1 Summary

1.1 Genre

The game will be a combined:

- First Person
- Puzzle
- Platformer

1.2 Synopsis

The aim of this project is to allow a player to experience a unique take on a first person puzzle game by making it movement based and involving first person shooter elements. Each level will begin with a timer counting down till a player's gun fires (present on the player's wristwatch), and the puzzle/platformer element will come in the form of level design, where a player will either have to find the route to their target blocked by either terrain, obstacles i.e. locked doors, or have the target be too far away to reach without performing certain actions. To win a level, the player will simply have to aim their gun somewhere that will result in the death of their "target", which will be assigned to them at the start of each level. Players will gain access to new abilities and boosts over the course of the game, which will assist them in level traversal.

1.3 Target Audience

The game is aiming for a PEGI 12 release as it will feature unrealistic depictions of violence and firearms. I plan to give the game a high skill gap; a complex movement system combined with a time limit will be an attractive combination for high skill players. I want the game to still be challenging, however I may add some sort of difficulty adjustment in case players find the game too difficult. Furthermore, once a level is completed, a time trial version will unlock, where the player can fire their single bullet early. This will allow players to go a back and try and improve upon their times.

1.4 Experience

I want the game to feel rewarding and not only fun to play the first time but also on subsequent runs. I will do this by showing players their time of completion at the end of each repeated level and also medals to incentivise

them to improve upon their scores. Collectibles scattered throughout the levels will also allow players a feeling of satisfaction once all redeemed.

1.5 MoSCoW Analysis

- Must have:
  - At least 4 different levels
  - At least 2 gadgets (abilities) differing from the wristwatch
  - An enjoyable movement system
  - A time of completion shown at the end of a level on repeat attempts, with free control of the gun
- Should have:
  - Polished graphics
  - Collectibles throughout the levels
  - Batteries to extend a player's time in level
- Could have:
  - Ability to customise gun skin/model
  - Enemies pursuing through a level
  - New Game + style mode, where all gadgets are unlocked straight away at the cost of vastly harder levels
  - Some sort of boss target involving multiple shots fired
- Wont have:
  - Multiplayer (online/local)
  - Advanced enemy AI

2 Inspiration

2.1 Portal

Portal is a first person puzzle game designed by Valve. The features I have taken inspiration from are it's unique level design inspiring player thought, and it's use of gadgets i.e. the portal gun.

2.2 SUPERHOT

SUPERHOT is another first person puzzle game designed by the SUPERHOT team. The features I have taken inspiration from are it's limited ammunition system, its time focused mechanic, and it's simplistic art style.

2.3 Hitman series

The Hitman series is an stealth game created by IO Interactive. The features I have taken inspiration from are it's assassin focus gameplay, and the idea of playing as a assassin/spy character.

3 Specifications

3.1 Storyline

The player takes the role of "Assassin X", an employee of the Guild of Assassins, who is given targets by the company to take out in exchange for cash. However, the Guild is notoriously cheap, and the only weapon they give Assassin X is a faulty gun with 1 bullet. The game will follow as series of assassination contracts given to Assassin X, each contract taking place in it's own level.

3.2 Game Aesthetics

The game will be created using 3D models from sites like Turbo squid, and will also feature models I have created myself if I can not find something suitable online. I plan to familiarise myself with blender so I am able to create basic to semi-advanced objects as I need them i.e. batteries, collectibles. I also plan to rig character models as needed if I can't find anything desirable.

3.3 Level Description

I plan the game to feature at least 4 levels. I want each level to be a different scene and not just rearranged models, and I also want to introduce further gadgets in-between some of the levels. Ideally, the levels will follow the following format:

1. Starting level will be markedly easier than the rest, will have simple level layout, possibly even details within the level pointing the player towards what actions to take i.e. keep an eye on time, locate target. The level may also introduce the concept of environment interactants (buttons, switches).

