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New Media Senior Project Research Paper

**Research**

When you look at a modern game with its' hyper realistic graphics that almost look real, it's easy to forget that these games started out looking like a couple of pixels on a screen. Despite the simplistic origins and style of pixel art when it first came to be, it is still a very beloved game style that is very commonly used to this day. To break it down, the graphics of games are made up of tiny little colored dots called, pixels. Pixels make up the images that are seen on TV's, computer monitors, phones, and pretty much all other digital devices with a screen. Once upon a time game graphics were made by manipulating these pixels one at a time, which is how games were made at the very beginning of their history. Pixel art originated from technological restraints of that time, game systems had nowhere near the power and memory that they do today and because of that game developers had to compensate by working within restraints of size and even color, which is why the very first games were only in black and white (Silber). Pixel art is the building block of gaming itself, it started it all and is the reason games are at the point that they are now.

Pixel art within games started out most notably in the 1970s, starting with one of the first commercially successful games, Pong, most people have seen or at least heard of Pong. It's seen as the first video game also making it the first instance of 'pixel art', the game's graphics, if they can even be called that at the time, consisted of two

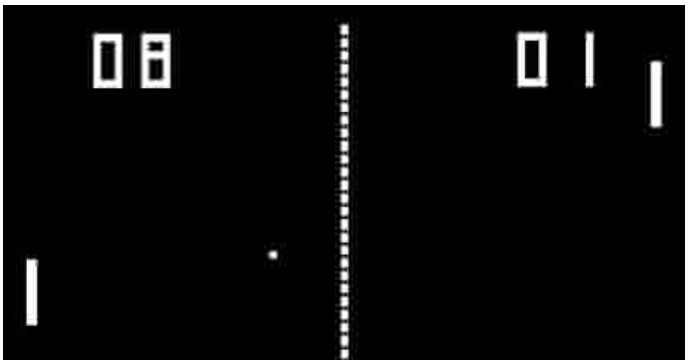


*Fig.1 A screenshot of Pong, originally released in 1972*

paddles a couple pixels long, a ball to hit back and forth, a wall in between them and the score on the top, that was it. The whole thing was in black and white, no fancy images or colors because systems couldn't handle it at the time, and this extremely simple game pioneered not just pixel art, but video gaming in general.

After that, came the 8-bit era in the 1980s. Of course technology was still very limited, but it was clear that developers were becoming much more ambitious and daring since Pong. In this journal by Fabio Zünd as well as multiple other authors, they sum up this particular era:

> The 8-bit era, dominated by the Nintendo Entertainment System (NES), included a focus on side-scrolling graphics with pivotal leaps in game design, mechanics, and story that deeply influenced nearly every game that followed. As a case in point, the original Super Mario Bros. series largely defined the platforming genre and pioneered a new level of game feel characterized by loose and fluid movement through an expansive world. These games touched the lives of a huge number of gamers and their gameplay still holds up today (Zünd).

This era brought much more powerful gaming consoles such as the Nintendo Entertainment System, the Atari, as well as others, and with these more powerful systems came the ability to make bigger, more colorful games. "The true definition of the descriptor "8-bit" refers to the processors that powered consoles like the NES and Atari 7800 and has nothing to do with the graphics of the games they ran"(Paez). This era brought upon the start of many video game

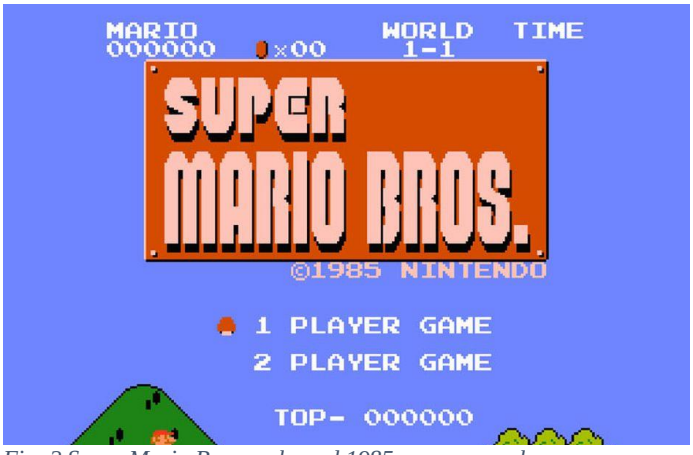


*Fig. 2 Super Mario Bros., released 1985, a very popular game released during the 8-bit era*

franchises that still live on today such as Super Mario Bros., Mega Man, The Legend of Zelda and many others.

