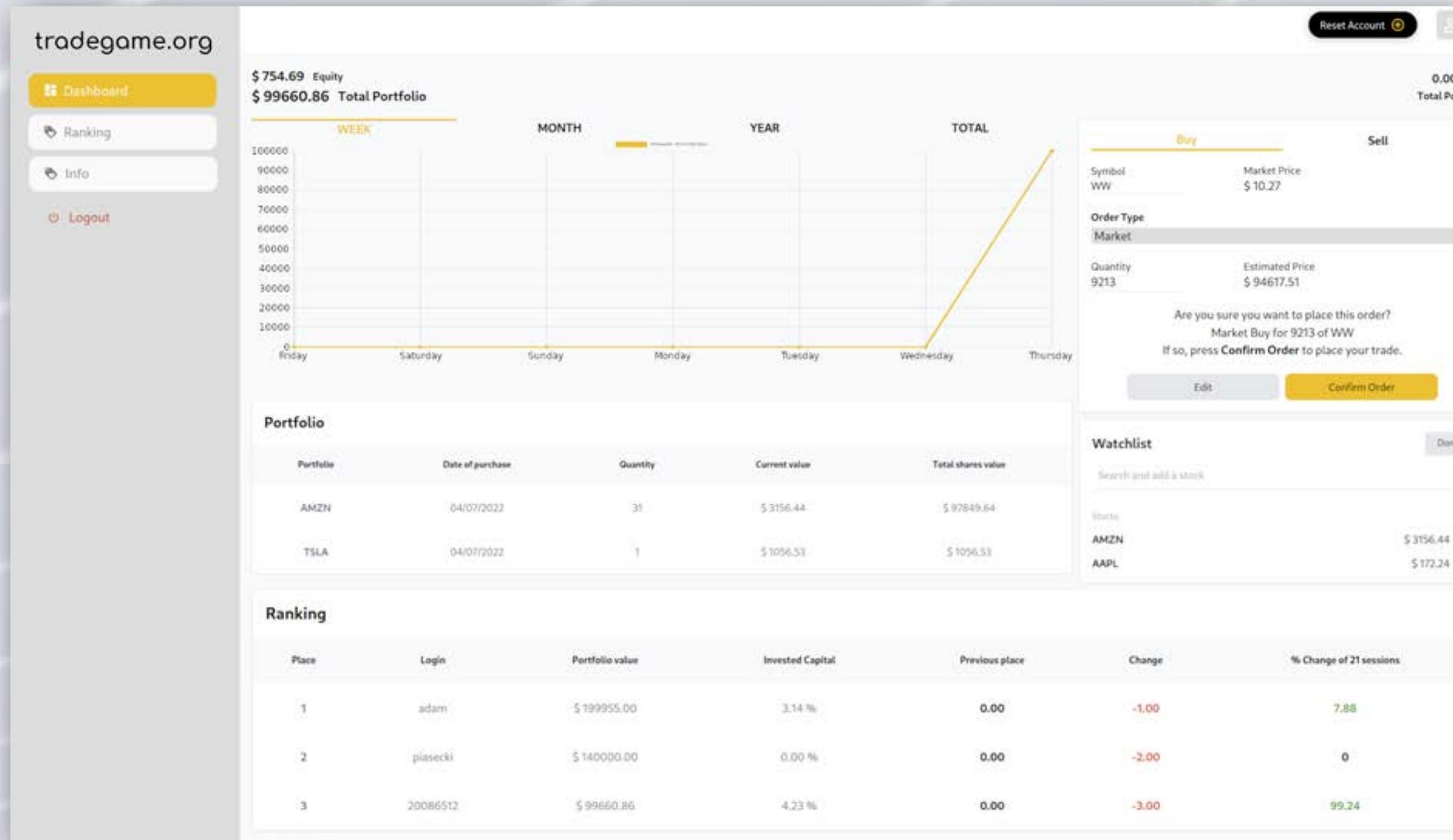
Web Apps - 2



# tradegame.org

**Adam Piasecki**

HDip in Computer Science 2020 - 2022



<https://c4rt0.github.io/tradegame.org/>

<https://github.com/c4rt0/tradegame.org>

<https://www.youtube.com/watch?v=2Tx3v-we-v4>

Project Type:

Web app

tradegame.org is a game built to learn how to trade stocks. Tradegame allows users to take part in an investment contest. Each user receives starting amount of virtual \$100,000 and access to live asset data, fetched from an Alpaca.markets API. All users can see their performance in comparison to other investors on the ranking page (\$ value of total assets). Each user can also watch assets in the additional 'watchlist' section. Users who would like to start the game again can reset their portfolio back to the original \$100,000.





# \$Marketplace Login and Pay

Federica Fiorenza

HDip in Computer Science 2020 - 2022

Project Type:

Web app

\$Marketplace is a web platform that allows students to sell, rent, or buy items online. It is a mobile-responsive platform and it was built using React.js, a Node.js server and Firebase for storing data and use functions. Rather than focus on selling and purchasing items, this project was about researching new methods for user authentication and payment methods available in Ireland. Users can either create their own account or choose from six alternative OAuth methods. Using \$Marketplace's checkout system, you can use the most popular methods of payment at the time of the project.

<https://bit.ly/3KRjv9n>

<https://github.com/fedaxl/student-marketplace>

<https://www.youtube.com/watch?v=tCkQMxKyxy4>





# Group Activity Planner

John Dennehy

HDip in Computer Science 2020 - 2022

<https://group-activity-planning-project-site.netlify.app/>

<https://github.com/JohnDennehy101/vuejs-frontend-FYP>

<https://youtu.be/HQaUXqzRxxQ>

Project Type:

Web app

A web application for planning group trips in Ireland and abroad. Most suitable dates for events can be determined via polling functionality. Instant chat functionality provided via a WebSocket implementation. Mailgun API sends emails to users at each key event milestone. Users can add accommodation information (scraped from booking.com), flight information (scraped from kayak.com) and tourist attractions (provided from Google Places API) to the event itinerary.

Key technologies:

Front-end: Vue.js, Socket.io, SCSS, Jest

Back-end: Nest.js, Postgres, Socket.io, JWT, Jest

Web-scrapers: Flask, MySQL, JWT, Unittest





# Uathcruthrú

## Cathal Henchy

HDip in Computer Science 2020 - 2022



<https://bit.ly/3td02Ys>



<https://github.com/cathalohinse/Uathcruthru>



<https://www.youtube.com/watch?v=Nly0TXLTJAA>

Project Type:

Web app

As part of the submission process for Final Year Project for the Higher Diploma in Science in Computer Science at WIT, each student must submit some data about the project that can be used to summarise their work on a one page entry (this very page!) in a ,showcase handbook, (this very handbook!). This application automates that process. It can be used by both students and administrators. The student submits their data using the webform contained therein, and the administrator can then create the handbook based on this data and their own additional input.





