

**University of Staffordshire**

School of Digital, Technologies and Arts

*Games Design*

# **Games Development project**

Research & Development Report

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## 1. Introduction

This project will explore decision making gameplay and resource management in First person action platformers, as well as a retro styled level incorporating these gameplay styles.

The project will include one long course including a tutorial at the start of the level. A few diverging paths will be added to keep the player engaged.

The main objective will be to finish the track as fast as possible, encouraging the player to be efficient with their resources to the maximum. This results in decision making gameplay and encourages replayability.

## 2.Process

### 2.1 Exploring fast paced gameplay from action platformers, researching mechanics involved in the runner genre.

The Fundamentals of an action platformer, its mechanics and what makes a runner feel fast paced are vital for invoking a sense of speed for players.

Getting a good understanding of what makes a fun movement system for players to get creative with are also essential.

To start off, looking into games within the same genre like Neon White (Matrix, 2022) and Ghost Runner (One More Level, 2020) and games in other genres like Ultrakill (UltraKill Wiki, 2020) are important to create an accurate picture of what action platforming gameplay looks like.

## Ghost Runner



Ghost runner is a game (One More Level, 2020) that features a fast paced, fluid movement system. It places a great emphasis on agility, precision and quick reflexes. The games mechanics are built around parkour-based traversal and a one hit one kill system for both the player and enemies.

Movement system:

- Wall running: Players can run along walls to traverse gaps.
- Sliding: A short burst of movement in a split second for a crouched based slide.

- Dash: A short burst of movement in a split second that can be used in air or ground to cover distances.
- Grappling hook: Used to quickly zip onto higher areas.
- Ledge grappling: allows players to grab onto ledges to pull themselves up.

## Neon White



Neon white is a fast-paced action platformer, that incorporates an adrenaline fuelled parkour system and combat system. The combat system is attached to a card based system involving resource management and decision making. This in combination with the speed of the game creates an environment of split based decisions the player has to make.

### Movement system -

- Bunny Hopping: allows players to chain multiple jumps to maintain momentum
- Double jump: A few ability cards allow an additional jump in the air

- Air Dashing: A short burst of momentum in air for mobility.
- Wall boosting: Ability to jump off walls to gain further speed.

#### Abilities and mechanics –

- Soul cards: Soul cards are the core mechanic of the game. They can be discarded for a movement ability or used up as a weapon.
- Discard abilities: Discarding certain soul cards grant certain abilities.
- Elevate (blue card): bestows double jump.
- Purify (Red card): creates a ground explosion in a radius that clears enemies.
- Stomp (purple card): A slam that can be used for a quick descent as well as an option to clear enemies.
- Dash (green card): A dash ability that allows you to pass through barriers.

## Ultra Kill



Ultra kill is a high octane retro styled FPS that incorporates shooter mechanics with fast paced mobility and a unique healing system. The game rewards skilful play and requires mastering the movement system to excel in its levels.

### Movement system-

- Slide: A short burst of momentum for a crouch based slide that chains to other moves.
- Slide Jump: Jumping out from a slide can retain the mobility gained and allow for higher traversal.
- Wall jumping: Players can jump off walls for vertical mobility.
- Dashing: A quick burst of movement in any direction.



- Ground slam: A slam that boosts momentum for fast movement.
- Rocket Shotgun jumping: Using explosions to gain further momentum.

All games listed contain fast paced movement with action that require the player to carefully manage in order to excel in the game.

This project will mainly be focusing on movement and letting the player feel a sense of speed while managing said abilities in a quick decisive manner to gain the best outcome. Weapons are not included in this project since it is not the focus and would further slowdown the speed of the game.

Ghost runner has high octane movement and keeps it fairly simple with just 4 movement abilities. This project will also only include 4 movement abilities to keep the learning curve simple since there will only be 1 Level.

Neon white has a unique card system that intertwines with the games movement system. These involve the player discarding cards to gain further momentum. This project will keep an essence of that system, the cards will be tied to the movement. These cards allow you to use the movement abilities with no cost, a maximum of 3 cards per ability can be held. These abilities are not discarded and stay with you throughout the game.

Ultra kill is known to be challenging and requires mastery of the movement system to excel in the game. For this reason, the game will retain a resource management system in tandem with the card abilities so as the player gets better with managing these resources and movement, the faster the level will be beaten.