Then we eventually move on to the 16-bit era in the late 1980s to the 90s. This brought about consoles such as the Super Nintendo Entertainment System, Sega Genesis, Neo Geo, etc. Consoles were even more powerful now. Originally video games were made with the intention of bringing arcade games home, and because of the technological restrictions of arcade games and video game consoles, the games made ended up looking very similar. Now, because of how much more powerful consoles were becoming, game developers were finally able to stray away from their arcade origins in terms of design. Games were becoming more innovative than ever, although from an actual design standpoint there wasn't as big of a jump as there was from the very beginning of games to the 8-bit era. The 16-bit era brought much more detailed characters and environments, but likely the biggest change in this era was the mix of pixel art and 3D elements creating more depth to games figuratively and literally. This era brought many new game franchises into existence such as Sonic the Hedgehog, Super Metroid, Donkey Kong, etc., while other franchises were continuing to develop and adapting the look of their new games with the times.

*Fig. 3 Sonic the Hedgehog, released 1991, a very popular game released during the 16-bit era*

After this era came the introduction of consoles such as the PlayStation and the Nintendo 64 and other powerful systems. With the introduction of these systems we finally reached a point

where game consoles were powerful enough to actually handle 3D graphics, and to be expected developers were all making the move to using 3D models and environments in their games. The use of pixel art was slowly falling from popularity, but it wasn't down for the count. Moving forward to the early 2000s to today, pixel art has made a resurgence, despite the ever evolving technology of gaming systems and the third dimension establishing dominance, many developers have made a point of bringing back pixel art into their games. It's believed that pixel art came back because of nostalgia, and also it's said that "It is the simplicity, the minimalism, the lightness of the pixels that's so alluring, as well as the way they remind us of our childhood. The two instances became inseparable, practically unable to exist without one another. Plus, pixel art games are as easy to [make] as they are to play" (Kordic). With how advanced gaming systems are, even though pixel art in essence is very simple, the games made have far surpassed the games the style originates from. Pixel games now are incredibly detailed and beautiful and some create worlds that even surpass those of their 3D counterparts. Pixel art in

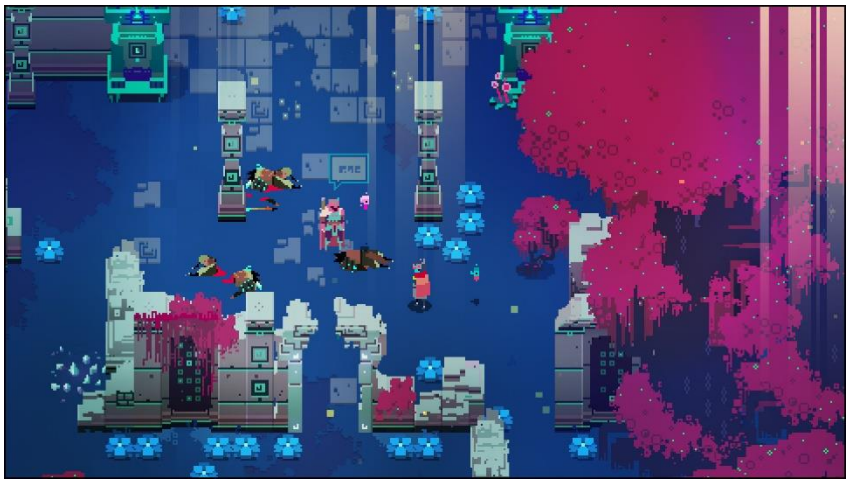


*Fig. 4 Hyper Light Drifter a pixel game released in 2016*

*Fig. 5 Eastward a pixel game released in 2021*

games have become more stylistic than ever, developers are able to really create their own style to the point where pixel art games look nothing alike each other, while in contrast in the beginning all pixel games looked the same. It's very interesting to look at the origins of pixel art and how it started because of the technological limitations of the time and now has become a staple of styles within the gaming industry.

