Project Descriptions

1. MoA

A rogue-lite first-person looter shooter originally designed and developed by a team of 4-5 developers for the Game Design and Development module for 5 months. Development continued after by myself for my final year project.\n

The game is best described as an FPS game with movement and shooting mechanics inspired by other fast pace shooters like DOOM Eternal, Apex Legends and Destiny 2. Mashed with guns that are randomly pieced and generated similar to the Borderlands series. Sprinkled with some rogue-lite elements inspired by Hades.

Include screenshots from first proto, last white proto, first redesign, submission and now

1. Di-jumper

A first-person horror-stealth game designed and developed for the submission for the Programming for 3D module. The game involves the player repairing a jukebox while traversing between different dimensions and iterations of a house and avoiding a spooky monster. The game is greatly inspired by Dishonored 2’s “Crack in the Slab” mission, from its gameplay design down to its technical implementation.

Sadly, the current build is plagued by a horrible mouse bug :(

1. MD VR

A prototype summer project experimenting with Unity’s XR interaction toolkit to build a VR fps game. Its idea was to have the player defend himself against waves of enemies on the ground and in the air. Unfortunately, the project was put on hold, as I had to work on another project, Two Sides One Choice.

1. Potetows

A first-person puzzle adventure game with a sense of humour, developed in a team of 3 developers and an artist. Inspired by games like Henry Stickman, the game involves the player picking up items and using them in the environment to escape. There are 5 different endings in the game and more than 10 unique deaths.

1. Two sides

A decision-based life simulator story game developed in a team of 3 developers and an artist. Inspired by games like Reigns and Bitlife, where the player has 3 main stats Health, Bux and Mood, they would go through different stages of life and be given different situations with 2 options which impacts the 3 stats. The goal is to survive as long as possible without any of the stats reaching 0. The player can also flip a coin instead and let the game randomly decide your fate.

1. Clue

A digital recreation of the board game Clue! for the submission for the Software Engineering module. It was developed by a team of 4 developers. Though it does not support multiplayer, it does have the option to enable smart AI players.

1. Lux

A top-down isometric puzzle game where you go around collecting and guiding lost souls while avoiding hostile creatures. It was developed as a team of 4 developers.

1. Indijones Ana's Bizarre Adventure

A 3D third-person adventure game was developed for the Game Design and Development module. It is the first time I’ve worked as a group of 4 developers. The controls are a bit janky and the game is questionably buggy, but it was a really enjoyable experience in developing a game in a bigger group.

1. Loot Retrieval Squad

A turn-based RPG game inspired by D&D’s combat system. The game was developed by an artist. It involves you controlling a party of adventurers tasked to retrieve loot while defending themselves against hostile combatants. The game also has randomly generated enemy placements and mission objectives… And also a secret mission gets triggered when the Konami code gets entered in the mission select screen.

1. Game Rewind 2020

A 2D topdown shooter with the theme of paying homage to games released in 2020 with characters from different game series. The speciality of this game is that all actions you have performed would be recorded and replayed when the player rewinds to restart the level each time.

1. I Can't Drive This Thing!

A 2D top-down driving rage game developed with another developer, where the controls change whenever the player drives through a checkpoint. This game taught me a lot about game balancing and design, especially the balance between being fun and chaotic against being frustrating

1. Scavenge Repair Survive

My first Unity game developed during my first game jam and the first time working with another developer. It is a very simple first-person shooter game where the player can shoot an SMG or a shotgun at enemy robots.

MoA

A rogue-lite first-person looter shooter originally designed and developed as a team of 4-5 developers for the Game Design and Development module and is now development is being continued by me as my final year project.

The game is best described as an FPS game with movement and shooting mechanics inspired by other fast pace shooters like DOOM Eternal, Apex Legends and Destiny 2. Mashed with guns that are randomly pieced and generated similar to the Borderlands series. Sprinkled with some rogue-lite elements inspired by Hades.

Progress

Prototyping

Development started in early January 2021 as a team of 4-5 developers. The initial concept of the game is having an fps shooter where guns are randomly pieced together similar to borderlands. I started prototyping getting the generation of the weapon to piece random parts of gun models together to generate Frankenstein guns, where stats and handling of the weapons are based on the pieced components.