The Abilities this game will have will be deriving elements from each game listed. The abilities are as follows:

- Dash – to gain a short burst of momentum.
- Slide – To gain a short burst of momentum in a crouch based slide.
- Ground slam – A downwards slam that boosts upward momentum.
- Wall run – Selected runnable walls for players to clear gaps with.

## 2.2 Exploring Level design and aesthetics in action platformers, researching level design philosophies within the runner genre.

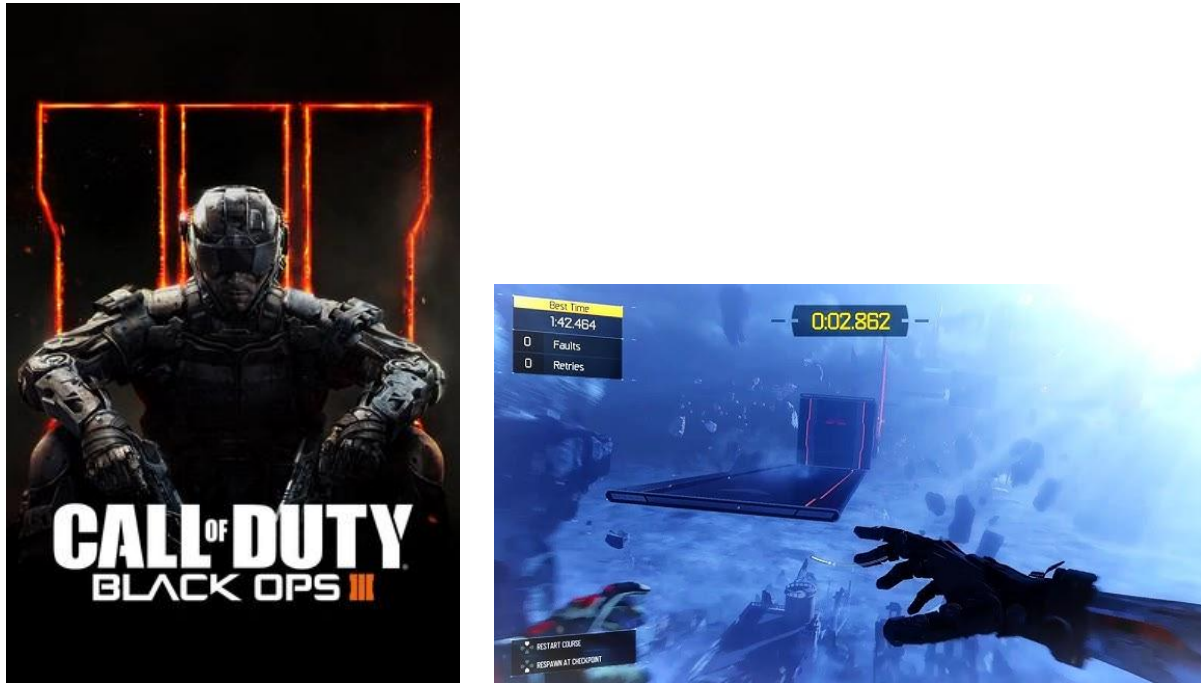
An action platformer with great mechanics is nothing without a great level to encompass it.

The fundamentals of a level in the runner genre are necessary to create a working level for players to skilfully learn and get better at every run encouraging replayability. Gaining a good understanding of what makes a level highly replayable and memorable is important.

This project will include a retro aesthetic. Taking inspiration from other games with a similar style will help in forming the aesthetic and atmosphere for the level

To start with some level research, gaining information on games within the same or similar genre (neon white, black ops 3, Silent Hill, Ultra kill) help in gaining a further understanding in the level design for this project.

## Call Of Duty Black Ops 3 (Activision, 2015)



Black ops 3 introduced parkour courses that placed a huge emphasis on fluidity, mobility and verticality. It built upon the games movement system allowing players to chain slides, wall runs and jumps seamlessly

The game has a dedicated time trial mode designed to test the players grasp on the movement mechanics in order to get the best time.

Level design philosophies-

- Momentum based movement: Parkour maps were designed for players to learn and master the movement system
- Simple structure: Parkour course has floating platforms, clear color-coded platforms and were linear in design.

- Aesthetic – Parkour courses in black ops 3 relied on atmosphere rather than meshing. This in tandem with floating platforms created dreamy environment that felt far from reality.

## NEON WHITE



Neon whites' levels are designed around a strong emphasis on speedrunning. Its courses push the player to master its movement mechanics, optimize routes and make split based decision with its card system.