While the use of pixels became more prominent in games again, it was also becoming more prominent in art. "Within the art world, pixel art takes many forms seen on posters, album covers, tattoos, billboards, screensavers, paintings and magazines to name a few. This unique art form is now deeply engrained in popular culture and design. Modern pixel art is now considered to be a reaction to the world of 3D graphics, turning to the nostalgic simplicity of the past" (Eijkenbroek). One popular artist within the pixel art world is actually a group of artists that together go by eBoy. This group was founded in 1997 by Kai Vermehr, Steffen Sauerteig and Svend Smital. They are often called the Godfathers of Pixel art because of their very early use and popularization of pixel art outside of video games. They once said in an interview "We started working with pixels because we loved the idea of making pictures only for the screen. It's the best way to get really sharp and clean looking results. Also, handling pixels is fun and you are forced to simplify and abstract things, which is a big advantage of this technique"

*Fig. 6 Pixel art made by the group eBoy titled City of Tokyo*

(Shane). Their works are what they call ‘Pixoramas’ which are pixelated recreations of city landscapes, they’ve done Tokyo, Berlin, London, New York, and plenty others. They’ve also worked with many well-known brands such as Adidas, Adobe, Honda, Coca-Cola, MTV, and others.

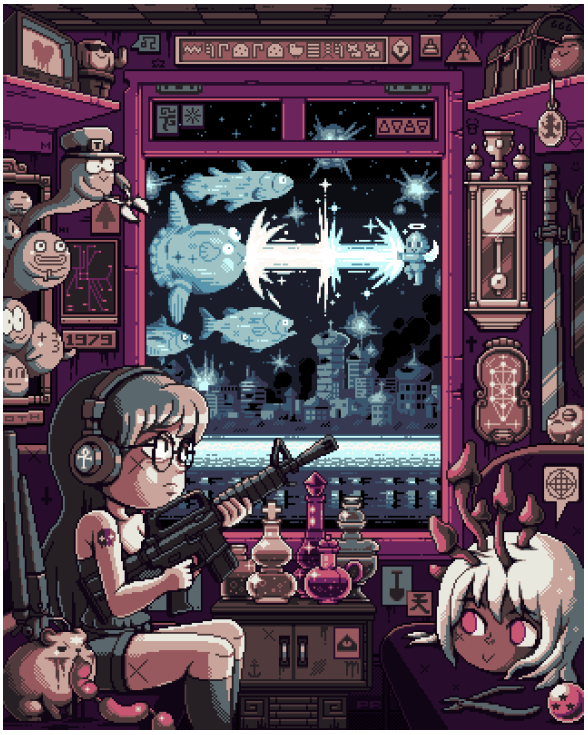


*Fig. 7 Pixel art made by Paul Robertson titled 'Luxury Train - Car 7'*

Another popular pixel artist is Paul Robertson, he’s an Australian animator well known for his pixel art. He started as an artist and animator at various different video game companies. He first gained popularity through his animated short film, Pirate Baby's Cabana Battle Street Fight 2006, it was a 12-minute-long black and white short film depicting a pixelated side-scrolling action game. He said in an interview “When I was young I always liked drawing and cartoons, and one time my friend gave me a DOS around with it, and making little films, and it grew from there. I didn't really think of it as "pixel art" at the time. It just had a low resolution and limited palette so it just turned out that way” (Webster).

Pokémon, a global phenomenon that has spanned several different mediums and amassed a worldwide cult following in just a couple decades, and it is also the inspiration behind this project. The first Pokémon game was released on February 27, 1996 on Nintendo’s Game Boy in Japan. “What no one could have possibly suspected at Nintendo was that company had done more than publish a game—it had started a small industry” (Kent). The original purpose behind


*Fig. 8 Screenshot from the original Pokémon games, Pokémon Red and Blue, 1996*

Pokémon was to create a game that allowed kids to be able to trade items with each other using Gamelink cables, a new technology Nintendo had developed at the time. It was believed that the game would not have much appeal and so only 200,000 copies were shipped out when it was first released, but its popularity grew very quickly and soon several stores were ordering more and more copies. In an effort to benefit off of this newfound success, one of the teams within Pokémon worked with an animation studio to get a Pokémon anime made for TV and it was pretty much an instant success, and the rest is history. Pokémon is one of the many game series that started out in the 8-bit and 16-bit era adapting a pixel look to their games, and for a while even after other developers and series moved on to using 3D models the Pokémon series stuck around a while longer as their art style had become iconic and created a nostalgic feel for people who picked up the newer game years later after playing the originals. Although eventually Pokémon started to develop with the times in an attempt to continue to feel fresh and new they started using 3D models and environments, allowing people to watch as the games they grew up with grow with them. The series became a franchise spanning several games, several films,


*Fig. 9 Screenshot of a much more recent Pokémon game, Pokémon Sword and Shield, 2019*

animated and live action, trading cards, toys, clothing, music, even a short lived theme park. Pokémon soon became a billion-dollar industry and is estimated to be the highest-grossing media franchise of all time (Kent).