2. The second level will be a much more challenging step up from the the first, with a more complex/larger layout. The time on the players

watch will also be more important here as I plan to make the level non-completable without picking up a power cell to recharge the watch to give the player more time to make it to the end.

3. Level 3 will introduce a new gadget for the player, which as of now I plan to have be a dash, something that will move the player forwards a certain distance and increase their velocity. The use of this gadget will be necessary to complete the level.

4. The fourth level will introduce another gadget which will pause the time for the player. This will allow the player to travel further within the level, and pause moving obstacles, essentially acting as a player activated improved power cell. I also plan to allow the player to access the dash concurrently aswell, but will require a player to cycle through their gadgets, which will provide a slight learning curve for the player.

3.4 Asset Description

The assets I plan to create/include in the game are as follows:

- Character hand/gadget models visible in first person. I want these to move and possibly have idle animations to give the character personality.
- Sound effects/voicing. I want the player character to have a voice/voicelines, and I would also like the character to have an earpiece in as if they have got an informant available to them at all times. This could be an avenue for giving the player tips/advice. I want there to be sound effects as well i.e. footsteps, gunfire, ambience. Music is also something I would like to add to the game, with 1 track being my starting point.
- I don't plan to have any UI in the conventional sense, as the gun only fires 1 bullet so an ammo count is not needed, and the gadget the player currently has equipped will be visible in their left hand. However, I do plan yo have a start menu, a pause menu, a level complete screen and a level select screen.

3.5 Mechanics in Depth

Movement
Mechanic wise, I want the game to have a things the player must learn and get to grips with in order to improve their gameplay. I would like to make the movement system complex enough that it takes some getting used to and

want to play around with player momentum being necessary to beat some levels, for example needing to get to a high enough speed to cross gaps. I want to try and mimic some of the source engine quirks, and have diagonal movement and bunny hopping allow players to have more speed than normal.

Gadgets/Wristwatch

- Dash: this will move the player forwards a small distance, increasing horizontal velocity and also reducing the affects of gravity while active.
- Time Stop: this gadget will freeze time for 3 seconds. This includes any moving objects within the level, and also the level timer itself.

I want the player to only be able to only activate 1 gadget at a time, but have the ability to cycle through each gadget in turn (the wristwatch included). My hope is that as the players progress levels, they will find less of a need to monitor their time and just focus on their management of the other 2 gadgets. For example, pause time, switch gadget and then dash though a gap only feasible in frozen time.

Firearm
For the pistol the player uses, the only mechanic there is is that the gun fires when the time gets to 0 in the initial run through, and then fires it's single bullet upon player activation on subsequent run play-throughs.

Powercells
Powercells will be strategically placed around levels to increase the remaining time a player has to assassinate their target. I want to try and find a good balance of making them very valuable to the player but also, if a player is skilled enough, not make them completely mandatory to collect. As of now they will add 2 seconds to the player's remaining time.

Assassination Target
Before a level starts I want a dossier to appear on scream for the player. It will have a picture of their target and also some information about them.

3.6 Game Technology

The game will be developed with this software:

- Unity - This is the game engine I have decided to use as I found so many helpful videos and documentation online, I felt that any issues I

ran into would already have solutions at the ready. I also picked it as it can handle scripts in c# something I have already had experience in. Being free is a bonus and I also really like the layout of the "IDE", everything is very clear and customizable.
- Blender - Blender is a free 3D design software that I plan to use to create models as I need them and also rig models for use in animations, which I may also create within blender. The amount I use blender is dependant on how effective the models/animations I find online are at having the desired feel I want in my game.
- Krita - Krita is a free to use art program which I will use to help me create concept art and sketches of how I want things to look in game. This goes from rough sketches of characters, i.e. Assassin X, to level design.

4 Prototype Implementations

The code of this project can be located on my Github: `https://github.com/AlexFoster10/Game-Project-_High_Noon_`. All code will be present.

