COLOURED PERCEPTION DEVLOG

Game Development log for self-directed placement 2020-2021

Abstract
This is the documentation and development log for my experience of working in industry for the self-directed placement team 'Coloured Perception'.

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Before 2020-2021 Student Placement

Before the placement, Art is Opinion was being worked on as an assignment for CT5051 Experimental Games (2019-2020), using Unity 2019.1.9f1 and C# (Visual Studio 2019 for IDE), due 28th April 2020 and received a First.

For the assignment, we worked on a painting game where you draw characters with your eyes using the Tobii eye-tracking hardware. The player chooses a random character to draw and would draw them by either looking at the canvas or looking at the character, at which they will be drawn on the canvas. Once you are satisfied with the painting, you can save the image and view it in a gallery that can hold ten paintings.

What I did for the assignment

For the assignment I was one of the programmers, trying to implement new game mechanics and adding functionality to UI. We had more people coding and I would also help to fix errors and bugs.

Save and Load Images

My main job was to create the mechanics that allowed the player to save an image of what they had painted on the canvas and then load the image into one of ten frames within the gallery, this task took up a large part of my time as I had not worked on saving (and loading) anything during runtime and found it quite a challenge. From this task I learned how to save images into a temporary space in runtime and load it back.
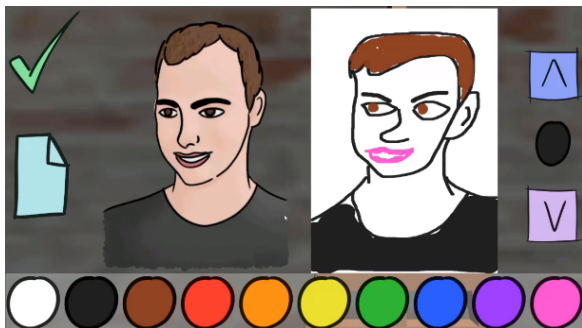
Brush size and preview

Along with Coral (Artist), I worked on the functionality of the UI to change the size of the brush and the preview. This was a temporary success but has caused issues for when trying to implement more brush types that the player could use.

Change characters in Paint Scene

Again, I worked with Coral to allow a random character to be drawn. Coral worked the character randomly being generated with a random name. I helped to fix bugs on the character speech about requesting to be drawn and to allow the character that was generated in the Street Scene to appear in the paint scene to be drawn. Through this task, I learnt how to keep access to a Game Object in Unity by using 'DontDestroyOnLoad()' in the Awake function, I however need to remember that this only works best when the script is attached to the root Game Object, otherwise there is a warning.

September 2020

Week commencing 31/08/2020

Description of activities

Throughout this first week of our placement, we created a plan for a business to work on Art is Opinion and at least one other game to we worked on as part of our 2020-2021 placement. Along with Development-wise, I will be working mainly as one of the gameplay programmers, implementing new features and fixing any bugs that are still in Art is Opinion. But as we have not looked at the project since April, we will need to make ourselves familiar with the project again and so we are easing ourselves back into the project.

I have created a GitHub team which will act as a parent directory to all the repositories we will be working and created repositories for Art is Opinion, the website and in preparation for our next game 'Paint on Sight'. In the AiO repository, I learned how to copy the old repository that had other people involved onto the new one on GitHub and then removed unnecessary files that were needed for the assignment but will not be needed for the game (such as previous builds and presentations).

The first change I made to the game since April was with Coral where we worked on trying to fix the bugs that are related to the brush shape, size, and the preview.

On the business side, I have been setting up meetings with people to help our team begin our journey to be a business with a product. First meeting we had later the week where we talked to Jamie about what we should plan to do for the next year. We also had a meeting with the Your Future Plan team where they gave us the contact details to Start and Grow Enterprise, a company that holds workshops used to help businesses that are starting up to grow in success.

