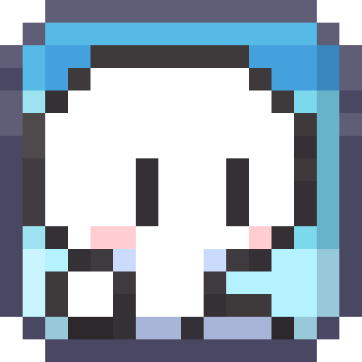
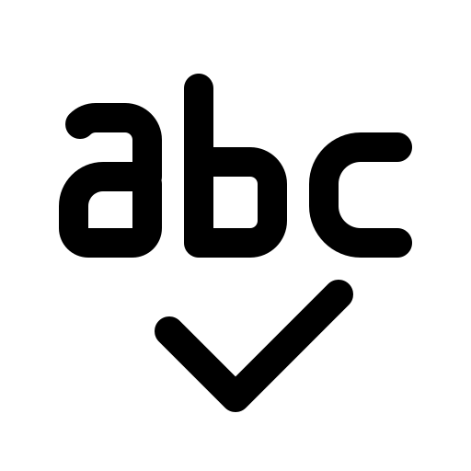
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| Pixel art crown by Centuria Game Dev  Ghostville  Gesture based UI | Abstract  This is the PDF document for the Gesture Based UI project. This is a project made in unity which uses both player inputs and voice commands in order to control the game.  Daniel Gallagher – G00360986  Final Year – Software Development |



**Ghostville.**

The game I decided to make is called “Ghostville”. It is a platform game like the very early day Mario games. The game offers the user a great, immersive fun game while also providing a cool retro feeling to the players experience. The game is made for all ages from new gamers who are young children to adults looking for an old nostalgic feeling game with a new modern twist.

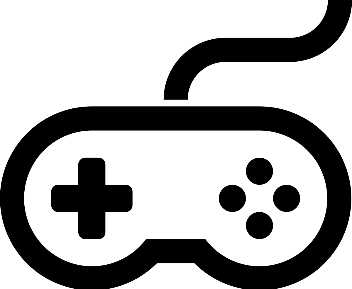
The aim of the game is to collect as many coins as you can throughout your progression in the game. The maps are made to be challenging and include enemies who come towards the player and if hit they player will have to restart the level all over again! The game includes some cool animations and really feels well put together from a user point of view. The game was developed in Unity with some custom fonts added also to add to the old feel of the game.



**Grammar Recognition.**

The game uses your microphone to take in things the user might say. In the grammar recognisers the phrases and sentences recognised are defined in separate XML files. I made these files separate so I could use the users input voice to control the character but also to control pause menus and main menus also. I thought of as many phrases and sentences as I could to use in the game so that the recogniser would offer a better range of phrases and sentences for the user to say in order to do a certain action in the game.

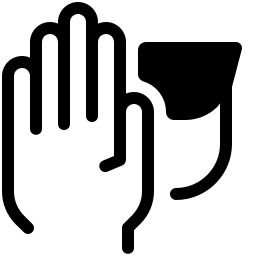
These grammar recognisers can be very sensitive and slightly finicky which is one of the only downfalls I as a develops saw of them when developing my application. I would have preferred to use an armband or some smart technology to complete this assignment but with our current work schedule combined with my part time job and covid I was unable to find anything to use so resorted to using these gestures, which do not get me wrong are great to learn and to have knowledge up but for personal development in the unity area I would have liked to use smart technology with unity.



**Purpose of application.**

A game such as this has been on the back of my mind ever since first starting to use unity. I myself love to play games so to have the ability to code games and see exactly what the code is doing is something that excites me as a developer rather than other boring aspects of coding which use other platforms or languages. Ever since first starting unity I always wanted to push myself to see if I could develop a game that I could proudly show off as mine and I am glad to say that I feel this game has made me very happy. Unlike other games the animations and gesture input are great and really shows off what unity is capable. As I said before doing this with some smart tech like an armband would have been cool but again this is not off the cards as I have everything backed onto GitHub so I could easily in the future continue developing this game.