4.1 Purpose of Prototype

My goal with the prototype is to test out the following:

- Implement and test a robust basis for the movement system
- Construct a basic testing level to asses player movement
- Implement basic player home screen and pause capabilities

Because these are some of the most basic fundamentals of the game, I wanted to prototype them first as I believe making sure they are robust and well developed will be key in making sure the feel of game is enjoyable and polished.

4.1.1 Player Character

In order to develop the movement system I first needed a player character, even a rough one, so that I can see how a fully implemented player character will behave physics-wise. I implemented a fairly simple character:

- Player Container - Holds most player components
- Cylinder Object - Visually represents player
- Player Camera position - Empty object to show where the camera should be

- Player Orientation - Empty object to show which direction player is facing

I also have a separate camera container for the player that holds the main cam because connection the camera directly to a rigidbody led to problems.

I may decide to change some of these player aspects later down the line, and I still have to model a player character and also add animations, but I felt this was a good starting point to begin developing the movement system I also added a temporary basic speedometer so I can see how fast the player character moves in game.

4.1.2 Testing Level

In order to design a robust testing level, I added a collection of various angled ramps to test sliding, a few boxes to test jump capabilities, some bumps to see how smooth the camera is, and a tunnel to test crouch functionality. All elements in the level have colliders so the player can interact with them, and the only dynamic object is the sphere on one of the ramps to demonstrate how the player collides with objects.

4.1.3 Movement

The movement of the player character is handled with 4 separate scripts, a camera position script, a mouse movement script, a movement script, and a sliding behaviour script. The cam script simply binds the camera to the empty camera object, whereas the other scripts handle everything to do with their titles. The character has 5 states of movement: walking, sprinting, crouching, sliding and air. It also has a boolean to check if the character is grounded, which is used to check if the player can jump. Sliding will increase a players speed and sliding down sloped surfaces will build a players speed. I want the player to be able to carry momentum well, so I plan to improve upon this more. Currently, a players camera rotation also affects there hitbox in all rotations, and I plan to keep this for the time being as it allows for some interesting gameplay mechanics.

4.1.4 Pause Menu

There is a pause menu that can be activated by pressing escape and it allows the player to freeze all game activity and select a variety of options. As of now, the menu allows a player to resume playing, return to the home screen,

and exit the game. I plan to add some options for the player to adjust i.e. mouse sensitivity, game volume et cetera.

4.1.5 Home Screen

I have created a simple home screen for the player with 3 options, play and quit, as I only needed something simple for this prototype to function. I plan to develop this to include a level select menu.

4.2 Feedback

I asked a few other people to test what I had made so far I received and for them to give me some feedback. They said that the movement system so far felt fun, and they enjoyed that you could build momentum on sloped surfaces. There was a general consensus that it felt the player character slowed down to much after leaving a slope, which is something I plan to handle. I was also told that the camera movement felt nice and smooth, as did crouching and sliding. One of the biggest pieces of feedback I got was that the player character should have a ledge mantle of some kind, because when making jumps, it felt like they were failing jumps they would make in other games. I now plan to implement some form of this. Response to the menu system was good, and the only feedback was to make them more interesting, which is something I plan to do anyway.
In terms of the menu system I got a good response, it all functioned well and after explaining what I planned to add to the menu system the only feedback I got was that it needs to have a more interesting design, which I agree with.