Outcome of the activity

Within the project clean up I discovered that there were a lot of files that are not used and will not be used, specifically ones based around the MobilePaint.cs asset that was used previously and although a lot of files were removed there are still a lot more in the project that we need to go through more thoroughly. Along with this clean up I created more folders to help separate the project assets better, and in future projects I plan to use a better hierarchy system to help keep my games organised.

When I attempted to fix the brush's bugs, I realised there was a line of code that called a function in MobilePaint.cs hidden in a script that was not being used, I moved it into a different script and now the player is able to draw when a brush is not selected. Next week I am going to look at fixing more of the bugs related to the brush.

After sending an email to the Start and Grow team, they guided us to register for sessions where they invited us to sign up to some virtual sessions with groups, having our first two next week.

Week commencing 07/09/2020

Description of activities

This week we set up to have bi-weekly meetings with Jamie Stewart, our placement supervisor, to help us keep track of what we are doing and what he advices that we focus on, with this first meeting being mainly about what we need to focus on for the whole placement. After the meeting Coral and I stayed on call and worked through some bugs that Matt found within the game.

While looking for some fixes for the brushes I found some commented out code that was the exact solution we needed that fixed all the remaining issues with the brush colours, now the player can change the brush's colour, shape, and size without any of the following bugs appearing:

- Not being able to draw when shape changed.
- Brush preview not changing.
- Brush only changing size and colour once the shape is changed.

We had a 2-day workshop with Start and Grow on the 9th and 10th September (Start Up Day) where we discussed how to pitch a product and then went into smaller groups with other people looking to make businesses to practice what we should focus on talking about in a pitch.

I also created an email address for the business that we can all use to contact people in relation to our games and vice versa.

Outcome of the activity

While in the call with Coral, we noticed that the issue Matt was having appeared on my version of the game and we found out that when Coral put all the scripts for buttons into one script, not all the game objects were connected, and we had to go through and reconnect each one. I feel this has brought to light how confusing this script was for having control of a lot of buttons within a scene and now we are discussing separating the street scene into smaller scenes and to break down the script to only have buttons for scene it is in.

After having the meeting with Jamie, we established what we should think about adding a storyline into the game and different types of painting modes, such as still lives and landscapes, to create a wider range of things to do within the game. He also suggested that because we are looking at using eye tracking, a technology that is used for accessibility, that we should try and contact charities that focus on people with motor related disabilities e.g., Special Effects.

During the first workshop we learnt more about what we should think about when making a product and what to mention within a 1-minute pitch to keep people interested. While we were in smaller groups, we talked to people about what we are doing and got recommended some ideas for charities that we can talk to.

Week commencing 14/09/2020

Description of activities

We attended the Entrepreneurs' Networking workshop on 16th September where we talked to more people that are currently setting up businesses (a few were in the Start Up day workshops) and try to make new connections. This week also had a few game dev conventions running and I attended the Digital Dragon convention that ran from 15th-18th September, where I attended the following talks:

16th September
- Why do we even have a marketing department? Be honest... you are not a big fan, right?
- Would a rose by any other name really smell as sweet? On trademarking your game and using trademarks of others
- Nail that pitch!

17th September
- What studio heads should be doing, but most don't?
- Gameplay programming patterns
- How to sell your game 10 years after the release date
- How to find investments for your game

- PR and marketing during pandemic. Did gaming benefit from the lockdown?

18th September
- Localization APIs: Integrate the unintegratable

I added a null check to LoadImageScript.cs in the game so that it only tries to get the file path of the PNGs if there are more than zero, otherwise there is an error message that appears.

Outcome of the activity

The gaming conventions were interesting to watch as they talked about what we should think about businesswise specific to gaming, and although the gameplay programming patterns talk could not relate much to the game we are working on, it explained some ideas on the theory behind how to create a game that makes the player feel that they were very skilled by having lots of "that was a close one" moments, as well as an idea on how weapon hierarchies can be worked on.

In the workshop, I got to talk to more people making businesses and got to add a few of them as contacts on LinkedIn.