Soon my teammates managed to get the enemies and room generation to work and we piece all of them together and started testing all the major systems and design concepts. Through testing, we have found major flaws to our design, ranging from the levels being way too small and cramped to visually the fantasy art style isn’t working with the game.

Version 1.0

After more playtesting and tweaking, the team decided to perform major overhauls to the game, especially the visuals and level design. I was in charge of the visuals, creating new shaders, materials and texture for the game to tune it to be more sci-fi style, as well as handling multiple new game systems like the gunplay, VFX, shop/ unlocks, tutorial level and many more.

We submitted our Version 1.0 build as our Game Design and Development Coursework and have achieved a score of 87%.

The game was successful and everyone that tried the game enjoyed it, but we did cut off quite a lot of systems and features like skill trees to make it in time.

Version 2.0 (Working in Progress)

With having spent so much effort on this project, I have decided to continue it as a solo developer as my final year project, to improve the game and for it to be at a releasable state. So far the focus of the improvements includes but is not limited to:

* Player Kit Overhaul

Essentially adding crouching and sliding, wall sticking and bouncing and player melee ability on top of its existing kit which only includes dashing and double jumping. The reason for this change is to give the player more control and freedom to their movements and combat ability. Another reason is that from past playtesting, players expressed a desire to instinctively melee when they are close to enemies.

* Weapon animation rework

With guns and weapons to be the star of the game, the focus is to make the weapons feel more satisfying to shoot and handle. This includes adding in floating hands to show the player is holding and operating the gun and improving the reload animations for them. The reason it was not in the game originally, is because with weapons being randomly generated, the position of the hand differs for each weapon and there wasn’t enough time and resources to invest in a dynamic hand animation controller until now. There were also playtesters’ feedbacks mentioning it feels weird operating a floating gun with no hands.

* Weapon Perks

Over time, each unique gun slowly feels the same. Each gun may visually be unique, but they all just shoot and do damage, just at different speeds and recoil. Hence with the introduction of weapon perks, it can make the weapons feel more unique and greater difference between a common weapon with no perks and an exotic weapon with 3+ perks. This also gives the player more incentive to keep playing the game to reach the later levels to get more unique, powerful weapons and a chance to get the dopamine hit when they get the GOD ROLL

* Enemy AI and Level Complete Overhaul

“To make things to shoot at more fun to shoot at” is the goal. As for how to achieve this goal, the AI will need to be reactive to the player and be more strategical than just moving around the map randomly. For example, the AI will try and maintain a distance from the player, take cover and attack behind cover so they can be harder to be killed. Another goal for this overhaul is to refactor the old AI code from using nested if statements of “if the player is less than X units away, shoot gun. Else, move to random position”, to implement a Finite State Machine behaviour to specify what state it is in, idle, moving, attack, etc.

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The codebase is just pure SPAGHETTI, there is no way around it. My team and I were very inexperienced in developing a game and structuring code in Unity, but times have changed, and I have made 4+ more game/ projects since the start of the development of MoA and have become more experienced with Unity and C#. This involves refactoring the camera, weapon handling, damage texts and many more.

Potetow

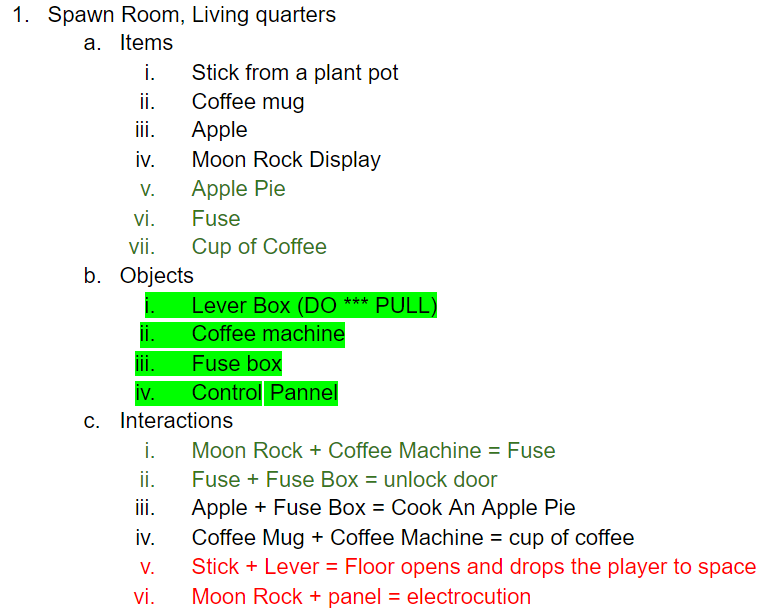
A first-person puzzle adventure game with a sense of humour, developed by a team of 3 developers and an artist. Inspired by games like Henry Stickman, the game involves the player picking up items and using them in the environment to escape. There are 5 different endings in the game and more than 10 unique deaths.

