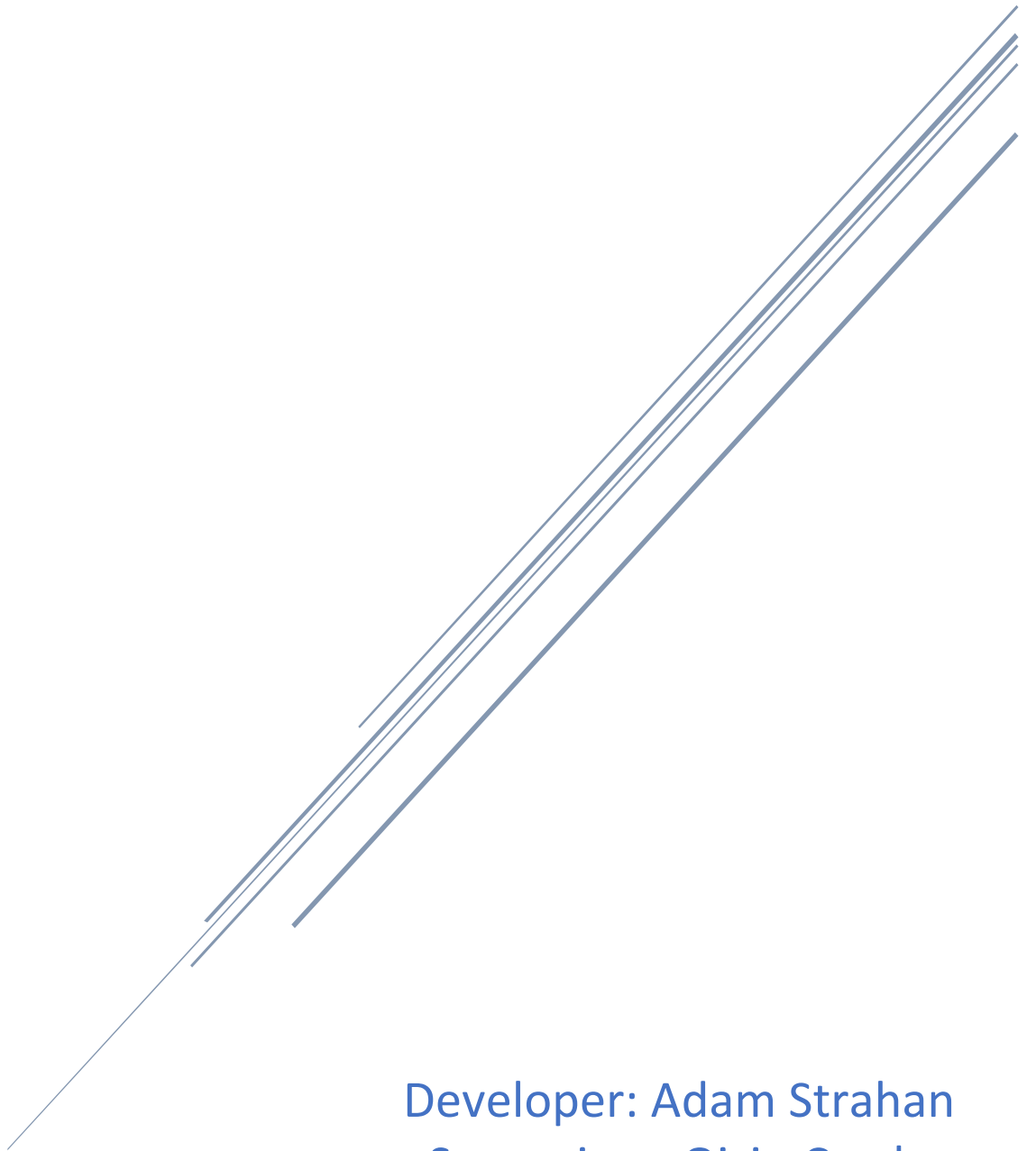


INTERACTIVE ITC MAP

FINAL REPORT



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Introduction

The following document is my final report on the interactive IT Carlow map application. In this document I will discuss:

- Problems I encountered and how they were resolved.
- What I achieved.
- What I did not achieve.
- What I learned.
- What I would do differently.
- Differences between the final product and the early design.

Problems Encountered

Hardware Issues

While I was working with React Native and Expo, I had issues connecting my phone. This made it difficult for me to test what I was making effectively. In the end I was unable to overcome these issues and switched languages, as it was much easier to connect my phone to Android Studio.

Software Issues

I struggled to get the hang of developing in React Native and Expo. I feel like I would need more time to learn them to the level required for a project like this. A large portion of the problems I faced were down to my unfamiliarity with the technologies.

What I Achieved

The Application

I managed to create the application and store it on my phone. It has a custom icon of the IT Carlow logo and the name of the app underneath.