# FPL Zone: A Fantasy Premier League companion app

Tony Naughton

HDip in Computer Science 2020 - 2022

Project Type:

Web app

Player	GW 33	GW 34	GW 35	GW 36	GW 37
Ramsdale	SOU ... CHE (A)	MUN (H)	WHU (A)	LEE (H) TOT (...)	NEW (H)
Sá		BUR (A)	BHA (H)	CHE (A)	NOR (H)
White	SOU ... CHE (A)	MUN (H)	WHU (A)	LEE (H) TOT (...)	NEW (A)
Alexander-I	MUN (H)	EVE (H)	NEW (A)	TOT (...) RVL (A)	SOU (A)
Cancelo	BHA (H)	WAT (H)	LEE (A)	NEW (H)	WHU (A)
James	ARS (H)	WHU (H)	EVE (A)	WOL ... LEE (A)	MUN ... LEI (H)
Livramento	ARS (...) BUR ...	BHA (A)	CRY (H)	BRE (A)	LIV (H)
Raphinha		CRY (H)	MCI (H)	RHS (...) CHE (H)	BHA (H)
Fraser	LEI (H) CRY (H)	NOR (A)	LIV (H)	MCI (A)	ARS (H)
Kulusevski	BHA (H)	BRE (A)	LEI (H)	LIV (A) ARS (...)	BUR (H)
Salah	MUN (H)	EVE (H)	NEW (A)	TOT (...) RVL (A)	SOU (A)
Bamsey		LEI (A)	NOR (H)	BUR ... LIV (H)	CRY (H) BUR ...
Richardson	LEI (H)	LIV (A)	CHE (H)	LEI (A) WAT (...)	BRE (H) CRY (H)
Kane	BHA (H)	BRE (A)	LEI (H)	LIV (A) ARS (...)	BUR (H)
Broja	ARS (...) BUR ...	BHA (A)	CRY (H)	BRE (A)	LIV (H)

<https://tonyn96.github.io/fpl-zone/>

<https://github.com/TonyN96/fpl-zone>

<https://youtu.be/oONwBQ1Tq7g>

FPL Zone is the latest companion app available to Fantasy Premier League (FPL) managers which enables them to make informed decisions each gameweek. The app offers a range of tools such as live gameweek updates, 'my team' analysis, fixture difficulty rating tables, and a player comparison tool. FPL Zone is a TypeScript-based React app, with its data being fetched from a public API provided by the Premier League. With well-tested functionality and eye-catching design, FPL Zone is an essential tool for any FPL manager looking to gain an advantage over their rivals.





# Fibber

## A children's story making application

Dan O'Brien

HDip in Computer Science 2020 - 2022

Project Type:

Web app

The screenshot displays the Fibber application's user interface. On the left, there is a large purple feather icon. To its right is a dark rectangular box containing the title "Glittering Unicorn", a star rating of "0", and the text "A fairy story". Below this is a smaller box with the word "by". Underneath these, there is a block of text describing a story about two children, Alex and Jacob, who are trying to find blueberries. On the far right, there is a light gray sidebar featuring an orange owl icon and the text: "Great story! Click the feather to make another with Fibber! Or grab a pen and paper and write your own! Remember, Roald Dahl said, 'Ideas come from little things...'".

Do your children want a new story every night before bed? Now you can help them create their own with Fibber, the story-making app. They add the details, (hero/ines, stuffed animal sidekick, location, favourite food, story type) and Fibber does the rest. Using live data, API calls, and Natural Language Processing (NLP) tools, Fibber makes completely unique stories for your children every time, and allows them return again and again to old favourites. Watch vocabularies grow and imaginations soar with Fibber.

<https://dananthonyobrien.github.io/fibber/>

<https://github.com/dananthonyobrien/fibber/>

[https://www.youtube.com/watch?v=kD9r\\_L6\\_0CI](https://www.youtube.com/watch?v=kD9r_L6_0CI)



**Monday, MAY 16<sup>th</sup>**

**Gary Houston**

Implementing a CI/CD pipeline for a Web Application.

**James Duggan**

**TourPal:** Audio tour app suite built in React and React Native

**Sheamus Clifford**

**Hive Tracker:** Hive monitoring using android and web app

**David Corrigan**

**Ringforts Of Ireland:** Flutter Android/IOS Ringfort App

Web & Mobile, Hybrid Mobile, CI/CD Pipeline

# Implementing a CI/CD pipeline for a Web Application



Gary Houston

HDip in Computer Science 2020 - 2022

The image consists of two side-by-side screenshots. The left screenshot shows the FastAPI documentation for a "poi-tracker-api" project, displaying various API endpoints for POIs and Users. The right screenshot shows the GitHub Actions interface, specifically the "All workflows" page, listing several workflow runs for different pipelines (Build, Test, Deploy) across different environments (Staging, Production, Testing).

<https://bit.ly/3MbHxfB>

<https://github.com/ghouston16/poi-tracker-api/>

<https://www.youtube.com/playlist?list=PLj34l4tZjW2ANUR7aUCV71-eAiwWGFkVg>

Project Type:

CI/CD (Pipeline)

Focused on CI/CD pipelines combined with Agile Test-Driven Development practices to develop a Social POI Tracker API using FastAPI Python framework. The aim of the project is to keep the API online and available throughout the development process. This is a highly scalable API with a potentially never ending potential feature set making it an ideal candidate for a CI/CD pipeline.

I have used Github Actions in order to create pipelines which build, test and deploy the API to a staging environment and also to build, test and deploy a container image to a production environment.





# TourPal: Audio tour app suite built in React and React Native

James Duggan

HDip in Computer Science 2020 - 2022

Project Type:

Combined Web & Mobile

- [https://dugganj780.github.io/project\\_landing\\_page/](https://dugganj780.github.io/project_landing_page/)
- <https://github.com/dugganj780/walking-tour-web>
- <https://www.youtube.com/watch?v=Sm9z6cEyTsg>

TourPal is a web app and mobile app that allow users to create audio walking tours and take them respectively. The tour creator will use the web app to create destinations, each assigned their own audio recording, and combine these into a tour. The tourist then takes the tour on the mobile app. While taking the tour, when near a destination they can press a button and are prompted with the audio.

The web app was built using React and the mobile app with React Native. Backend functionality for authentication, storage, and databases is all handled by Firebase.