4.3 Conclusion

Overall, I am reasonably happy with the prototype. I wish I had implemented some form of objective for the people playing beyond running around and testing the movement system, but the response I got back was good and I plan to make a tutorial style level in the final version of the game that can help with this. I am happy with how th movement system is developing so far, and plan to expand and polish it further. I have uploaded all of my code on github at the repository:
`https://github.com/AlexFoster10/Game-Project-_High_Noon_`, and will continue to backup all my code here. I have also included a gantt chat in the appendix, as well as other relevant material. Demo link:
`https://youtu.be/eQzcT1v3Nl4`

Appendix

Portal

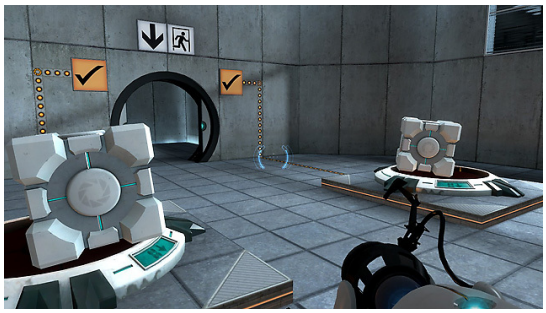

Figure 1: Screenshot of level mechanics

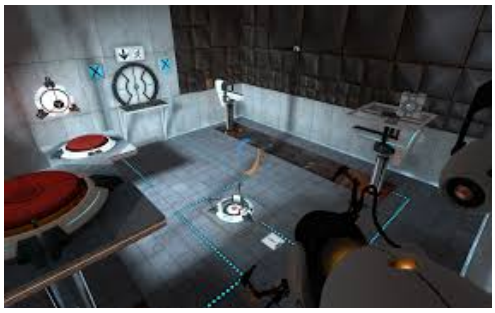

Figure 2: Screenshot of level design

Figure 3: Screenshot of another level

SuperHot

Figure 4: Screenshot enemy and firearm

Figure 5: Screenshot of more enemies

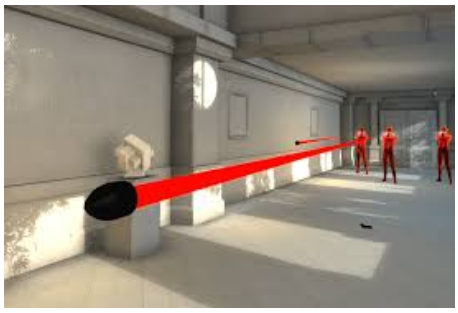

Figure 6: Screenshot of time slow ability

Hitman

Figure 7: Screenshot of main character

Figure 8: Screenshot of assassin gameplay

Figure 9: Screenshot of more assassination

Player

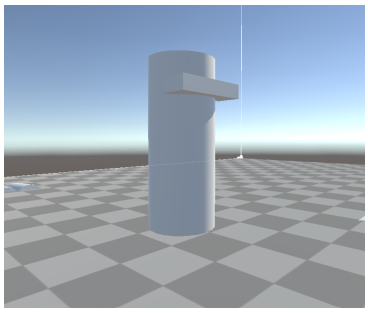

Figure 10: Screenshot of temporary player model

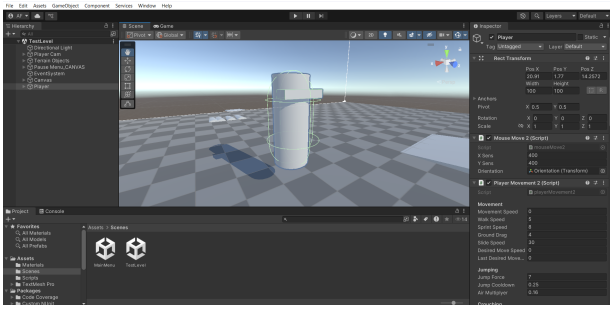

Figure 11: Screenshot of player in editor

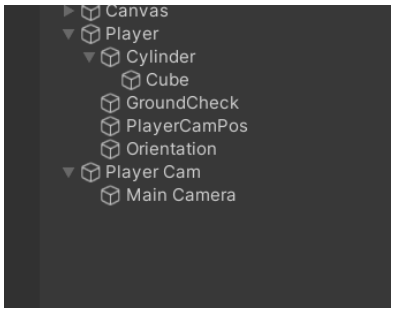