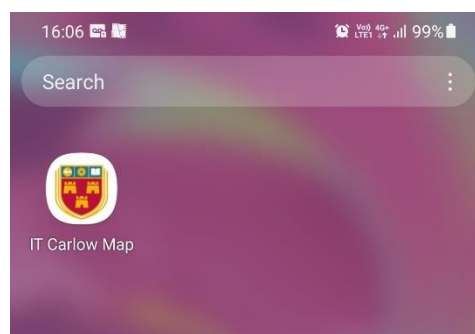


Figure 1. Application Icon

The Map Functionality

I succeeded in creating a map of the campus using the Google Maps API. From here I was able to edit the map, such as:

- Adding custom markers for different areas of the campus.
- Setting boundaries so the users are unable to pan the map too far from the campus.
- Limiting how far the user can zoom out.

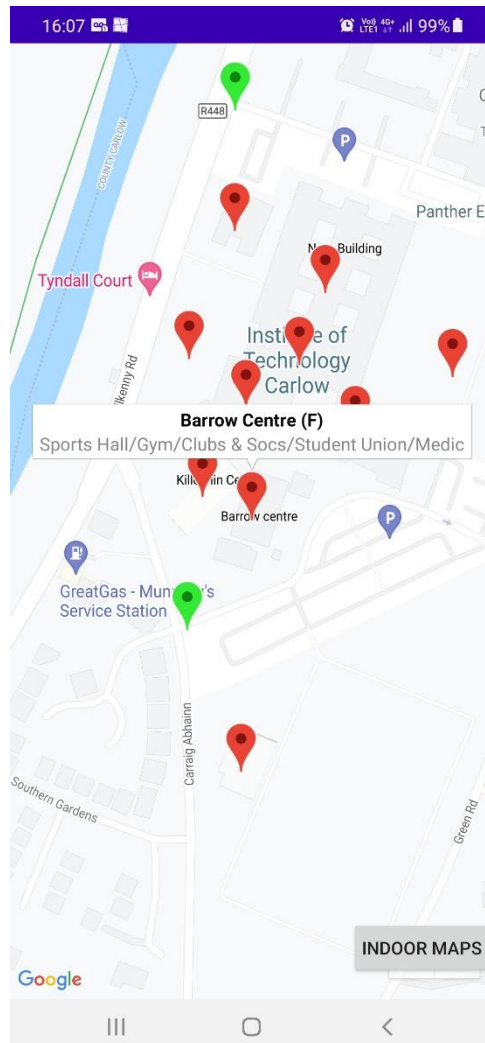


Figure 2. Map Application

Indoor Maps

I was able to create a dropdown list of the various buildings and floors in the college. I was then able to link the map for each of them to the list so users can look up any room on the campus.

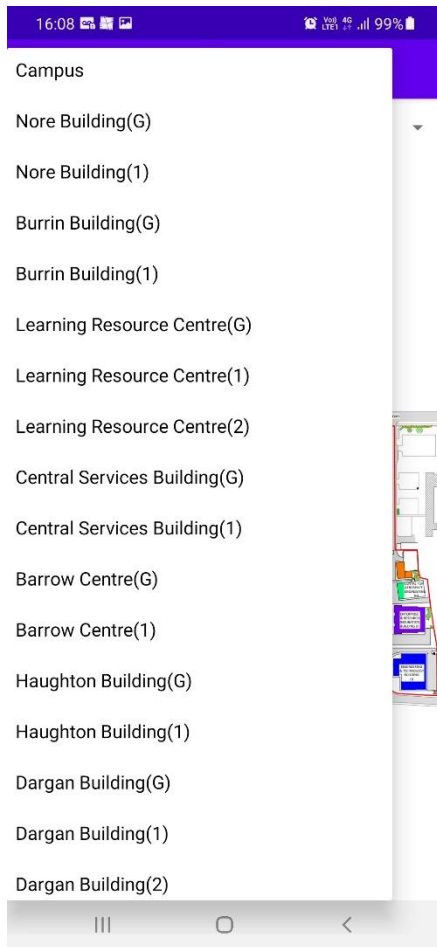


Figure 3. Dropdown List of Maps

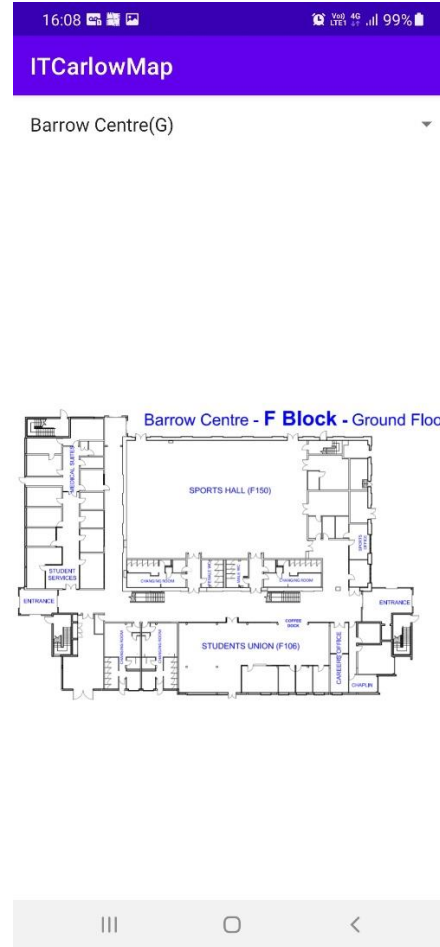


Figure 4. Indoor Map

Zooming the Indoor Maps

I added functionality that allows users to zoom in on the maps. As the images were displayed in an ImageView they could not be zoomed normally. This addition allows users to get a clearer look at some of the bigger buildings.

