VRND Capstone Project

Planning

This section will explain the idea behind I intend to implement as final capstone and how this was conceived in my mind. In the next section the reviewer can learn about how the scoped was reduced and figure out why this took so long to be completed.

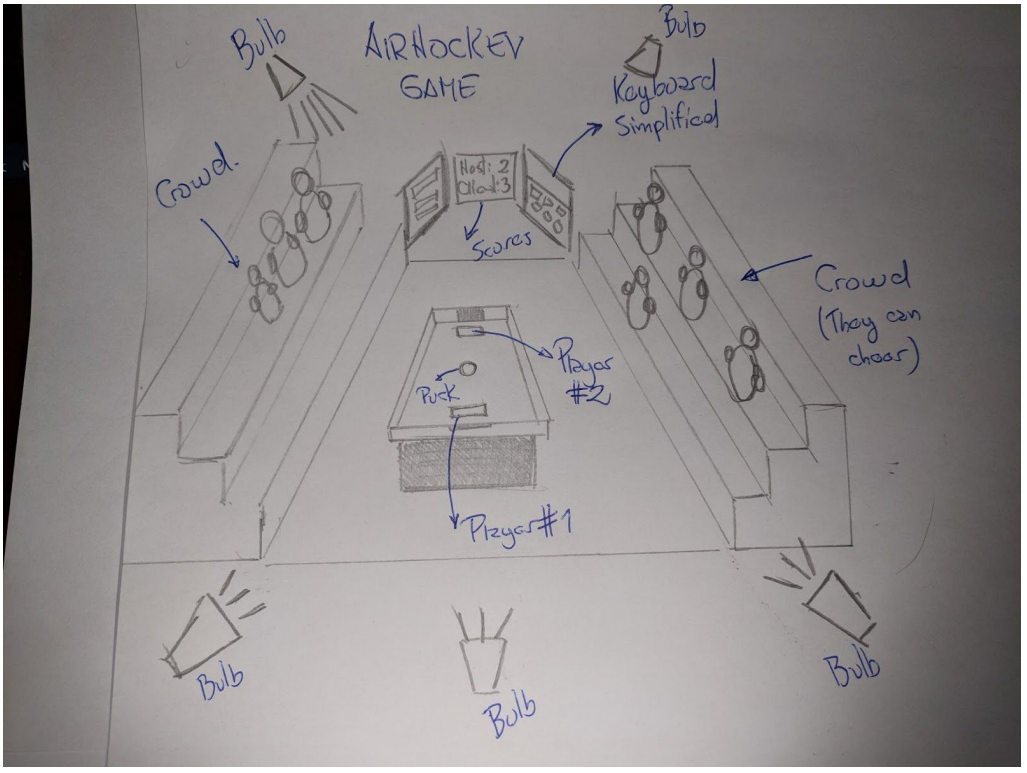
Description

The project consists on a traditional Air Hockey game between two friends. As everybody knows, this game was a lot of fun 2 decades ago so I thought why not bringing that old fun to these days in a new way. The game should be as simple as a room where 2 players can connect over WIFI and play until one of them win the game. The extra value here is that you can join a game as part of the audience.

So, the next question I had to solve in my mind was: what is the target platform I should consider for this project? The answer was: let do a multiplatform solution so I chose: MAC, GearVR, Daydream and ARCore (when I started with this project the name of the AR platform was TANGO).