This game was developed for Game Job Live’s Summer Parade Summer 2021 with the theme of “one time use” and a time limit of 1 week (plus one week of polishing). It was nominated and won the awards for Best 3D Art.

Gameplay and Level designs

A large focus is put into the game’s philosophy of “each item can only be used once”, “items must have at least 2 interactions” and “interactions must make some sense”. With those points, we design the interactions for each level with a specific workflow starting from:

1. What room will the player be in?
2. What possible items will the player have in their inventory at this point?
3. What items (pickups and interactable) will be in this type of room?
4. What is the flow of the solution to escape this room?
5. What kind of interactions can they perform with ONLY the items in this room?
6. What would those interactions lead to? (creation of a new item? Advancing to the next level? Leading to a death scene?)
7. Which sets of interactions would lead to escaping this room? (So that they won’t be soft locked from missing items from past rooms)
8. What items from pass rooms can be used for the current interactions we have?



Living Quarters

This is the first room of the game, so our focus is to keep it simple and introduce the mechanics of picking up and using objects in the game, the narrative objective via some environmental storytelling through the system board and the wackiness of the game, ranging from pulling a lever and getting ejected to turning an apple into an apple pie with the broken fuse box.

Locker Room

This room focus on introducing the player to more items and wackiness essentially. It also shows the player that the game will troll kill the player with the falling locker. This interaction also introduces the concept of using heavy items to break glass, which will be important in the next level. The level also has an easter egg to Star Wars’ trash compactor room.

Plant Room

The focus of this room is to present an interaction/ solution to the player to avoid the toxic, by having a gas mask protected by a glass box with a crowbar beside it, just to trap and troll kill the player with the falling potato, a reference to Indiana Jones. The player can move away from the potato while it falls to avoid death.

Another focus for this room is having TWO possible solutions instead of just one, giving the player more freedom and interactions based on what they wanted to do, and also what items they have collected from past rooms. This room does break the philosophy of “each item can only be used once”, as the player can pick up the blowtorch and/ or fertiliser again after using it to burn or grow the plants.

Kitchen

Due to time constraints, this room changed from being the penultimate room to the final room with 5 possible endings. 4 out of 5 of the endings will require items from previous rooms and one of the endings will only require items from this room but it is the most boring and unsatisfying ending. This encourages the player to replay the game to try and find the other endings.

Ending 1:

The most common ending players will get when they play through it the first time. This ending is a massive reference to the Souls game and requires the player to destroy the oven and place the knife in the ashes to create a bonfire. The player can then take the sword to then “battle” with the evil robot boss. If the player interacts with the front of the boss, the boss will “parry” and counter-attack. The player will need to walk behind the boss and backstab it.

Ending 2:

This is the more serious ending that has more behind the scenes narrative to it. Where the story is about crewmates being turned into food from past experiments, and your goal is to bury them or give them a new body. The ending requires the player to find the bury the body from the trash can and also replace the robot head with the potato that was once a crewmate. The potato robot is a reference to Portal 2.

Fun Fact: the player's body and head both use a potato model, which gives the head rolling to have a more unpredictable and satisfying movement.

Ending 3:

This is a joke ending that requires the player to find all the food in the game, cook them, and bring them to the dining table. Narratively does not make sense considering the player was asked to escape the ship from a gas leak, but then decided to start for a grand tasty meal.

Ending 4:

This is the most unsatisfying ending which is blowing up the spaceship by heading up the robot’s head. This is the “last resort” ending, where the player lacks any items from past rooms to complete any other endings.

Ending 5:

This is the secret final ending where the player requires the stick from the start of the game and “break” the final level by jumping out the window to then land on an invisible floor to then interact with the chicken. This golden stick is a reference to South Park: The Stick of Truth, while the chicken is an inside joke where it is the first 3D model our team (PR0JEC7) used in our first project together.