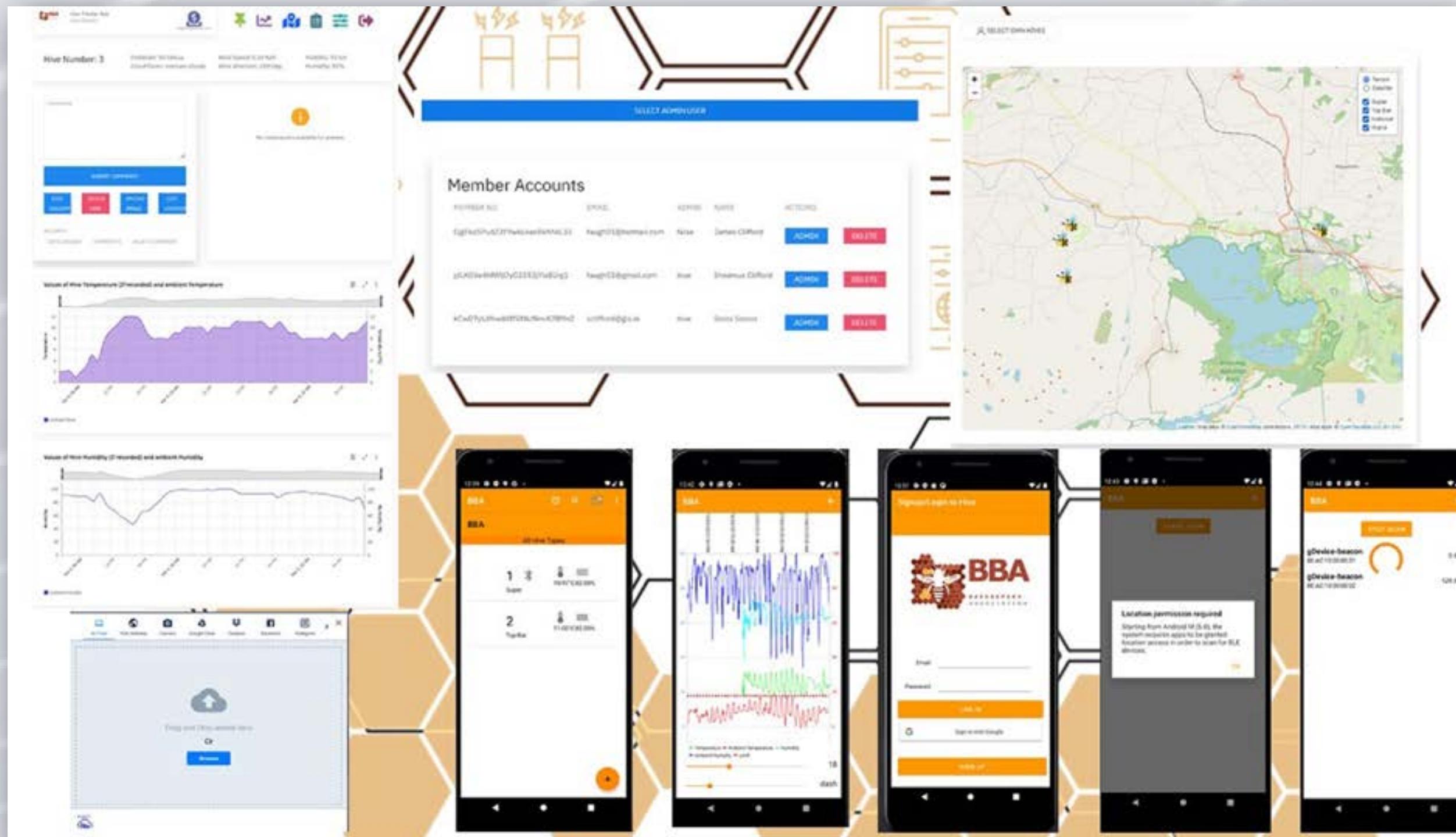
# Hive Tracker: Hive monitoring using android and web app

**Sheamus Clifford**

HDip in Computer Science 2020 - 2022

Project Type:

Combined Web & Mobile



<https://sclifford-hdip-project-handbook.netlify.app/>

<https://github.com/SCLIFFORD78/HDipProjectFrontend>

<https://www.youtube.com/watch?v=IQ88TLnN09g>

A web application in conjunction with an android app and datalogger which utilizes Bluetooth BLE technology and cloud storage, to monitor temperature and humidity within a beehive. This will allow beekeepers to nonintrusively monitor key matrices which indicate overall hive health. Nonintrusive monitoring of conditions within a hive reduces the frequency for physical checks which need to be carried out, thus reducing the potential stress imposed on the hive reducing the risk of a hive swarming and reduced overall honey yield. Key matrices analysis can also help identify early signs of compromise to general hive health.





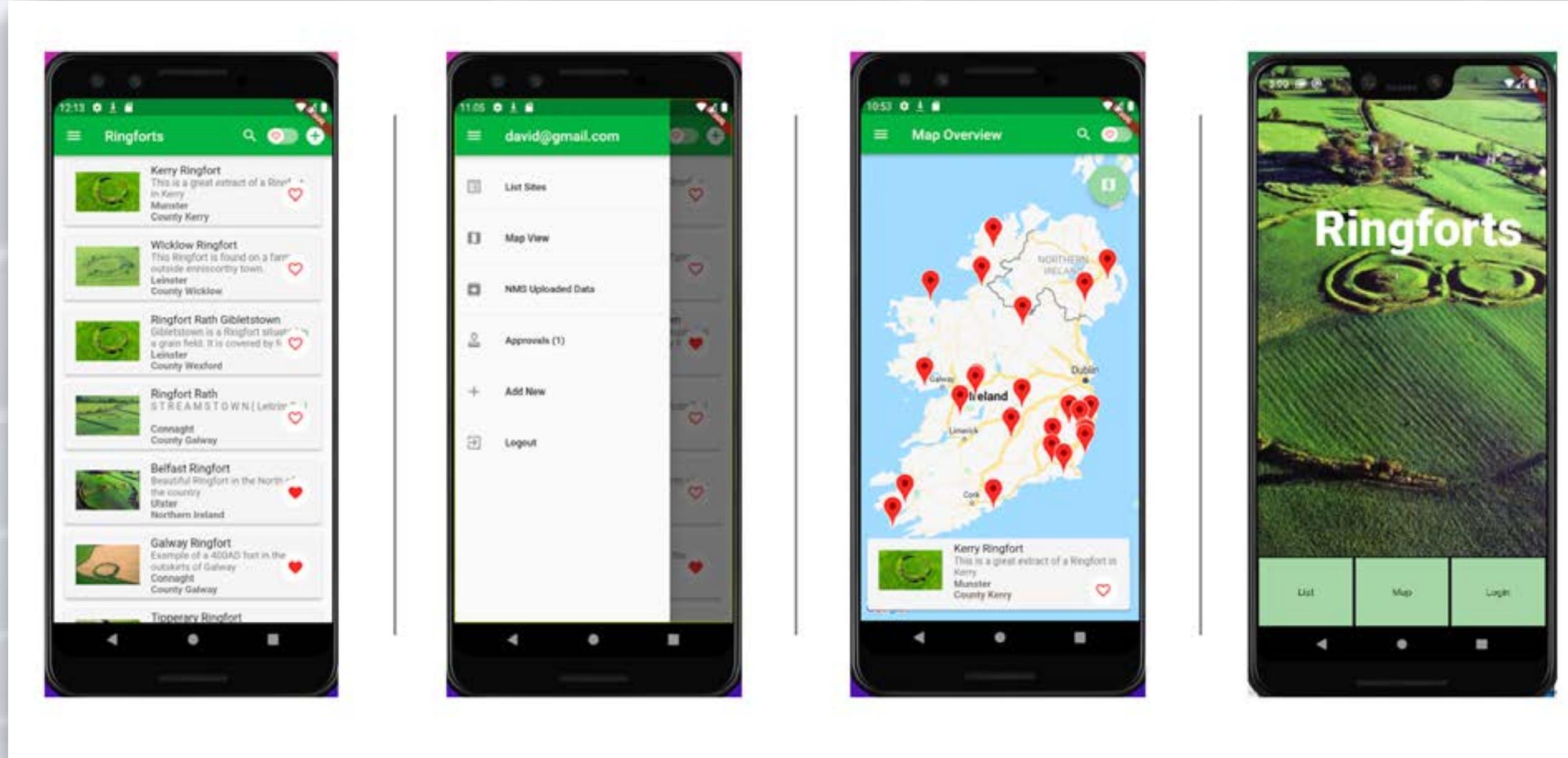
# Ringforts Of Ireland: Flutter Android/IOS Ringfort App

**David Corrigan**

HDip in Computer Science 2020 - 2022

Project Type:

Hybrid Mobile App



An Android and IOS Mobile app to inform users of the locations of Ringforts around Ireland and allow new ones to be discovered and added via crowdsourcing. It also uses an extract of information from the National Monument Services database as a tool to help users to find existing ringforts and update the information and then save to the apps live database of Ringforts.

