

Mobile Applications Development 3 Design Document (Air GAA)

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September 2019

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0.1 Introduction

This is a project design document for a mobile app/game as part of this module. This Design Document Contains all information regarding the project such as technology, design, architecture, game-play and much more information for the project. This will show the research done, why a decision was made on a particular one and whats expected.

0.1.1 Technology To Be Used

For the brief for the project we are required to use the programming technology known as Unity. Unity is a very flexible technology that the user isn't limited into what they can implement when creating an application or game. This software can be downloaded online.

0.1.2 Project Overview

We have been tasked to make an application or game in two-dimensional format (2D). We were asked to specifically look at a Shooter Game, Platform Game or an Traditional/Board Game with an AI. In the research section of this document i have vividly looked at each game possibility and have noted a few which stand out for me and also fit the criteria required.



0.2 Research

Here is the research i did to aid me in my decision when picking a game to design.

0.2.1 Shooter Games

In This genre of game, it tests the human spatial awareness and reflexes. Will test the players skill with a keyboard and mouse and must be quick. The options for this would be a sniper type game or an aiming game with a limited time. The Good thing about shooter games is the fact you may use different control mechanisms such as the mouse space bar arrows. However to implement this in 2D would be quite underwhelming as you know it would look better in 3D.

0.2.2 Platform Games

When i seen this an option i had 2 ideas straight away, that was Super Mario and Sonic the Hedgehog. For this i knew i would need to use the clone and tweak technique method, where i would copy the game play or mechanisms of a super Mario or sonic game and maybe change the theme of it. Change the type of levels, special abilities add a character customization element to it. Leveling up element could be added, different maps/platforms. Levels get harder as you go through them.

0.2.3 Traditional/Board Game

Board games such as chess/draughts connect 4 where the first games that came to mind, however my thinking went towards the arcade, pinball, air hockey and pool/snooker were the ones that came to mind. It would involve a collision mechanism and an AI for the above games bar pinball. If i were to choose one of these games i would need to add an AI for the player to play against.

0.3 Project Choice

Air Hockey Game with an AI

0.3.1 Genre

I've decided to go with the Traditional Game element from the brief. This game will aim to have an AI and multiple collisions. I've looked towards the arcade.

0.3.2 Ideas That Stood Out

No shooters stood out for me, a Mario like platform game was being considered for quite a while with a different theme maybe superhero themed.

Connect 4 also stood out as a possibility for the project to go inside with our lab exam last year in C sharp with a json database. However i feel this would suit a player vs player rather than just an AI.

Air Hockey stood out the most and i will explain why i chose to do a design document for this game idea.

0.3.3 Why i chose this idea?

I chose to go with an clone and tweak version of Air Hockey as it's my arcade go to game also last year in 3rd year we covered collisions in Unity so it would be beneficial to helping with the multiple collisions that are in a game of air hockey.

0.3.4 Target Audience

The Target Audience for this application would be of course GAA fans and air hockey fans. Also those that enjoy their arcade games. Targets an Irish audience due to the sport mainly recognised in Ireland.

0.3.5 Critical Analysis

My critical analysis of this game would be that its target audience maybe limited to Ireland only due to it only being an Irish sport themed game. Also many different versions of air hockey have surely been made and explored by programmers, feels repetitive. However for the task at hand i feel it suits the criteria required.

0.4 Theme of Game

0.4.1 Project Theme

It was a tough decision to pick a theme for air hockey to meet the clone and tweak requirement. I was stuck between a Marvel superhero based themed game or a GAA based theme. I wanted to pick a theme based on a relevant subject today both are in the news in their respected genres. I inevitably decided to go with the GAA theme.

0.4.2 Why This Theme?

I chose to do the GAA Theme due to the fact it was latest in the news with Dublin winning 5 in a row and their manager receiving an award for doing so. Also an commercial on TV gave me the initiative to create a score based game for GAA teams. The one I seen on the television was a platform game. So it links in well with the project requirements.

0.4.3 Assets For Game

For this game the Assets needed are as follows.

- Puck Designed like a Gaelic Football
- 2 Felt Pushers with county colors for each.
- The Pitch/Field of Play
- Scoreboard

0.5 Design Components

0.5.1 Front End

When the Game is loaded, a menu should be the first thing the user sees. This menu will have the logo of the game, with 2 options start and quit. Quit will terminate the game. Start will bring you to the next menu with 2 options Play game and back to main menu. Back to main menu brings you back to main menu obviously, if play game is clicked it will bring you to another menu to select a county to play as out of the super 8s.

0.5.2 In-Game Menus

The user should be able to pause the game. With 3 options, resume, restart and quit game. A pause icon should be placed outside the field of play.