Two Sides

A decision-based life simulator story game developed by a team of 3 developers and an artist. Inspired by games like Reigns and Bitlife, where the player has 3 main stats Health, Bux and Mood, they would go through different stages of life and be given different situations with 2 options which impacts the 3 stats. The goal is to survive as long as possible without any of the stats reaching 0. The player can also flip a coin instead and let the game randomly decide his fate.

The game has multiple endings and has around 100+ unique cards and 15+ endings for the player to discover. Based on the player’s actions throughout the game, they may gain or lose status effects which will determine what ending they get at the end.

This game was originally developed in 3 days for the BenBonk Jam #3 with the theme of “two sides”. The jam game ended up ranking 5th out of 133 entries and performed well so we decided to continue development over the summer. We had plans to release this to be a paid game on steam but didn’t due to complications with starting a company and taxes. The full version is on itch.io for free now.

Progress

Jam time

A devlog was made to capture and explained what happened during the development of the jam.

A key design decision that was missed out in the log was that the heads and tails buttons were originally testing tools and planned to have limited uses during gameplay. Though, throughout development and playtesting, we decided to change the coin flip from being the main mechanic to an optional mechanic and the buttons to be the main option for the player to interact with. The reason for that was that the coin flips were too inconsistent, random and lacked control by the player which may lead to unsatisfying game overs. Comparision to being given the choice to pick, it retains the control of the player to which decision they decided, but with the results being hidden, the player will have to deduce how would each option affects them. The change to the coin being optional also spices the gameplay up, as this allows the player to essentially let the game decide if they don’t feel like deducing and more often be surprised by the outcome.

Post jam

With the results of the jam being that well, we decided to continue development for the next 2 months. We added better card creation and editing by keeping the card data in a CSV format and turning that into game data. Added features like achievements and endings tracking, status effect providing passive buffs and debuffs to stats. We also increase the number of cards and possible endings drastically and also introduce little story sequences now and then during gameplay.

Mechanic Defence

This is a stationary VR shooter prototype that I worked on over the summer of 2021. It is my first time using Unity’s XR interaction toolkit and was developed with the Valve index controllers in mind. It involves the player shooting at enemies with multiple different guns.

I have made a devlog to record the first few weeks of development, but unfortunately, this project has been put on hold as I decided to focus on Two Sides.

Break down

Weapons

A lot of emphasis was put on the weapon reload to make them satisfying, as it allows the player to interact and operate with it, which plays towards the strength of VR.

Pistol

The first weapon in the game is a very straightforward semi-auto weapon. Pulling out and replacing the blue battery to reload. The colour of the battery indicates the energy/ ammo left in it. The player will need to cock the weapon by pulling the back if they are reloading from empty.

Minigun/ Grenade launcher

The weapon operates by controlling a mechanical arm, the arm moves using unity’s IK system. Use the controller to move and point the weapon around. The weapon will be in minigun mode when holding the controller vertically, it shots projectile full auto at a high rate. Holding the controller horizontally transforms the weapon into a grenade launcher that shoots slow travelling bouncing grenades that do slash damage in an area. The grenade explodes after a set time, bounce or on direct impact at an enemy.

SMG

A small fully auto weapon that shoots at a high rate but with a high bullet spread. This weapon’s looks are inspired by Halo’s Needler and Destiny’s Vex Mythoclast (totally wasn’t because I can get it to drop in-game). Its speciality is that it can be partially loaded and still shoot with at least one battery loaded, 3 batteries maximum. It also has a very satisfying reload with the empty batteries automatically getting ejected and popping out.

Shotgun/ Crossbow

This is the last weapon added in the game. It is a shotgun that is inspired by clay shooting shotguns, its speciality is that it can turn into a crossbow with a press of a button. In shotgun form, it shots a spread of projectiles and can be reloaded by dragging the barrel downwards and letting the player swap the batteries out. Empty batteries will be automatically ejected as well. In crossbow form, it can lock on to the target the player is pointed at and shots an arrow that tracks to the target, as indicated by the line. The broken crystals around the gun show that it is in crossbow mode, and each piece is a physics object and can interact with the environment.

Enemies

Ground Troops

They were meant to move… but they stay still cause I just want something to shoot at.

Air troop

Essentially, they fly around and be annoying. They are weak but fast and hard to hit. The best weapon to deal with them is the shotgun or crossbow.