Pokémon was truly a phenomenon, the idea of a child's spanning to such lengths is something that no one could've foresaw when it was first gaining traction and notoriety after its first release. In a journal article by Anne Allison she stated:

> While opinions vary on what accounts for Pokémon's success, many attribute it to its media-mix configuration, a brilliant marketing campaign, and also the play concept itself. Joining all this is the assessment that Pokémon is highly diverse, malleable, and open-ended (Allison).

This franchise has left a lasting impact on today's pop culture, various individual Pokémon themselves have become pop culture icons, appearing in large scale parades, having full planes themed after them, appearing on covers of magazine, and much more.

The thing that really connects these topics, down to their roots, is game development. The connecting factor that makes all of this possible. Game development is a process all video games must go through undertaken by developers, whether it's a single individual or a large team of people. The process as well as the cost varies greatly on whether it is a commercial game or an indie game. Indie games have become much more popular recently because of the rise of more accessible game development software like Unity and Unreal Engine. The first games that were developed were in the 1960s, but they were never commercialized because the only computers they could run on weren't available to the public. Then we get to the first commercially available games in the 1970s, all of which was mentioned earlier on.

What it really means for a game has also drastically changed over time. As technology advanced, the expectations for bigger, better, more advanced games has as well. At the beginning people could be entertained for hours on end by a dot on a screen banging back and forth against pixelated lines, and while today that may still be true for some, games have reached such points that developers are going out of their way to create their own separate worlds within their games. They build entire societies from the ground up. The sophistication and creativity in games is often overlooked, often seen as childish, immature and things of that nature. In a book titled, The Art of Game Design: A Book of Lenses, written by Jesse Schell he stated:

> Some hold the position that education is serious, but games are not; therefore games have no place in education. But an examination of our educational system shows that it is a game! Students (players) are given a series of assignments (goals) that must be handed in (accomplished) by certain due dates (time limits). They receive grades (scores) as feedback repeatedly as assignments (challenges) get harder and harder, until the end of the course when they are faced with a final exam (boss monster), which they can only pass (defeat) if they have mastered all the skills in the course (game). Students (players) who perform particularly well are listed on the honor roll (leader board). (Schell)

Unless it's not completely clear, games, just like art, are made as a reflection of real life. They are an extremely expansive form of art that takes their player to different worlds, into the shoes of real and fictional people alike, to experience journeys that they could never experience in real life. It's a process that can very often take years to fully complete and it should receive the respect it rightfully deserves.

## Experience

My project is titled ‘Unruly and Unremarkable’. To give a short summary of the project itself, my project label from my exhibition display says “This is a recreation of the home I’ve lived in for the past 20 years in pixel form. It’s a video game in name alone, there is no objective, there is no goal. Walk in my shoes through my home and take a peek into the most personal place in my life. This is Unruly and Unremarkable.” For the title of this project I wanted it to reflect my feelings when it comes to the actual subject matter of my work, while also titling it more how I would a memoir versus an actual video game. ‘Unruly’ is partly referring to the messy and sometimes disorderly state my house can be in, specifically more often than not me and my brother’s rooms, it also refers to the lack of structure within the game itself, I’ll get more into that later. ‘Unremarkable’ in a way refers to the same things, I decided to create this whole game recreation of my home, but in retrospect there’s nothing really ‘special’ about my house, and when it comes to the game itself it doesn’t have the typical excitement or replayability that a regular game might have. When I was originally trying to come up with a title I thought I would give it a very generic video game name in order to pay homage to the retro games my choice of art style originates from. I was thinking of adding in things like, ‘The Legend of…’, ‘The Adventures of…’, ‘The Chronicles of…’, etc. Eventually I came to the realization that while what I’m creating technically is a game, I didn’t really want it to be seen in that way, what I was making wasn’t a ‘generic’ game and shouldn’t be titled as such. I was creating a short memoir in the form of a video game telling the ‘story’ of my house through my eyes.