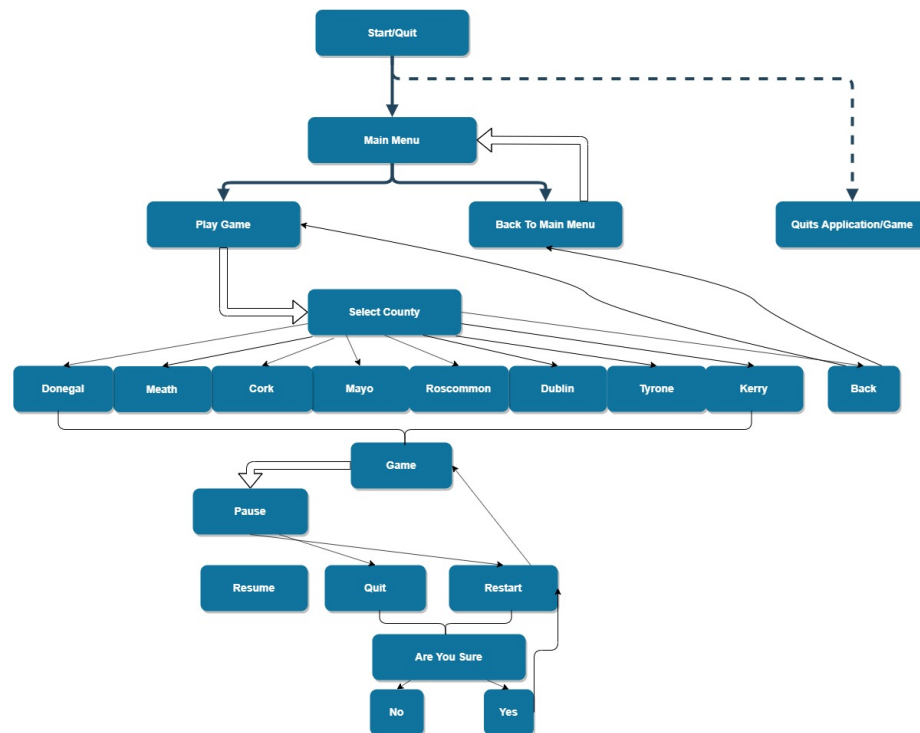
0.5.3 Control Mechanisms

The Player/user should be able to move the felt pusher with the mouse and be able to hit the puck at different speeds. The puck should be able collide with the walls and pucks of the player and AI. There should be an invisible boarder going through the center of the field of play so the player and AI can't cross into each others half of the pitch. Where the goal should be the pucks should disappear and the score for who scores should increase by 1. Once score is recorded the game resets with the puck in the half of the one that conceded.

0.5.4 The Game

Basically Air Hockey with the clone and tweak method. The Game will be called Air GAA. First to 5 wins. Pitch should replicate a GAA pitch and the county colors represents the player and AI.

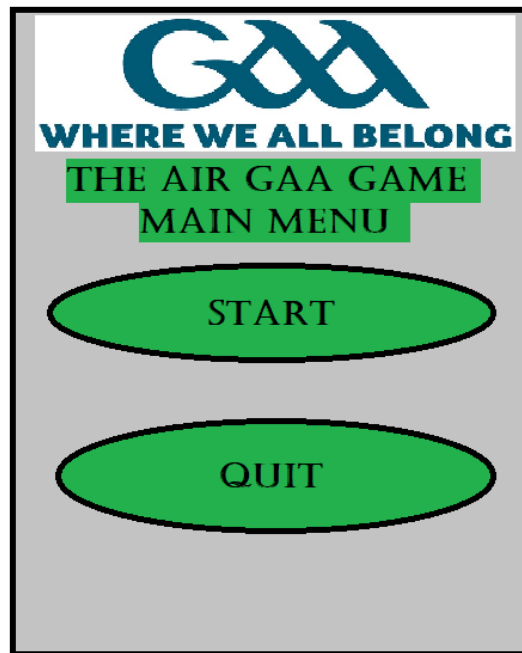
0.5.5 Game Flow Chart Image



0.6 Initial Sketches

0.6.1 Menus

Here is what the menus should look like or something close to it:
Main Menu:



When Start is pressed, next menu:

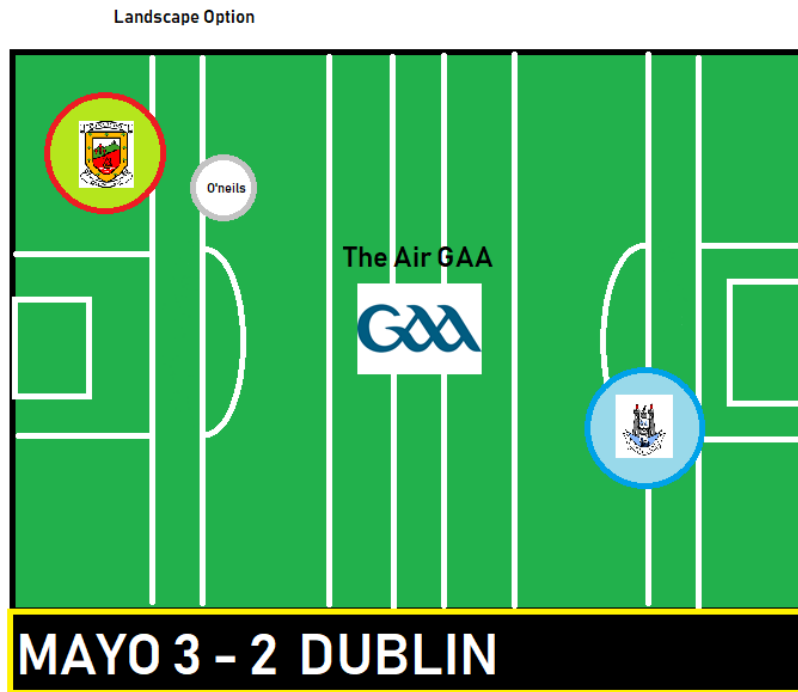


Select a County, once selected it will go into a game where the AI will be a random county.(Not the one picked to avoid confusion).



0.6.2 In-Game

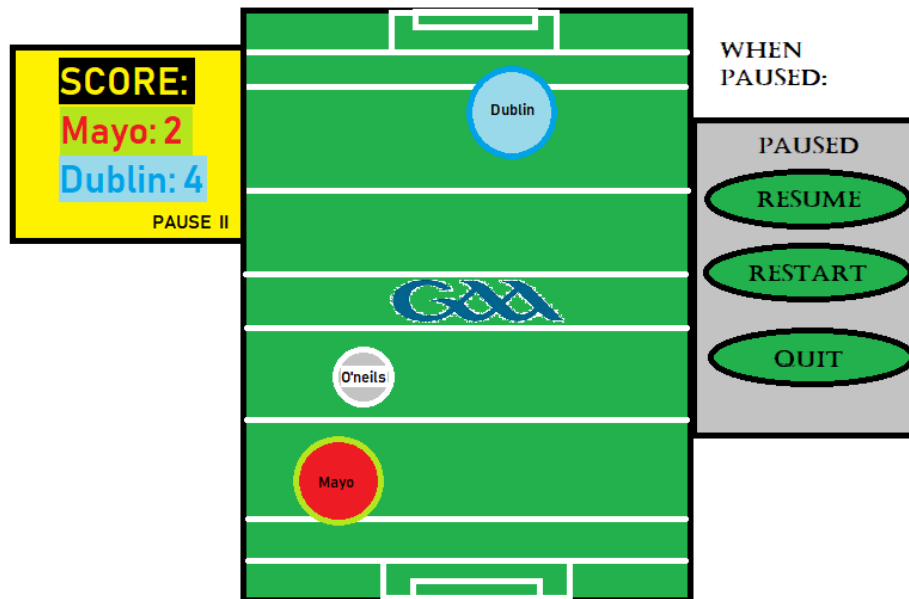
What the In-Game should then look like:



Portrait Option:



When paused:



0.6.3 Various Scenarios

When a player scores 5, winner should pop up on the screen with an option to replay or exit.

If the AI scores 5, the same again but Loser pops up on the screen.

When a goal is scored the puck resets in the one that concedes half.

The puck must be bigger than the half way line to avoid the puck being stuck there.

When the player wants to restart the game, the scores should reset to 0 for the player and AI.

0.7 Conclusion

In Conclusion some changes maybe made to this project where possible to simplify the work, also maybe find ways of improving on whats provided. Maybe add more assets levels and AI difficulty which should be added in the options in the menu or pause. Maybe a tournament option to go on and win the All-Ireland of Air GAA ! I feel this project/application is indeed doable. It's a clone and tweak method so i am certain there is help on the web if available. The design isn't everything in this application as the game mechanics are the major objective here to implement the assets correctly and the specific rules of air hockey.

This Design Document was wrote in Latex on Overleaf and is a PDF file.

0.8 References

<https://en.wikipedia.org/wiki/Shootergame>
<https://www.youtube.com/watch?v=W8ielU8iURI>
<https://www.raywenderlich.com/5441-how-to-make-a-chess-game-with-unity>
<https://unity.com/solutions/2d>
<https://www.youtube.com/watch?v=BdlL5bwbCiI>
<https://www.raywenderlich.com/2891-how-to-make-a-platform-game-like-super-mario-brothers-p>
<https://thetoughestjourneygame.com/>
<https://en.wikipedia.org/wiki/Airhockey>
<https://www.youtube.com/watch?v=ZlAMVEVHkuI>
<https://www.draw.io>
<https://www.overleaf.com>