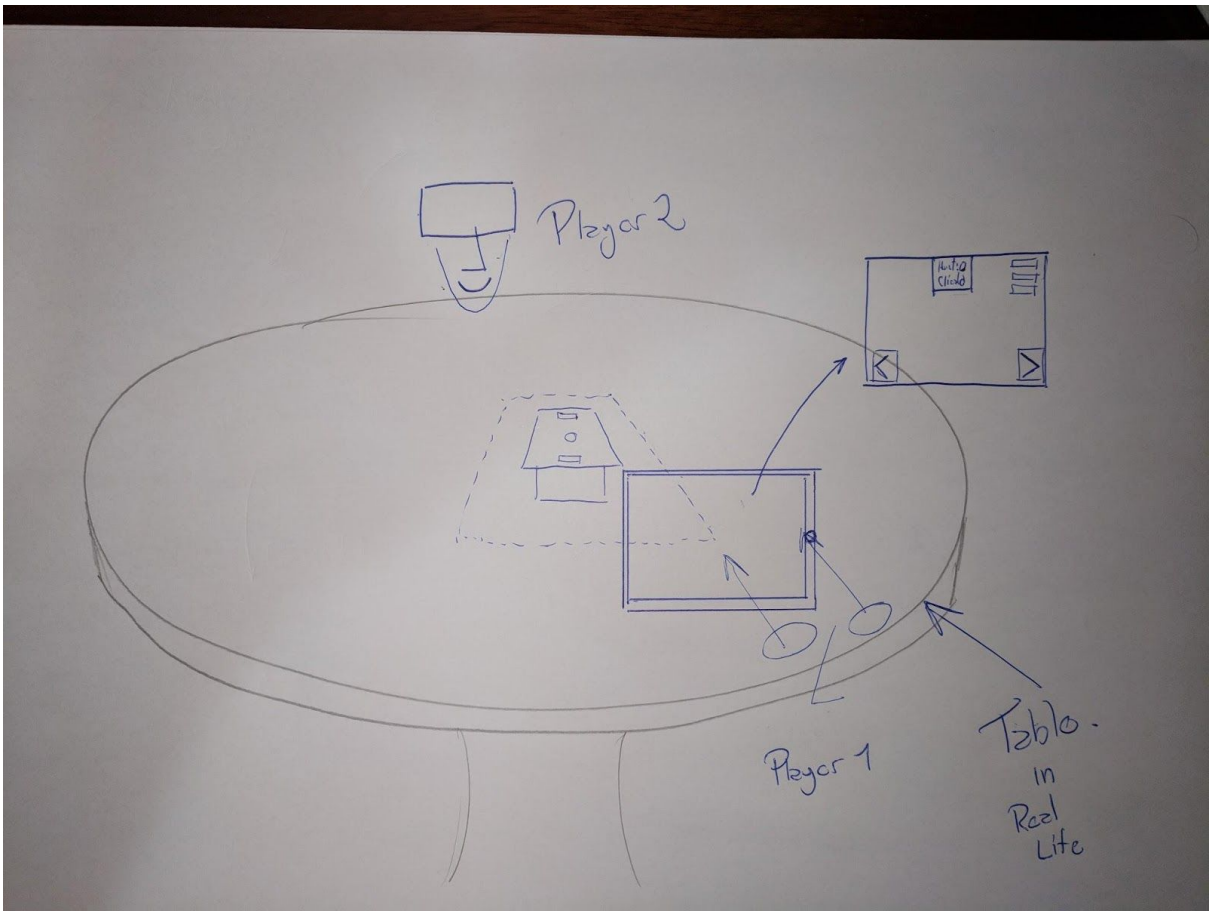
Now, I need to figure out how to cover multiplatform and the first answer I got was: create the solution using Prefabs and Scripts that can be adapted per platform. With a few tests on this approach, I decided to go for it, starting with MAC, following AR, then Daydream and finally GEAR VR.

The first sketch of what I imagined was something like the following:



AirHockey from VR
The main asset that should remain across all different platforms are the table. When you use the game from a PC you will see the table as if you were with the crowd. When you were using VR, you will observe the scene as if you were in front of the table. When you were using AR, you will only see the floor and the stadium.

An idea of how 2 players should look like in a real world is like follows:



AirHockey from the AR Point of View.

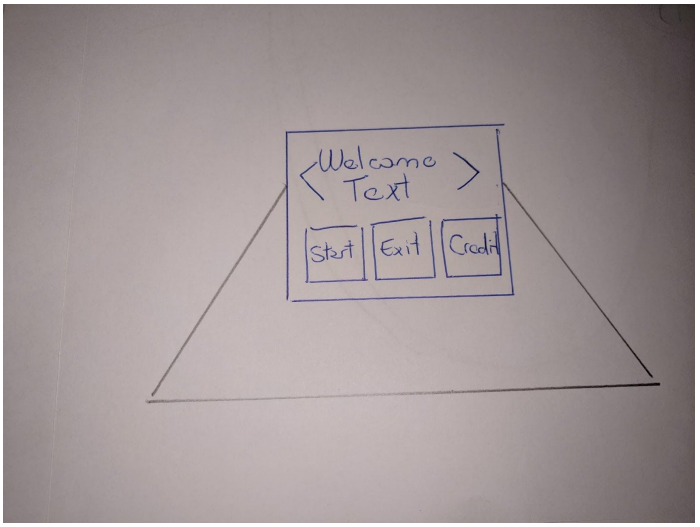
The idea here is to promote the idea of 2 friends interacting in real life but playing a multiplayer game, one with own device. The goal of making a multi platform solution is to enable other players to play in their prefered platform.