When I was first coming up with an idea for my senior project the only thing that I knew for sure was that I wanted to create a game. This was at a point when I had been taking more object-oriented programming courses for the first time ever allowing me to experience a level of


*Fig. 10 The title screen from my first game, made in Processing, titled Jumpman*

creativity with programming that I personally never experienced before and I quickly fell in love with it. I made my first game in Processing using Java, it was a very simple running and jumping game, called Jumpman, where I took the Jumpman logo and had pillars coming towards it and you click space to jump over them. It wasn't anything special and it wasn't even all that polished, but I made it with my own two hands and that's what attracted me. During my project brainstorming I only came up with


*Fig. 11 The simple run and jump gameplay of my first game, Jumpman*

generic game ideas, in the sense that I was only thinking about creating a normal action or platformer game completely disconnected from myself. I wasn't able to find something that would personally connect me to the project. Obviously the personal connection wasn't a requirement, but knowing that this is something I would be working on for over a year I wanted to truly feel personally connected to it. It wasn't until spring semester my junior year that I figured out exactly what I wanted to do. It was during a course called 'Drawing, Moving, Seeing Code' and my professor, Lee Tusman, was showing the class a project that he had done in the past, he recreated the home he once lived in using hand drawings and pieced it all together in Unity creating this 3D simulation of his old house. It was at this point that I realized the most personal thing that I could create, or recreate in this case, is the house I've spent almost all my life in. The art style was decided on long before I

even knew what the subject would be. Back when I was growing up, my favorite video game series was Pokémon back on the Gameboy and DS and I played plenty of other pixel art style games, so I wanted to pay homage to that style. I loved pixel art when I was a kid and even today I love it and have gained an additional level of respect for it as an artist myself.

My plan for creating this project was to draw all the pixel art rooms and the player, myself, in Photoshop and bring it all together and make the game itself in Unity. Before I had started anything, I had already run into my first set of problems, I had never done anything in pixel art style and I've never worked in Unity, so from the very beginning I had a very uphill battle to face. This wasn't intimidating to me though, I'm used to giving myself unnecessary challenges, and part of the purpose of this project, for me at least, was to try something completely new and break out of my comfort zone. I was very confident that I would be able to learn these things as I went on. Before I could even touch Unity, I had to first complete all the assets, but even before that I had to do "research". Even though I know what my house looks like, I needed a lot of reference if I was going to recreate it. I knew I need to take a lot of pictures, but before that I decided to create a blueprint of the two floors of my house along with measurements. I went through my whole house and drew out the floor plan of every room and then went back through with a tape measure and measured one direction of pretty much everything I intended on bringing into the game. I decided to measure only one direction


*Fig. 12 The blueprint I drew up of the first floor of my home*

because the particular pixel style I was going with was top down which meant the proportions only really mattered in one direction, the proportions going the other direction are much more flexible. In hindsight I think not measuring both directions was a mistake, it obviously would've been a lot more work, but it would have been much more beneficial in the long run. While what I was saying was true, the proportions for one direction are much more important while the other direction is more flexible, that only really applies when you're working on one room, when applying this to multiple rooms, the rooms aren't proportional to each other. Unfortunately, I realized this too long after drawing up the actual rooms so it was much too late to redo all the rooms. The drawings of all the floor plans are all very rough and messy, but it wasn't meant to be clean it was just meant to be decipherable. I created these blueprint so I could know the sizes of the rooms and the sizes of the most important things in those rooms, I also wanted to know about the positioning of all the items in the rooms. After I got through all the drafting and measuring I moved onto the taking pictures part of the process. I probably took at least a dozen photos of every room, from pretty much every angle. I was living on campus at the time so it wasn't easy to go back and forth so I had to make sure when I was home I got everything I needed.