Week commencing 21/09/2020

Description of activities

This week we attended a Business Registration workshop on 23rd September where we had to create an aspiration matrix to understand who his to be considered when it comes to the brand, with the four options being:

- Customer – Who is our target audience?
- Investor/funder – Who would potentially put money or resources to aid us making our product?
- Workers/partners – Who might work with us to reach our end goal?
- Community – Who else can be beneficial to our business?

I began work on the social media programs by setting up a twitter account that we can use to advertise our games and to keep in communication with people interested in our work.

Outcome of the activity

By looking at the aspiration matrix, it has shown me that there can be other ways people can get involved within our business that does not necessarily have to be able to create a game or run a business. We have also learnt that when registering our business, we are to choose a partnership as we share equal control of the business.

October 2020

Week commencing 28/09/2020

Description of activities

From 28th-30th September, we joined the GAconf 2020, a games convention that celebrates and announces games that use accessibility for gamers with disabilities. This event had discord server that we joined to interact with other attendees, and we introduced ourselves and our brand as well as leaving a link to our twitter that people can follow.

We joined the Business Planning workshop on 30th September where we looked at a business model of what we need to think about when making a business.

Outcome of the activity

Due to us interacting with people within the GAConf discord, we were invited to a Facebook group 'The Playability Initiative', a group that celebrate gaming for the Spinal Muscular Atrophy Community. Along with joining the Facebook group we also gained a few followers on Twitter from the event and examples of charities that encourage gaming. The event itself allowed us to see a range of ways that game studios are adding accessibility to games, but it also shows how little there actually is and is making my want to look more into this area of the gaming industry.

Going through all these Start and Grow workshops and am noticing that they are all to similar and pretty much repeating themselves each session. I am grateful that this is the final one as this one just pointed out all the points made in previous talks.

Week commencing 12/10/2020

Description of activities

I fixed an error message that appears in the gallery if there are more than zero images saved but less than ten by adding a default image. For now, we are using the game's logo until a more permanent sprite is made. I solved another bug that was creating warning codes in the Unity console while wandering what a line of code was does, I commented it out and nothing was impacted within the game, but the warnings were removed.

The first implementation of the option to change controls has been implemented which allows the player to be able change the controls between mouse and keyboard.

Outcome of the activity

A common theme I noticed the past month is that a lot of problems that has been caused is due to us not understanding someone's code, whether it is one of ours that we created months ago or an asset we are using, due to there not being any comments. Seeing this in practice makes me understand the urgency of comments that my lecturers have tried ingraining into me and now I am going to take commenting more seriously and thoroughly explain what me code is doing.

Week commencing 26/10/2020

Description of activities

We registered the business with the .GOV website as a General Partnership as that allows us to all have equal say and responsibility with all four of us being put as administrators. As we are now registered as an official business, I created a LinkedIn profile as a more professional social media compared to Twitter so we can

spread our network further and added the other teammates. We also began looking at banks to set up a business account with.

Outcome of the activity

I have learnt that setting up a business bank account is very difficult and requires lots of research before deciding as some banks only allow certain business types to sign up and others require a fee to open the account.

November

Description of activities

We had a progress update point with the university on 4th November and so we spent the week trying to create a video of the main mechanic working for our lecturers to see. During November I also helped register a bank account that can be used for finances related to Coloured Perception.

Outcome of the activity

As we worked on making a video presentation, we found lots of problems with our game appearing and had to find ways around those issues and made notes on them for future tasks to fix.

Why lack of posts

Besides what has been mentioned for November, I did they little work for the placement due to my attention shifting over to completing my Re-sit module for CT5036 Programming Low Level Architecture, a module at which I struggled with a lot and felt it was right to spend more time on the assignment.

January

Week commencing 04/01/2021

Description of activities

Over the Christmas break, I got a new monitor with 144Hz refresh rate, and when I went to test the game that the characters in the background of the street move at a faster rate, and it only impacts them.