Figure 12: Screenshot of player object structure

Test Level

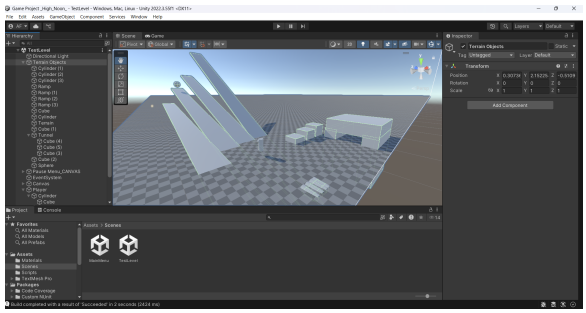

Figure 13: Screenshot of test level in editor

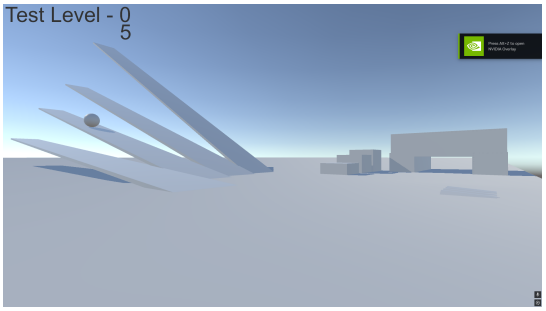

Figure 14: Screenshot of level in game with temp HUD

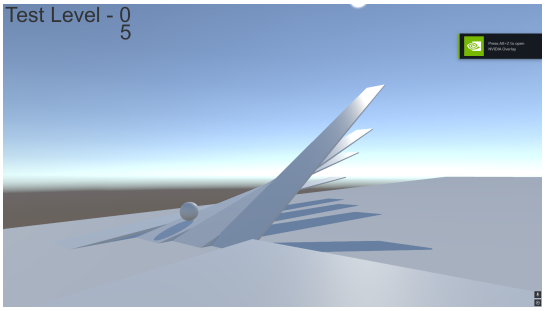

Figure 15: Another screenshot of level in game

Menus

Figure 16: Screenshot of home screen upon launch

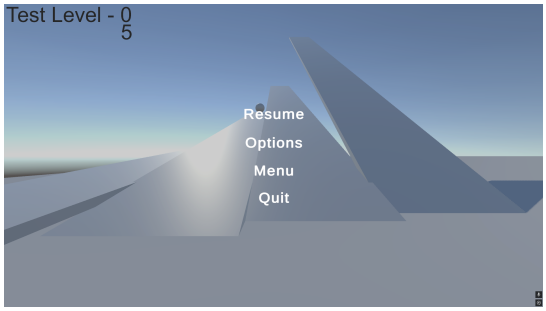

Figure 17: Screenshot of in game pause menu

Concept Art

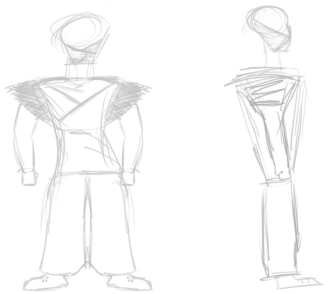

Figure 18: Loose character design concept

Figure 19: Power cell pickup design

Figure 20: POV concept art of wristwatch timer

Gantt Chart for Progress Moving Forwards

Game Dev Project													
Alex Foster													
Gantt chart moving forwards													
WBS	**TASK TITLE**	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	HAND IN
1.0	**Submit 1st Coursework**												
1.1	Design all levels roughly												
1.2	Improve movement												
1.3	Creating/search for models to use												
1.4	Place/rig models in the game world (player char, target char)												
1.4.1	Start Implementing Animations												
1.5	Start developing further in game mechanics (power cell collect, timed element, target element)												
1.7	Music Development/Sound Design												
1.1.1	Level Creation												
1.8	Bug fixing												
1.9	Create Report Elements (video + presentation)												

Figure 21: Gantt Chart