*Fig. 13 The blueprint I drew up for the second floor of my house*

After all this I was finally ready to start actually working on the art. I decided to watch some videos on YouTube to help me know where I should get started. At this point I didn't even

know how to size the canvas. I had plenty of experience digital drawing in general so that in itself wasn't the issue. The change in size was honestly the only big change that I had to adjust for. Usually when drawing images the point is to create a really large canvas so the picture is as clear as possible when exporting. The size of the canvas I use is usually around 2000 or even 3000 pixels large, but while working on this pixel art the sizes I worked on were 300 x 300 pixels for the rooms and 75 x 75 pixels for the player. What I started on first was the player because I just assumed that would be easiest. I drew my character standing facing all four

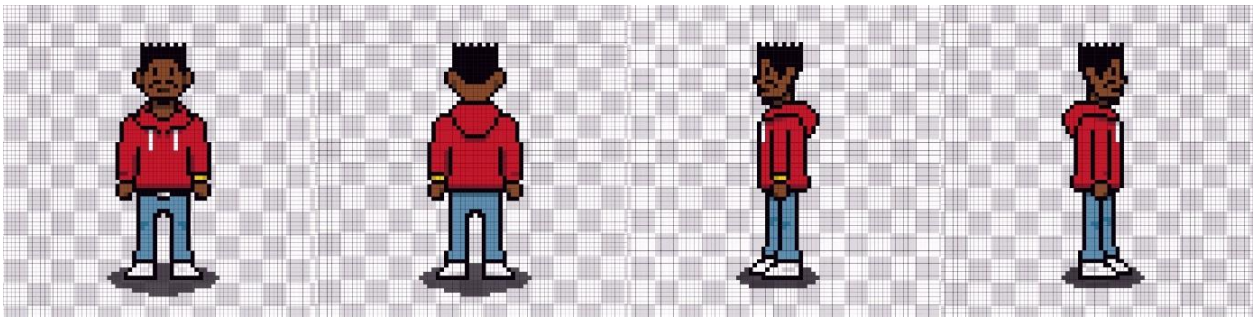


*Fig. 14 The finished product of the four directions of my player*

directions for future animation purposes, I knew I would have to get to actually drawing the frames for the walking animation for each direction, but I decided to only do the standing pose for the time being and come back to them after I finished all the rooms in my house. I was extremely proud of how they all turned out in the end, for my first real attempts at pixel art I definitely think it was a success. After finishing the player art I moved on to the rooms. I decided to start off with my own room, for no particular reason honestly, just because it's my room. I hadn't completely figured out how exactly I wanted to format things. Pixel art in itself is a pretty broad term that allows for many different ways for me to achieve a top-down perspective. I did multiple drafts from different angles of my bedroom trying to figure out which would work best. In a top-down perspective only one wall at most could be visible which was also important to consider since I wanted the rooms to all face the same direction. I finally ended up with an angle

and perspective I was satisfied with for the rooms and I got working on the final designs. For the player I worked with a scale of 75 x 75 pixels so I adjusted the canvas size so the player size would be proportional to the room without having to scale it up, the canvas for the rooms ended up as 300 x 300 pixels as I mentioned earlier. I used reference from multiple other pixel games and art in order to help me figure out how the perspective should work for the room in general as well as for certain objects that I couldn't figure out on my own. I went through all the rooms doing the outlines first with intention of going back around and adding color after all of the rooms are done. There were multiple rooms in the house that I decided not to include for different reasons. One of those rooms was my Mom's office, which can be accessed through my room, I decided against including that room because of the strange shape of the room along with the strange positioning of the furniture. The room is strangely shaped because it was originally part of the second floor living room, but was split up with the majority of the space making up my current room, with the rest turning into my Mom's office. Other rooms that I decided against including were any of the bathroom, there were actually multiple reasons for not including these, for starters it was partly due to time, the bathrooms were the lowest priority for me so when time came to do them I decided against it as the rooms in general were already taking up too much time. The other reason had to do with 'immersion' I suppose, I was creating this game as a look through my own eyes, while anyone can control the main character, the main character is still