Pre-production Scope

The game will support the following features:

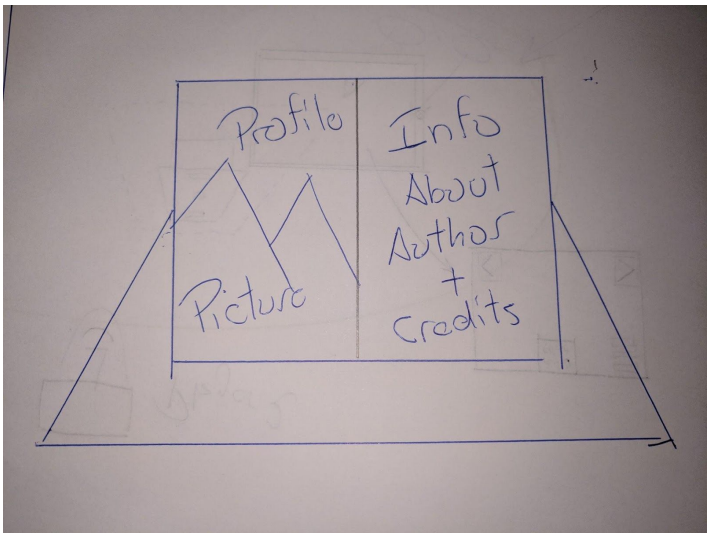
- Provide a Welcome Screen: This is the entry point for the application. From here the player can start the game, leave the app or see the credits.

  A sketch for this screen is something like:

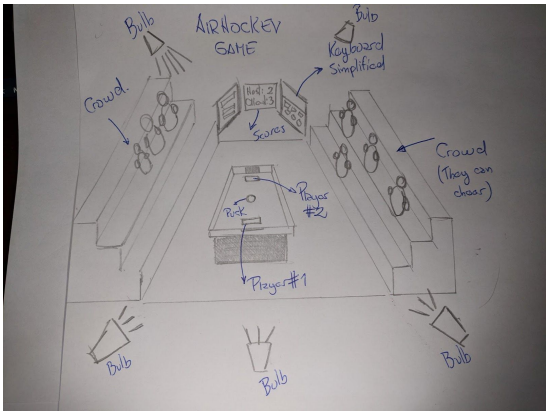


- Provide a Credits Screen: The app shall provide a screen that show info about the author and special licenses.

  A sketch for this screen is the following:



- Provide a Main Screen. The app shall provide the “Arena” screen where the game’s actill will take place. This screen look and feel will vary depending on the platform you run the application:
  - For VR / MAC:



  - For AR, the same look and feel but without the crowd.

- Two Player can join the arena to play this game. One player will take the role of a HOST and the other one will be the CLIENT
- The first player that scores 1/3/5/7/TBD goals wins the game. The value for the game should be configurable.
- A person can also connect to the game as a viewer and he/she will be placed along with the rest of the audience.
- Each player can connect using any of the supported platforms.
- At any point during the game, each player can quit the game.
- The players in the crowd should be jumping.
- Each scene should contain background sound.
- The AR Platforms to support are: ARCore & ARKit.
- The VR Platforms to support are: Cardboard, Daydream, GearVR.
- The Desktop Platforms to support are: Windows, MAC.

Dependencies

There are no external dependencies or 3rd party libraries used in this project outside of GearVR SDK. All the content was created for this capstone.

Scope

Included Scope

- The only feature left out was the one related with the crowd, all the rest were included but only GearVR and MAC scenes were delivered. Despite the fact that I want to create common prefabs in the same project, it was not possible at the time where different SDKs were tested between each other. Several compilation issues occurred between GearVR / Daydream VR / ARKit & ARCore. Unfortunately the lack of support by the providers of the platforms makes integrating them really difficult.

Scope Not Included and its reason.

The following features were left out and not delivered

- Supported AR Platforms: ARCore development was started but later on there were incompatibilities between ARCore SDK & Daydream SDK that prevents both to live in the same project. At this stage of the project, the approach of creating 1 single scene for all the project was discarded. In order to support more platforms, separate project had to be created so SDK did not conflict between each other. The scope of grouping common components into a library was completely outside of the scope.
- Supported VR Platforms: Only GearVR was delivered. Incompatibilities between GearVR and Daydream SDKs was the same problem I experience with AR sdks mentioned above.
- Supported Desktop Platforms: Windows was left out because of time constraints.
- All the assets (static or dynamic) related with the crowd was left out. A person can only join as player, not viewer.