The application was built using Google's Flutter SDK and the Dart programming language and uses Firebase Firestore as a backend database and Firebase Authentication.

<https://bit.ly/3JaE92x>

<https://github.com/Davidcorrigan1/RingfortFlutterApp>

<https://youtu.be/HVqaZTTDffI>



Tuesday, MAY 17<sup>th</sup>

**Tadhg Conneely Murry**

Stock Keeping for PowerApps

**Naoise O'Sullivan**

Manatee Python: Leaving Cert Python Script Autograding

**Cian Dunne**

Visualising Call-Centre Employee Performance

**Py-Attire-Logger**

Py-Attire-Logger

**Alvaro Sanchez Domingo**

Lynx: Monitoring for automated production lines

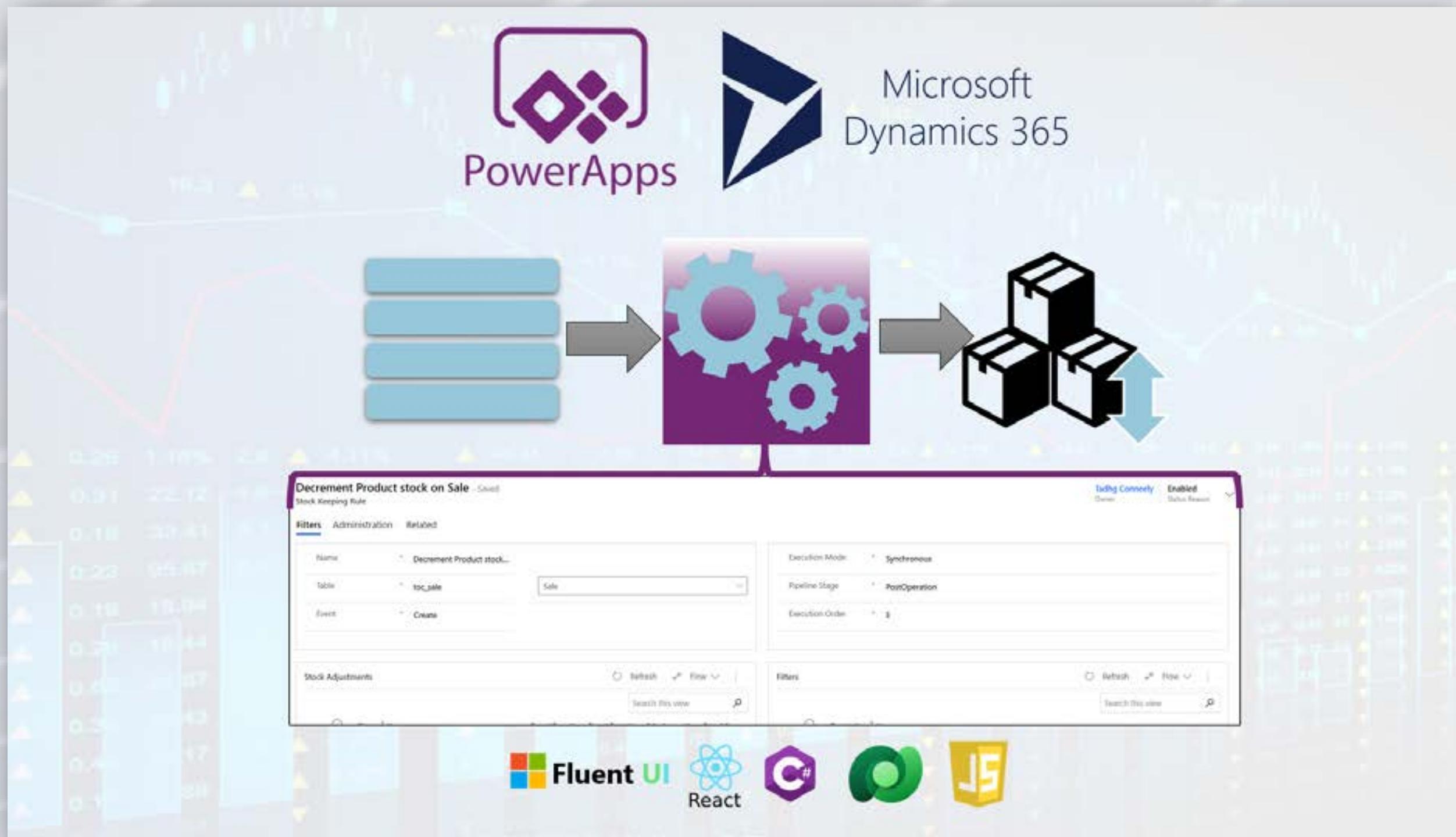
Workplace – 1 of 2



# Stock Keeping for PowerApps

Tadhg Conneely Murry

HDip in Computer Science 2020 - 2022



- <https://dev.azure.com/tadhg0600/Stock%20Keeping>
- [https://dev.azure.com/tadhg0600/\\_git/Stock%20Keeping](https://dev.azure.com/tadhg0600/_git/Stock%20Keeping)
- <https://youtu.be/472-6vvx2aE>

Project Type:

Workplace Project - Public

This project is an add-on for Dynamics 365 and PowerApps for Stock Keeping. Using this solution, a developer can define rules through the UI that will automate the adjustment of stock levels in the system. The solution is designed to work on any database and provides front-end controls for developers to specify the schema names from the database on which they want to trigger or perform updates.





# Manatee Python: Leaving Cert Python Script Autograding

Naoise O'Sullivan

HDip in Computer Science 2020 - 2022

The screenshot displays the Manatee Python project interface. It features three main sections: a logo with two cartoonish manatees, a title 'Manatee Python' with a subtitle 'An Autograding Workflow for Leaving Cert Computer Science Python Programming Coursework', and a 'Python Autograding Scripts' section containing a Python script for file processing.

```
Test File Extension Type and Create File
if file extension is .py:
    Get file content using path
    Get Student Name
    Get Assignment Name
    Search for Student Profile
    Set firstName, lastName and emailAddress
    Create Copy of Student's Python File and Add their Name

autoGrade_sentence_from_list.py
from pandas import *
import os
import pathlib
# change the current working directory
current_path = pathlib.Path(__file__).parent
# print(current_path)
os.chdir(current_path)

# access the feedback_data CSV file and
feedback_data = read_csv("feedback_data.csv")
feedback_data.head()
student_files = feedback_data['filename'].values

# import all of the students' files as
modules = []

for file in student_files:
    try:
        modules.append(__import__(file))
        print("Successfully imported", file)
    except ImportError:
        print("Error importing", file)
```

<https://sites.google.com/mail.wit.ie/fypshowcasesite-20091403/home>

<https://github.com/Naoise-82/final-year-project-nos>

<https://youtu.be/-UIIQ0aqJVk>

Project Type:

Workplace Project - Public

The goal of this project is to design a workflow that automatically collects, organises, grades and sends feedback on Python programming assignments as part of the Leaving Certificate Computer Science coursework. It is achieved through the use of Teams, One-Drive, Power Automate (Cloud Version), Power Automate for Desktop and Outlook from the Microsoft 365 Suite (licensed to my teaching organisation), coupled with custom Python scripts, which are modelled on Unit testing concepts. Students submit Python script files via Teams Assignments, and receive automated feedback via email containing their results and/or advice for achieving higher grades if necessary.