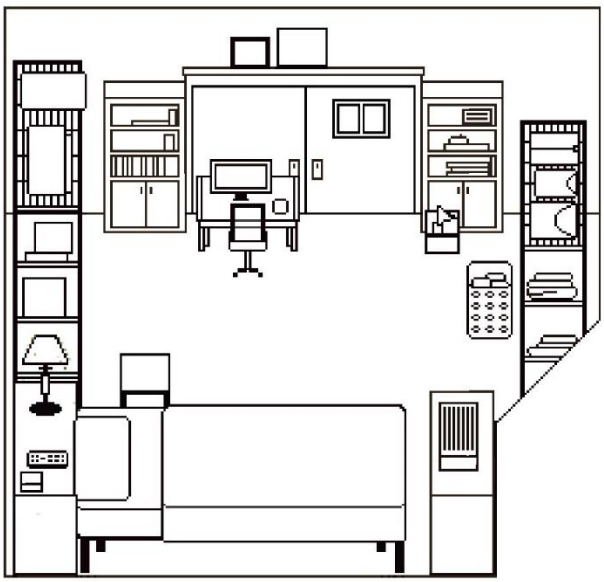


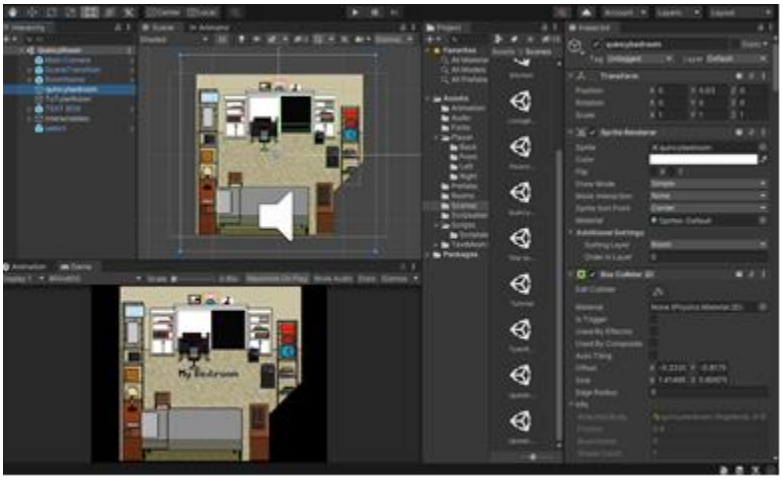
*Fig. 15 The finished outlines for my bedroom art*

meant to be me, which means not allowing anything I wouldn't do or would have no reason to do, but I'll get more into that later. After doing all the outlines of the rooms I moved on to coloring all the rooms. For coloring the rooms my aim was just to match the colors of the rooms to their actual counterparts. I added very minimal shading as I wasn't too sure of my shading in pixel art quite yet and I didn't want to potentially ruin the rooms with bad shading. The rooms ended up taking a lot longer than I was expecting, at this point I was getting nervous about the amount of time I would have to invest into learning and working in Unity. After I finished all the rooms I had to go back and do all the walking animation frames for all four directions of my character. I had never done walking animations before so I had to take several references from

*Fig. 16 The finished frames of the walking animation for my player (right side)*

online to help me out. Since my canvas was so small there were a lot of small details that were hard for me to adjust to. A lot of small leg movements at certain directions or trying to change the size of things for perspective just didn't look right as I was doing them and I had to make a lot of adjustments and compromises in order to get the animation to look smooth all together. These animation frames ended up taking a lot longer than I was expecting them too, but I was very satisfied with how they turned out in the end, I think the final additions of adding shadows to the further leg in all the directions really tied it all together and added an extra level of smoothness. After the animation frames were done all the art was officially done. It was now time to start moving on to Unity, it was at this point I had already been watching very general tutorials on Unity, specifically Unity 2D since that is what I intended to use. From watching videos and tutorials I learned that Unity is a lot more intuitive than I was expecting, which gave

me a lot more confidence despite the ever approaching deadline. The first decision that I had to make was whether I wanted to combing all the images together into one big map in one scene and have the camera move to another part of the map when moving through rooms, or have all the rooms have their own separate scenes that must be worked on individually. I decided to choose the latter method as I believed that it wouldn't be easier, but rather would run smoother and allow for more customization between the scenes. I then added the player to each scene and made it into a prefab so any changes would apply to every instance of the player, I end up changing the player from repeating to only exist once, but that comes much later. I had to start out by animating the player. This process was pretty simple as Unity has a system set for animating objects, it just involves placing all the images into the animation timeline and create a separate animation for each direction all under the same main player object. The difficulty started to come when attaching each direction of the animation to a key direction and actually moving the player. This involved some actual coding, Unity uses the programming language C#, which I do not know, fortunately C# is relatively similar to Java in terms of the fundamentals allowing me to at least easily understand any script that I had to decipher to help me learn what to do. I had to heavily rely on tutorials for anything that has to do with actual coding within Unity. After finishing all the movement I moved on to working within the rooms adding collision to all the objects in the room so the player isn't able to walk through objects or outside the boundaries of the room. This is a process that I'm used to being extremely tedious and complicated in something like Processing for example, it has to do with using formulas for every shape that's colliding for every side and angle that's colliding, but in Unity this is a process that's as easy as adding a 2D box collider component and just dragging it over whatever object needs collision detection, it's honestly a breath of fresh air. I moved on to transitioning between