Outcome of the activity

I like the sped-up versions of the characters and would be interested to keep them in the game as it is not game breaking, and I is a bit funny. With that in mind, it has also shown me in practical that I need to make sure to test the games I make on different hardware to find any anomalies.

Week commencing 18/01/2021

Description of activities

Begun work on the reactions mechanic, which is where the player will return to the street after finishing a portrait of someone and that character will return and react to what the player has done. I had minor attempts before now, but this was where I made actual progress. I also tidied up some code to make it easier to read by adding better comments and putting it into the university's C# coding standard.

Outcome of the activity

I was able to break down the task into smaller chunks and this week was able to have it so that the game checks what the previous scene was and returns straight to the menu when the player clicks to save the painting. To solve this, I used PlayerPrefs, a system I had heard before but not learnt how to use, so it became very beneficial learning this trick to save variables between scenes. However, I have also seen warnings on relying on PlayerPrefs too much that I will explore more into in the future.

February

Week commencing 08/02/2021

Description of activities

I worked on the reactions with a focus on having the correct character and name to appear to react by using PlayerPrefs again.

Outcome of the activity

I was able to get the correct name to appear and a basic dialogue line to appear, but I am currently having issues where the character is still being randomly generated.

Week commencing 15/02/2021

Description of activities

After quite a few attempts at using different methods, I was finally able to get the character to appear to react to the player's artwork. I know have an issue where the buttons to accept or decline being drawn still appear, however we need a new button to remove the characters' reaction dialogue and for a new character to return and I have told Coral this so that we are on the same page.

I have also began adding some generic reactions in the game that will be randomly chosen. In the future I am looking to add reactions more specific to the player's artwork, such as time it took and the equipment the player used.

Outcome of the activity

This week has shown me the difficulty of changing someone else's code that you are no longer in contact with. This is because the dialogue mechanic was created by someone who worked on it when the game was an assignment and then left without giving any clues as to how to use the code, this making it clearer to me the importance of commenting.

Week commencing 22/02/2021

Description of activities

This week was GAME-X, a week where our course has people come in to talk to us about different aspects of the industry, however I was not able to attend all the talks I wanted to as they coincided with our mid-placement meeting with our lecturers where we had to create a demo that we showed to them.

Outcome of the activity

Talking to our lecturers, they pointed out that we need to try and focus more onto getting this game finished for the end of the year instead of thinking about a second game as this game has become much larger than the original concept and it needs our attention.

Although I could not attend as many talks as I wanted to, I found the Freelancer and indie team talks very informative and has introduced me to some points that I would need to consider should I go down this career path, such as contracts and making sure I do not undercharge people for my work.

March

Week commencing 01/03/2021

Description of activities

This week I did not work much on the placement as I attended the university's Game Jam with Coral and another course mate, Elle Mooney where we were to create a game with the theme 'Limited Capacity' within 24 hours.

Outcome of the activity

Although this has little to do with the placement, I used this as an opportunity to experience my first game jam and see how well I look in small timeframes that are called sprints. With this game jam I noticed that my motivation and energy to work would fluctuate throughout the day where I would have moments where I can get lots of work done and others where nothing gets completed, at which I realised is very similar to how I work on larger projects and is something I should look at improving.

Week commencing 08/03/2021

Description of activities

I was able to create my first set of player dependent reactions where more reactions would be added if the player took less than a minute on a project ("That was quick!") and ones for when they spend more than 5 minutes ("What took so long!").

Week commencing 15/03/2021

Description of activities

More reactions were added to the different types available, and we had decided that there should be two sentences in each dialogue, an initial reaction to what the player has done and one that does into more depth.

Outcome of the activity

I found that having two separate sentences that were both randomly generated then put together allowed a simple trick to create a larger variety of sentences to appear and not become too repetitive. This is a trick that I may implement into future projects that have randomly generated dialogue.

May

Week commencing 03/05/2021

Description of activities

I have added more reactions, including having reactions dependent on the brushes the player used and how many colours are in the painting. I have also began fixing the portrait galleryboard as an error began to appear in the console.