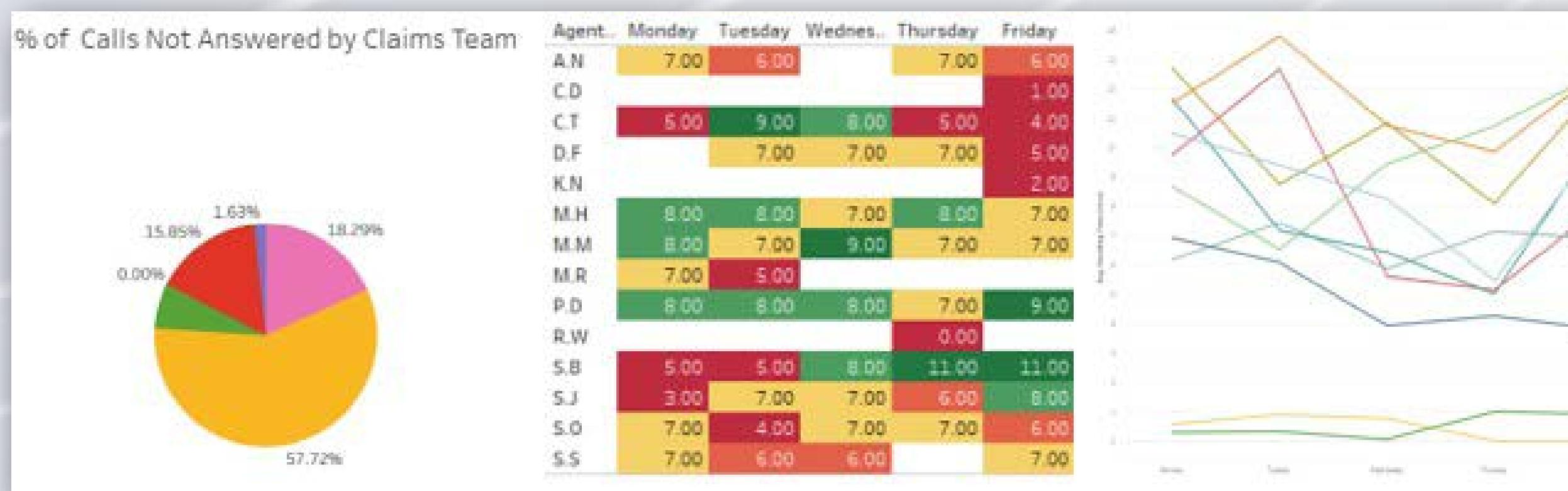
# Visualising Call-Centre Employee Performance

Cian Dunne

HDip in Computer Science 2020 - 2022

Project Type:

Workplace Project - Public



Automation of Amalgamated Raw CSV Data into a Data Source with linked Tableau Visualisations. Raw CSV Data is collected daily from the Performance Metrics of Call-Centre Employees, which is then cleaned and built into a Data Warehouse, using Qlik Compose. The Data Warehouse is then built into a MySQL Data Source which can be read by Tableau. Tableau is then utilised to build Reporting Visualisations to allow Team Managers to assess Employee Performance at a quick glance against KPI Benchmarks. As the new data is collected, the Warehouse and Visualisations are updated without the need for physical interaction.

<https://bit.ly/empperdb>

<https://bit.ly/projdemovid>





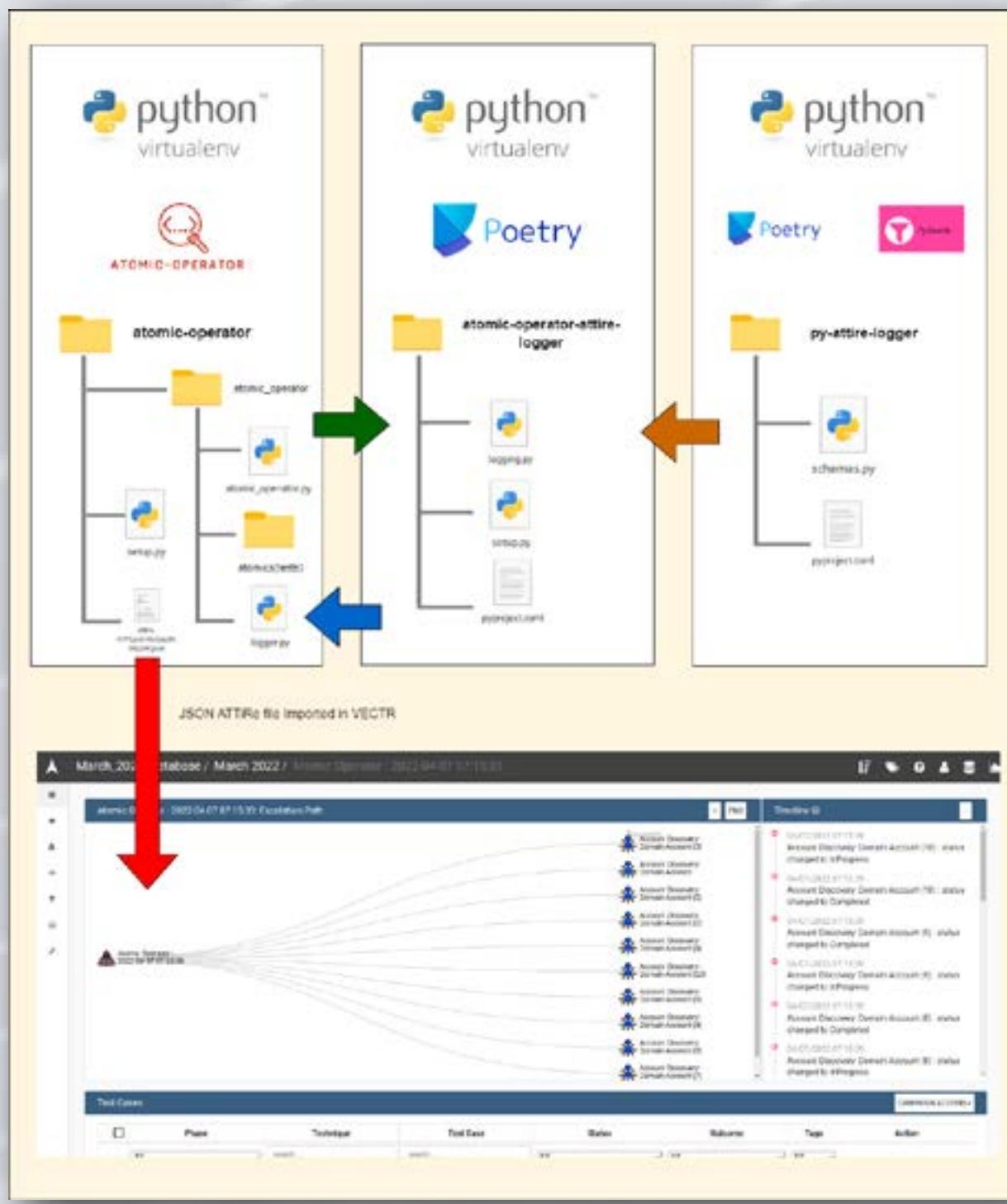
# Py-Attire-Logger

James Geraghty

HDip in Computer Science 2020 - 2022

Project Type:

Workplace Project - Public



A Python ATTiRe logging library that generates JSON formatted log files that consists of useful cyber-attack simulation data that can then be imported and stored in tracking tools such as VECTR. This project consists of 3 separate Python programs: Atomic Operator, Py Attire Logger, and Atomic Operator Attire Logger. Mitre ATT&CK framework tests are run inside Atomic Operator, and the resulting execution and test data are then sent to Attire Log files using Python's built in logging functionality. The end goal for this project is to automate the generation of these log-files, currently being created manually.