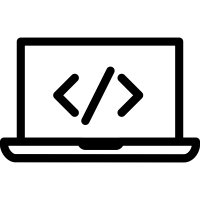
I personally find games development to be one of the more fun aspects of this course, which is another reason but overall, the purpose of the application was to build a cool looking application that took in some gesture input from the user, and I think looking back on my game I achieved this and I am happy with the work I have done but again would love to keep developing this game further in the future.



**Gestures used.**

As outlined above I used the user or players voice commands as the gesture input to the game. I felt this was a great way to offer both a more immersive experience to the user but also another level of difficulty to the game as using gestures is a lot harder than using a simple mouse and keyboard and more interesting and unique.

I would love to offer the user more of a gesture input like hand or arm movements etc, but I also didn’t have the capabilities for that at this moment in time, but I will in my spare time be trying to incorporate this into my game for my own personal development. Using voice commands allows the user for a more immersive and experience and gives them a break from the ordinary game controls such as mouse and keyboard movements.



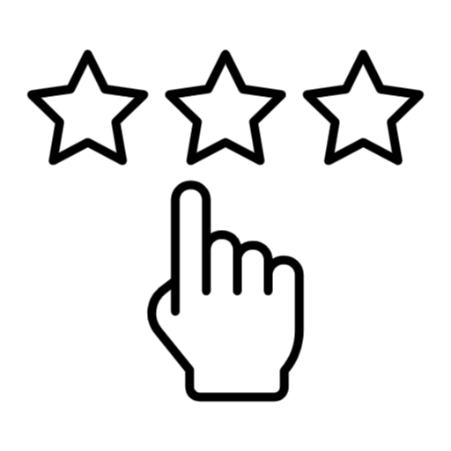
**Architecture used.**

As stated above I used unity to code this project. The unity platform in my eyes is one of the best things we learn in the whole software development course and through the years I have gained great familiarity with the platform and how it works making using the platform simple but also rewarding as you get to see your code come to life inside a game and get to see how it works and functions unlike other platforms or languages.

The game used three XML grammar files which set out the rules and recognised terms which would be used for certain activities such as moving the character forward by saying “Move ghost forward”. Grammar controllers were used then to bring the recognised phrases into the game and use a method contained in the controller based off the input the game received (i.e., Saying forward would be recognised by the controller and call the associated method which in this case was Forward();).

Inside these methods then contained the code you wanted to execute so for example when the user said, “Move Forward” and this is recognised by the grammar controller it then in turn called the method associated with the term which is Forward (); and inside this method contained the code to make the character move forward in the game. Once broken down and shown in the unity environment these are much easier to explain rather than through text.

Other parts of the game like menus and animations were made simply using the unity skills we have been shown and developed throughout out time learning which doesn’t need to be explained in as much detail as the new aspects which are the XML files and grammar controllers.



**Evaluation.**

Overall, I have really enjoyed developing this game and I do genuinely feel as though I have learned a great deal about unity not only this year but also in the years prior to this when doing unity. I feel as though making the game as professional as I could really let me to see what my skills are like regarding development.

The positives to the game are the working voice controls for not only movements but also for the main menu and the pause menu which were quite challenging to get working at first and consumed a lot of time but eventually I did fix them but also the fact I feel I have achieved a professional looking game with animations sounds and collectibles which could be greatly developed on and even released as a standalone game for devices once my time in college is over. The skills I have also learned developing this game greatly benefit me as a student and developer and make me want to constantly improve my level of game development and even consider a career in the game’s development space.

The downsides to the project where I did not get it as developed as I had planned on doing. I had planned for there to be an in-game store which would use the coins gathered by the player to buy different skins and possibly weapons but unfortunately due to other work which we have on going in college with deadlines dues soon I simply did not have enough time to implement it as detailed as I wanted it to be. I do hope to continue developing this game as a side hobby and to better my skills and adding a store is one of the top things I would like to do with this game.