Outcome of the activity

I furthered my understanding of Lists in Unity scripting as the solution I used for the reactions was to create a list of all the colours the player used with the variable type color (which was the most difficult part of the reactions to work out) and saved the list size as a PlayerPref to be accessed in the street scene.

Week commencing 10/05/2021

Description of activities

Since last week, a lot of bugs appeared out of nowhere while we were preparing to present our progress for our lecturers, and we had to focus our efforts on solving these issues. I was able to fix a painting error within the StillLifePaintScene and now the player can draw and save their painting.

Outcome of the activity

With the deadline coming up we tested our game more thoroughly, leading us to find all these new bugs and glitches which caused us all to stress. With that in mind I have learnt that I need to make sure I do frequent tests through the game's development so that I can find these bugs in smaller intervals instead of all at the same time nearing the end of the project.

In the meeting, we were invited back for another meeting on 25th May with pointers on what to improve and to see whether we can improve it enough to present at COMX on 3rd-4th June.

Week commencing 17/05/2021

Description of activities

This week we had to do a sprint where we tried to complete as much work as possible in a short amount of time. With this sprint I was able to separate the different image types into what they are glasses as (Portraits, still lives, free drawn etc.) and put them into separate folders. Along with that I was able to fix a bug that caused some people to not be able to view the fruit for the still life drawings from the table scene.

Outcome of the activity

With the separation of the saved paintings, I learnt how to manage files (and more specifically folders) within Unity scripting, I have previously struggled with file manipulation and feel this has helped me understand it better for future uses.

Week commencing 24/05/2021

Description of activities

We had a meeting with our lecturers where I noticed errors in relation to the work, I did within the street scene where the default character was appearing as well as the images were not loading into the galleryboard. After the meeting I worked with Matt to see what was going wrong and realised that the reason the paintings were not loading was because of a spelling name of a scene being wrong in one of my strings.

After the presentation, I worked with Coral to create a hint on how to change the brush type for the first 5 paintings as it was considered unclear how to change it without indication. I also used the same system to be able to lock the street scene until 5 still lives have been created, to implement a goal system. And finally I thought it was be a nice addition of detail to be able to view the last portrait painted on the easel in the paint scene during the reaction.

Outcome of the activity

I have the learnt the importance of not using over complicated names for files and to keep consistent so that it does not caused spelling errors.

After the meeting with the lecturers, we received an email confirming that we can attend COMX and show off our game to people and we are to create a workable demo of the game, a PowerPoint, and a gameplay trailer to show off our effort over the past year.

June

Week commencing 31/05/2021

Description of activities

COMX was this week and so I spent the early part of the week adding the paintings to the gallery in the correct rooms. Outside of coding I created a PowerPoint which had some basic details about our game included.

I also went a day early to COMX to help set up the eye tracker and test everything is working with Matt at which I realised an issue for when we built where the images were not loading into the game and had to stay after Matt left to fix the issue.

While at COMX we took in turns who would stay at our station and went around to view other projects.

Outcome of the activity

Adding the paintings to the gallery was a very fiddly job as I had to align everything perfectly so that it does not appear out of place and ruin the immersion by having a painting coming out of the wall. With this task it gave me perspective on the work designers have and the issues they have when it comes to making something look perfect.

While attending COMX, we discovered that we were put in a room with one other group and when a friend on the research placement at the university who was also staff for the event came up to visit, they told us that the room was not on the plan. This disappointed me as we put in the extra effort to get the game at a playable level only to not have any one be able to play it.

While going around COMX I got to see and play some high-quality work at which I would like to aspire to achieve, at which we talked to some of the other teams that came up to view our game. When people did come to playtest our game there was praise towards our work. While we were free, we also experimented with the build and discovered that the fast-moving background characters animation can also happen if the game's graphics quality is lowered, with it to a point that the animation becomes a distraction, so now I feel it is time to fix this glitch.