<https://bit.ly/309IZkm>



<https://bit.ly/309IZkm>



<https://youtu.be/TZrktGyw7lM>





# Lynx: Monitoring for automated production lines

Alvaro Sanchez Domingo

HDip in Computer Science 2020 - 2022

Project Type:

Workplace Project - Private Code



Lynx monitoring is an application deployed in a physical PC on-site. It takes data from industrial machines and distils the information into an integrated dashboard to allow the end-user to monitor and analyse real time and historic key performance indicators of automated production lines. Thus, quicker, better and more efficient decisions can be made. This industry digitalization, or so-called Industry 4.0, is becoming more and more essential every day. This system has been designed for a machine manufacture company called AND&OR to digitalize its current products and add extra value to them.



[https://github.com/AlvaroSanchezDomingo/hdip\\_computer\\_science\\_project](https://github.com/AlvaroSanchezDomingo/hdip_computer_science_project)



NDA - withheld



<https://www.youtube.com/watch?v=hX1NuaEbJF0>



Tuesday, MAY 17<sup>th</sup>

Ruairi Byrne

Title withheld under NDA

Michael Kelly

Title withheld under NDA

Shane Ryan

Title withheld under NDA

John Cagney

Title withheld under NDA

Workplace – 2 of 2



# Title withheld under NDA

**Ruairi Byrne**

HDip in Computer Science 2020 - 2022

Project Type:

Workplace Project - Private (NDA)

All project details withheld under NDA





# Title withheld under NDA

**Michael Kelly**

HDip in Computer Science 2020 - 2022

Project Type:

Workplace Project - Private (NDA)

All project details withheld under NDA



# Title withheld under NDA



**Shane Ryan**

HDip in Computer Science 2020 - 2022

Project Type:

Workplace Project - Private (NDA)

All project details withheld under NDA



# Title withheld under NDA



**John Cagney**

HDip in Computer Science 2020 - 2022

Project Type:

Workplace Project - Private (NDA)

All project details withheld under NDA



**Wednesday, MAY 18<sup>th</sup>**

**Maryia Balbachan**

Homestead Road to Self-Sufficiency and Automation

**Ian Mullins**

WorkIOT: Resistance training analysis and reporting IOT system

**Shady Attia**

Investopia: Digital Asset Signal Service & Network Fee Analytics

**Aileen Drohan**

E-Textile illuminations with Arduino LilyPad

**Emma Kidney**

Web Accessibility for Developers

**IOT/Physical Computing, Research**



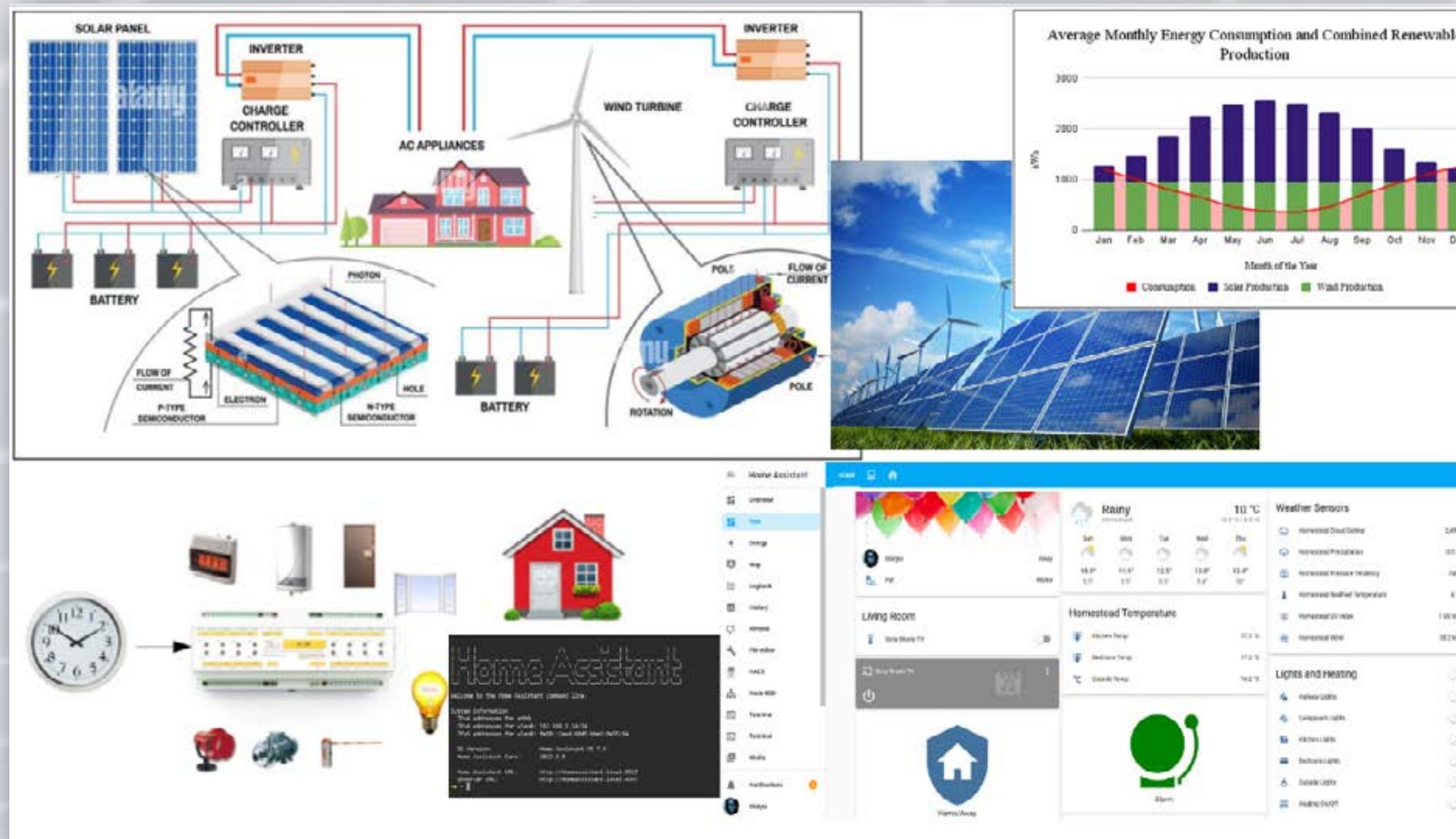
# Homestead Road to Self-Sufficiency and Automation

Maryia Balbachan

HDip in Computer Science 2020 - 2022

Project Type:

Physical computing / IOT



<https://bit.ly/3JmIMq9>

<https://github.com/MaryiaBalbachan/Final-Project>

<https://www.youtube.com/watch?v=QCQwp3jB2Sc>

This practical two part project is set out to fulfill several objectives. The first part of the project is research based and aims to outline in detail homestead's road to energy self-sufficiency with output and saving calculations based on actual consumption and location of the homestead. The second part of the project applies physical computing to implement home automation for efficient energy resource management using an open source home automation software called Home Assistant. For demonstration purposes a custom built model is used to illustrate the application and implementation of home automation part of the project.