*17 A screenshot of my project in Unity*

rooms, that in itself was very easy to do, but I wanted to add a fade to black transition when moving between rooms. This is something else that required me to use the animation timeline. There were many small adjustment and additions that I wanted in order to give this a more 'game'-like feel and to make the whole thing feel more polished. I added little titles for each room that popped up when you walked in the room and faded away after a short period, I added footsteps to the player animations, and I added music to the background. At this point the game was starting to look really polished, it was time to start adding in possibly one of the most important parts of this game, the text boxes. The process for doing this was actually somewhat similar to the collision except rather than having the box collider be solid it is a trigger where something happens when you walk within its radius, in this case it made an explanation mark pop up over my characters head signaling there was something to interact with. At this point I was filling in all the text boxes of all the intractable objects, which is just a matter of just viewing these items through my own eyes and giving my own perspective on them. At this point


*Fig. 18 The finished title screen for my game, Unruly and Unremarkable*

the game was more or less complete, now it was a matter of adding the title screen and the 'tutorial' screen. For the title screen I had a zoomed in image of the art for my bedroom as a placeholder for a while, then eventually I came to the realization that I really liked how the background of my room looked in the title screen, but I thought it needed it to look more polished than just using in-game art. I decided to redraw my bedroom wall and use that in the title screen. I then just put a looping player on the title screen, just to add some more movement.

I remember in the beginning stages of my project, I would explain my project to people, I'd tell them it's a recreation of my home, you walk around my home and can read about the stuff in my house. I'd often hear in response "and what else?" expecting more. Then I'd tell them, that's it, then I'd often hear "Well that's not a game." I would hear that enough that it really made me contemplate, 'What does it mean to be a game?' I got to a point where I was thinking about changing the description of my project from a 'video game' to 'video game-like' or 'memoir with game elements' or something like that, I don't know, keep in mind this was all still during the brainstorming and nothing had actually been made at this point, so any changes I was thinking about were purely in my head while I was processing everything still. Eventually I came to the realization that I wasn't creating a video game based off the definitions, I was creating something that went against the regular definitions of what it means to be a video game. As I mentioned on my project label, "It's a video game in name alone", I think in the end that became the best description for my game. My entire purpose when making this game was to create something entirely through my own perspective, it was an extremely simple, even boring idea. I wasn't creating something for the purpose of entertaining, there was no goal or objective that someone playing would be able to achieve. In the end I wasn't even creating this with other people in mind, this was created for myself and the people who live in my house with me who

would be able to truly appreciate the similarities. Not to say I believe other people shouldn't be allowed to play it, just that they weren't a priority when creating this. In the end what I created was a tribute to the home I grew up in, in an art style I grew up playing, there just happened to also be elements that could be construed as video game like. Often when explaining this project I would call it sort of like a memoir in the form of a video game and I believe that was a pretty accurate description. I could see additional parts focusing on different aspects of my life all coming together to create the story of my life.

Speaking of seeing more I definitely do intend to work further on this in the future. I enjoyed working on this so much that I want to go back to working on it and make it even better. This became like a passion project to me over the past year that I've been working on it. To start off I would completely redo all the art and improve on it, while working on the rooms my pixel art capabilities improved constantly, but I wasn't really able to show it off because I need to rooms to match aesthetically. I might want to experiment using a completely different pixel art style, maybe a lineless one, during my search for references I noticed that style can look extremely beautiful if pulled off well. One of the features that I wanted to include, but wasn't able to because of time restraints was cleaning up the blueprints I made and including them as maps in the game that would pop up when you press a certain button. I would want to add in sprint animations for the player character. I would also want to add in a clothes change option that would appear in my room allowing for the player to pick from different outfits. Some other small things I would want to add are changing the footstep sounds depending on what is being walked on, hardwood, carpet, stairs, etc. Adding in my family members as NPCs that can be interacted with. There are also plenty of bug fixes and small adjustments that I could add. Being able to work on this project inspired me in ways that I couldn't have imagined. I'm still not

completely certain of what I want to do in the future, but this project has definitely helped lead me towards a certain path, now I just have to figure out what that path is.

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