What I Did Not Achieve

Pathfinding

Unfortunately, I did not manage to get the pathfinding functionality to work in time for the project submission. I did not link the markers as nodes in an array, so as a result there was no connections for the A* algorithm to traverse. This was one of the bigger disappointments from the project, as it was something I really wanted to get working.

Panning the Indoor Maps

I wanted to include panning functionality in the indoor maps to allow users to get a better view of the maps, but I was unable to get this feature working correctly in time for the deadline.

What I Learned

I feel like I learned a lot about mobile application development from this project. I got to try out React Native for the first time, and while it did not go according to plan on this occasion it is something I would like to try to improve at.

It was also my first time implementing Google's maps API in a project. My previous Java projects were much smaller in scope, so trying to make something of this scale and with this functionality was an exciting challenge for me. While I did not manage to implement as many features as I wanted to, I feel like I've learned a lot from this. I would like to push myself further with this in the future.

What I Would Do Differently

One of my biggest faults with this project was time management. I underestimated the time it would take me to understand React Native. As a result, my time was running out and I had to switch the project over to Java as I was a little more familiar with the language. This prevented me from developing for iOS though and led to a more rushed development of the application. If I could go back and change things, I would stick more rigidly to a schedule to have a smoother development cycle.

I would also focus more on getting the hang of React Native at an earlier stage. My slow progress on this front is what caused me to completely mess up my schedule and force the switch to Java.

Differences

There are massive differences between my early design and the final product.

The biggest difference is that I made the application in Java and Android Studio instead of React Native and Expo. This was due to time restraints and my struggles to get the hang of React Native and Expo

Conclusion

In conclusion, I am proud of what I achieved with this project. I may not have been able to implement all the features I had planned, or even complete the application in the language I had planned, but I feel that I still managed to complete my goal of developing an application that students can use to help them navigate the campus a little easier. It is far from perfect, but I can honestly say I am proud of it.

I also feel that I learned a lot from doing this project. In this industry it is vital to stay interested and engaged in learning new technologies. This project has given me the desire to keep building on what I learned here and overcome the obstacles that held me back. My next application will take what I learned from this and push it even further.

Appendix

Plagiarism Declaration

Projects & Plagiarism

All projects are individual projects. The project is expected to be all your own work. Under certain circumstances, you may be able to incorporate material from other sources. This "incorporation" needs to be discussed with, and agreed upon by, lab supervisor and all such material must be referenced appropriately.

- Plagiarism is defined as " ... *presenting someone else's work as if it were your own, whether you mean to or not. 'Someone else's work' means anything that is not your own idea, even if it is presented in your own style. It includes material from books, journals or any other printed source, the work of other students or staff, information from the Internet, software programs and other electronic material, designs and ideas. It also includes the organization or structuring of any such material ...* " [taken from: Victoria University of Wellington, New Zealand, <http://www.victoria.ac.nz/home/glossary.aspx#p>].
- What this means is that it is wrong to copy another's work or download material for incorporation into your project from the Internet (without the express permission of your supervisor). Even if you take someone else's algorithm/code and rewrite it, this must be documented in your program to state where you got the original algorithm from. Failure to do so is considered plagiarism. If you are in any doubt, always ask your lab supervisor.
- Plagiarism is a **serious academic offence** (equivalent to cheating on an exam) and the consequences of being found guilty of plagiarism are severe.
- Students can use the internet to research information on their projects, they can ask lab supervisors for help with their project and they can also discuss problems with their fellow class mates.
- Students should be able to explain fully their code and may be asked to do so by one of your lab supervisors.

Work submitted for assessment which does not include this declaration will not be assessed.

DECLARATION

*I declare that all material in this submission e.g. thesis/essay/project/assignment is entirely my/our own work except where duly acknowledged.

*I have cited the sources of all quotations, paraphrases, summaries of information, tables, diagrams or other material; including software and other electronic media in which intellectual property rights may reside.

*I have provided a complete bibliography of all works and sources used in the preparation of this submission.

*I understand that failure to comply with the Institute's regulations governing plagiarism constitutes a serious offence.

Student Name: (Printed) ADAM STRAHAN

Student Number(s): COO216499

Signature(s): Adam Strahan

Date: 26/10/21

Please note:

The Institute regulations on plagiarism are set out in Section 10 of Examination and Assessment Regulations published each year in the Student Handbook.