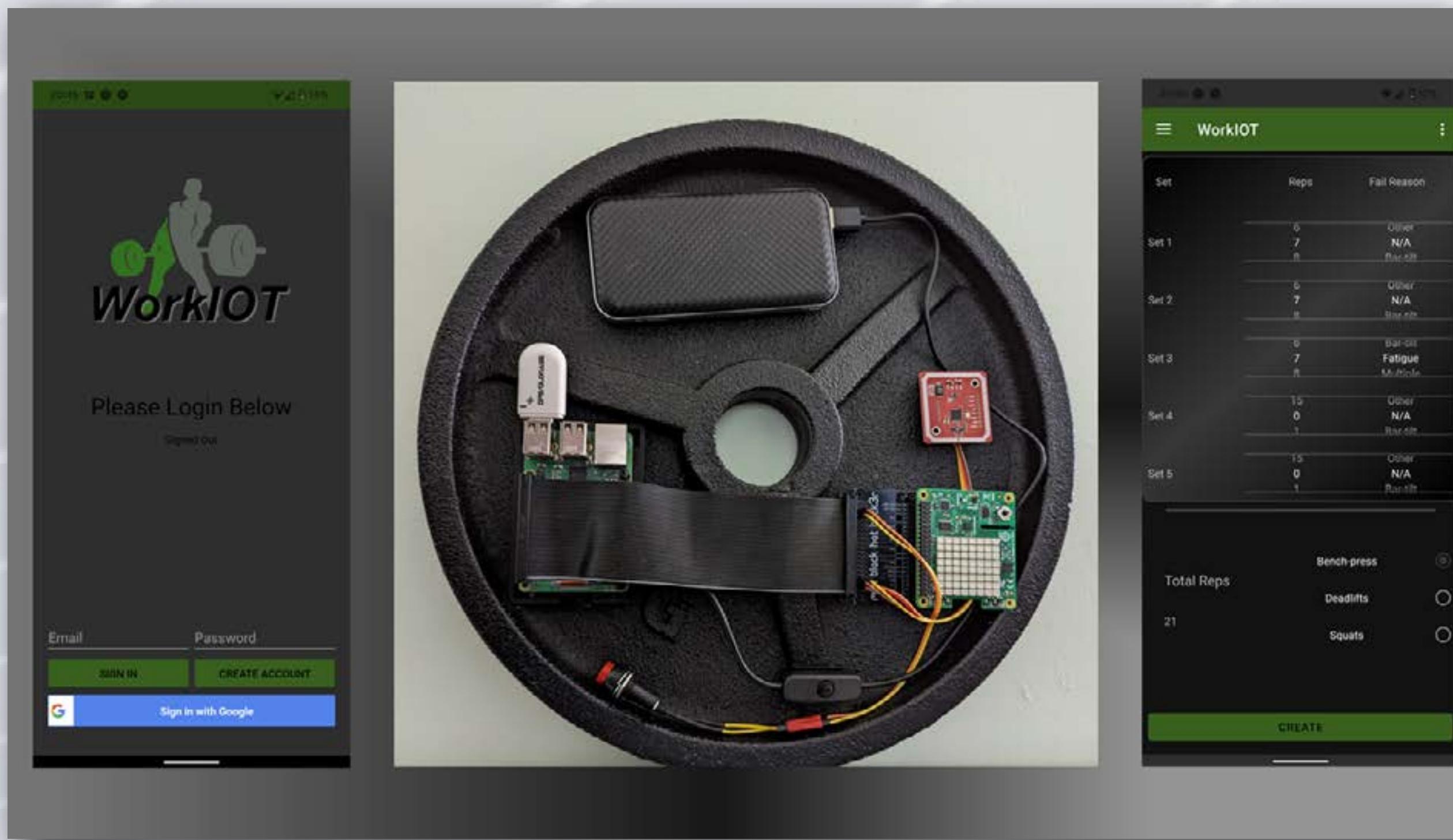
# WorkIOT: Resistance training analysis and reporting IOT system

Ian Mullins

HDip in Computer Science 2020 - 2022

Project Type:

Physical computing / IOT



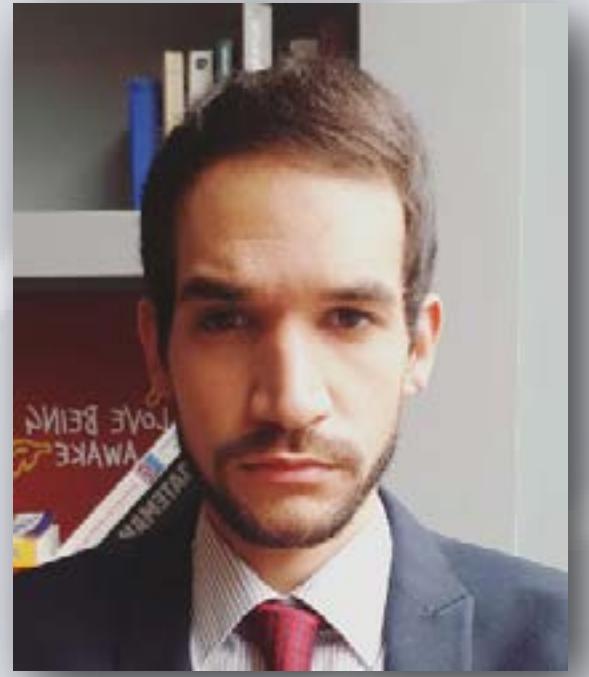
<https://bit.ly/work-iot>

<https://github.com/iamianmullins>

<https://www.youtube.com/watch?v=elLvzKzD48I>

WorkIOT is a resistance training IOT project which is comprised of two separate components. An android mobile application and a sensor centric hardware component, which is embedded in a barbell weight plate. The concept is to facilitate an automated system whereby a gym user may log in to a workout station using an NFC tag. Workout progress is then automatically recorded and uploaded to a cloud database. A companion android application may then be used to monitor workout progress, but also serve as a stand-alone application for manual workout tracking.





# Investopia: Digital Asset Signal Service & Network Fee Analytics

Shady Attia

HDip in Computer Science 2020 - 2022

Project Type:

Other

The screenshot shows the GitHub repository for 'AttiaFX/Investopia'. The repository page includes a search bar, a sidebar with navigation links like 'Personal', 'Overview', 'Resources', 'Deploy', 'Metrics', 'Activity', 'Access', and 'Settings', and a 'Jump to Favorites' button. The main content area displays the application logs, which show various log entries from the application's execution. Below the logs, there is a file tree showing files like 'Procfile', 'README', 'gas.py', 'requirements.txt', and 'runtime.txt'. A preview image of the application interface is also visible.

The Investopia app is a tool that helps investors identify reliable opportunities given the current investment landscape. Investopia works by utilising real-time information such as asset pricing, network fees and momentum data from global financial markets to segregate optimal timing opportunities with the least amount of measurable risk. The application is comprised of a suite of software tools, combined to offer a one-stop-shop for investment decision-making. Investopia includes custom network gas fee analytics and alert service, and a relative asset strength & momentum calculator.

<https://attiafx.github.io/Investopia/>

<https://github.com/AttiaFX/Investopia>

<https://www.youtube.com/watch?v=HfgEbne-nBq>

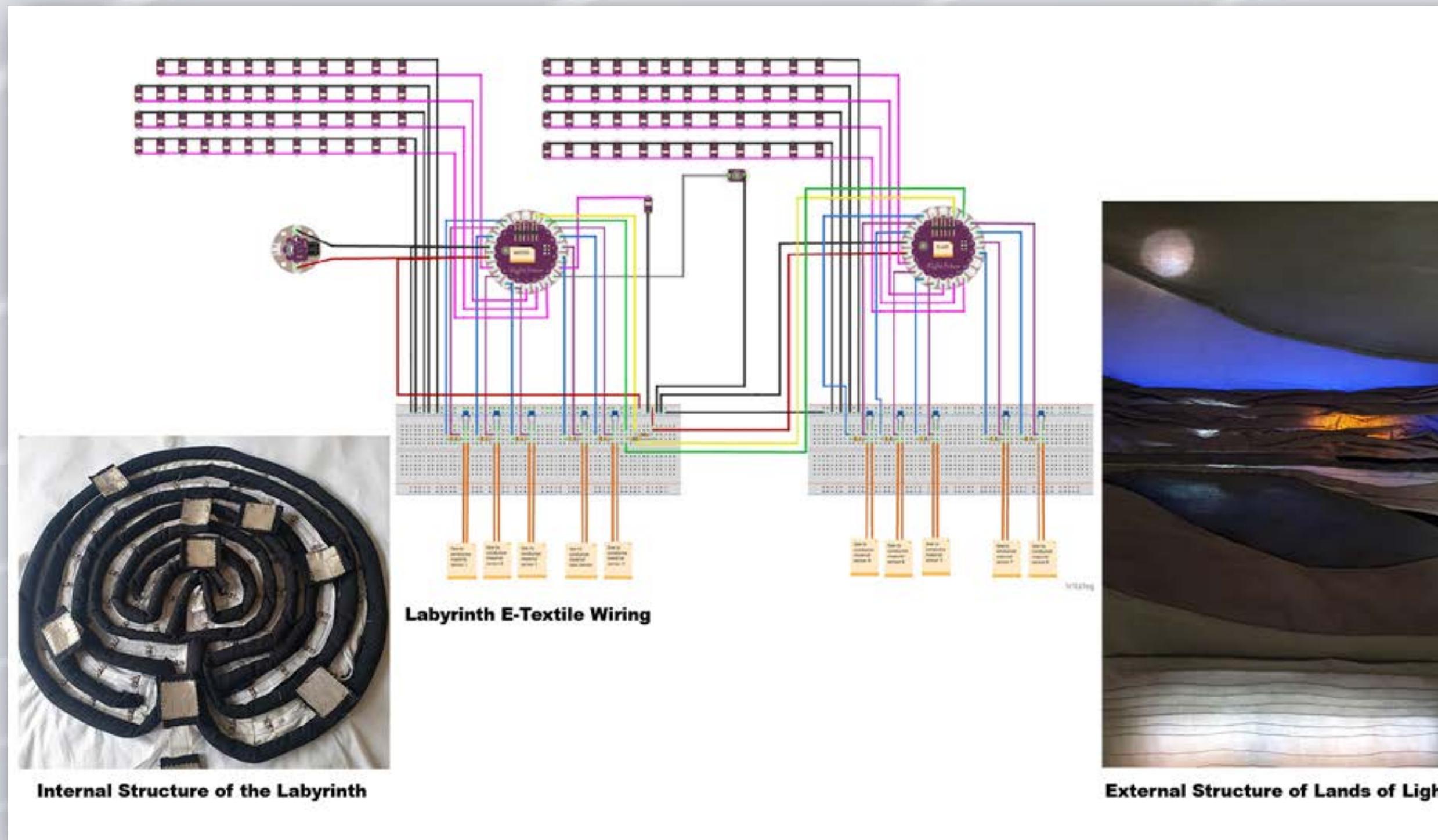




# E-Textile Illuminations with Arduino LilyPad

Aileen Drohan

HDip in Computer Science 2020 - 2022



<https://bit.ly/3621dTC>



<https://youtu.be/ghT8S-hDl0o>

Project Type:

Physical computing / IOT

Two E-Textile prototypes which provide the user with either, a passive viewing experience of illuminating LEDs embedded within fabric, or a textile finger labyrinth walk with capacitive touch sensing capabilities. Each User activated piece is controlled by two Arduino LilyPad 328 Main boards, sewn to fabric with conductive thread. The Labyrinth's capacitive touch sensors are made from conductive fabric and the user is guided along the path by LEDs triggered by the sensors. Communication between the microcontrollers is over I2C protocol. These experimental artifacts allow for reflection, entertainment and mindfulness, engaging the visual and tactile senses.





# Web Accessibility for Developers

Emma Kidney

HDip in Computer Science 2020 - 2022

The screenshot shows the homepage of the 'Web Accessibility for Developers' website. At the top, there's a navigation bar with links for 'Web Accessibility for Developers', 'Documentation', 'Blog', and a GitHub icon. Below the header is a pink banner with the title 'Web Accessibility for Developers' and the subtitle 'Web for All'. The main content area features three columns: 'Equality' (represented by a globe icon), 'Accessibility' (represented by a puzzle piece icon), and 'Consideration' (represented by a web browser icon). Each column contains a brief description of its concept. At the bottom, there's a dark footer bar with links for 'Docs', 'Source', 'Contact', and a copyright notice.

<https://waford.netlify.app/>

<https://github.com/emmakidney/final-project>



Project Type:

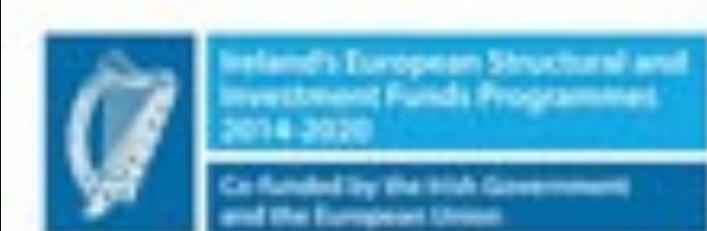
Research Project

Over recent years, educational institutions such as universities are utilising the web to cater to their target audience. This became more evident during the Covid-19 pandemic, when almost all educational institutions went virtual where they could. With this major shift to virtual academic delivery, the needs of those students with disabilities grew and it became essential to improve the accessibility of online learning. This paper aims to explore how people with disabilities use the web, and how we can help improve their experience from a developers point of view.



# Higher Diploma in Computer Science (online)

<https://www.wit.ie/courses/hdipcomputerscience2yearparttime>



**EUROPEAN UNION**  
Investing in your future  
European Social Fund



Rialtas na hÉireann  
Government of Ireland

**HEA** | HIGHER EDUCATION AUTHORITY  
AN TUDARAS UM ARD-OIDEACHAS

**FUTURE JOBS**  
**IRELAND**  
Preparing Now for Tomorrow's Economy

**SPRINGBOARD**  
[www.springboardcourses.ie](http://www.springboardcourses.ie)

Springboard is co-funded by the Government of Ireland and the European Social Fund as part of the ESF Programme for Employability, Inclusion and Learning 2014-2020