Level design philosophies –

- Short levels: Each stage is extremely fast paced, usually lasting under a minute
- Multiple movement paths: Levels offer various paths rewarding players who find faster hidden routes
- Speedrunning optimization: Levels are made to be completed as fast as possible, giving the player room for experimentation.
- Verticality: Levels encompass vertical movement with wall jumps, jumps and dashes ensuring a smooth flow.
- Encouraging replayability: Hidden paths and experimentation with the levels layout and character mechanics offer rewarding replayability.
- Obstacle placement: certain obstacles are placed to force the player to move a certain way or use a certain ability.

Aesthetic – Neon white has a simple colour scheme encompassing blue and white colours in its environment. Which also creates atmosphere. The levels also seem large in scale but are fast to maneuver around.

## ULTRAKILL and Silent Hill Aesthetics



Both Silent Hill (Tennyson, 1999) and ULTRAKILL have the aesthetics and graphics of a ps1 game. While Silent Hill contains fog and is dreamy in its atmosphere, ultra kill has vivid colours and clean graphics for its aesthetics.

## Silent Hill aesthetic –

- Fog and obscured vision: The game contains thick fog and darkness creating an atmosphere of the unknown.
- Muted and desaturated colours: A dull faded colour palette amplifying the game's sense of feeling lost and dreadful.
- Sound and Music: The game mostly contains ambient themes with a reduced bitrate, due to the game being from an old era.

## Ultra Kill aesthetic-

Low poly visuals: The game has ps1 low poly visuals with a heavy use on lighting for colour.

Gothic themes: Levels involve hellish landscapes and massive cathedrals.

High contrast colours: The game has bright glowing neon lights, dark gritty environments in combination with heavy lighting to make for a vibrant game.

Brutalist architecture: Levels are vast with floating platforms and towering structures.



Sound and music: Game has a fast, high-energy beat to encompass for the high octane gameplay, involving heavy metal or electronic music.

All games listed include apply a huge emphasis on the atmosphere in the level which is something that I will be taking inspiration from. In terms of aesthetics and atmosphere the level will be taking a mixture of Silent hill and Black ops 3. The level will be incorporating dreary highly fogged areas of silent hill along with its retro graphics, and floating platforms black ops 3 with a touch of large, scaled areas from neon white. The game will also include an ambient Drum and base OST to go along with the retro graphics.

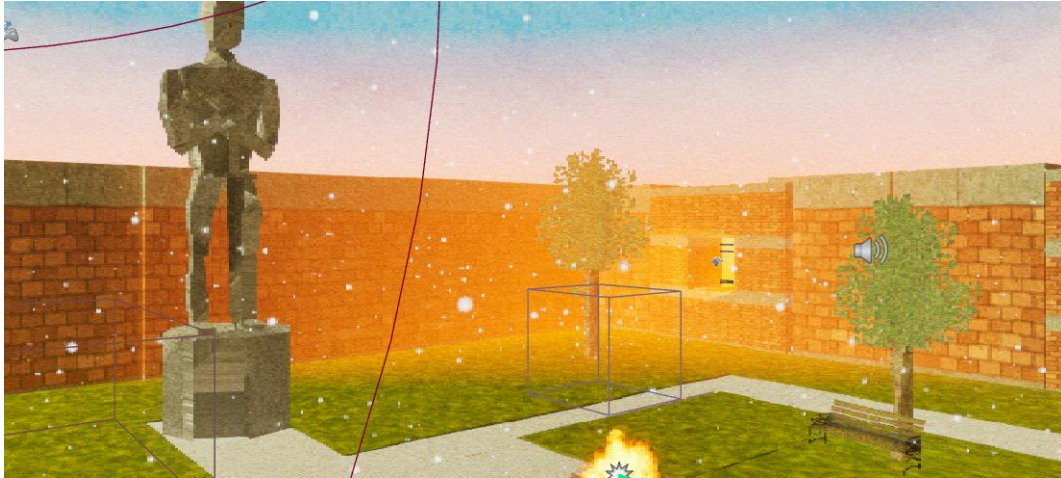
In terms of level layout and level design and design philosophies, this project will be taking big inspiration from black ops 3 and neon white.

The level will mainly include floating platforms and will be linear in design. Black ops 3 keeps their level layout simple allowing for the fluidity of mechanics so incorporating this into the level is of importance. Neon whites' levels are made with experimentation in mind, with card abilities allowing players to create new paths or make certain paths faster than before, which is something to incorporate in the level. Levels having verticality and precise obstacle placements to get the player to act a certain way also ensures great level flow and split based decision

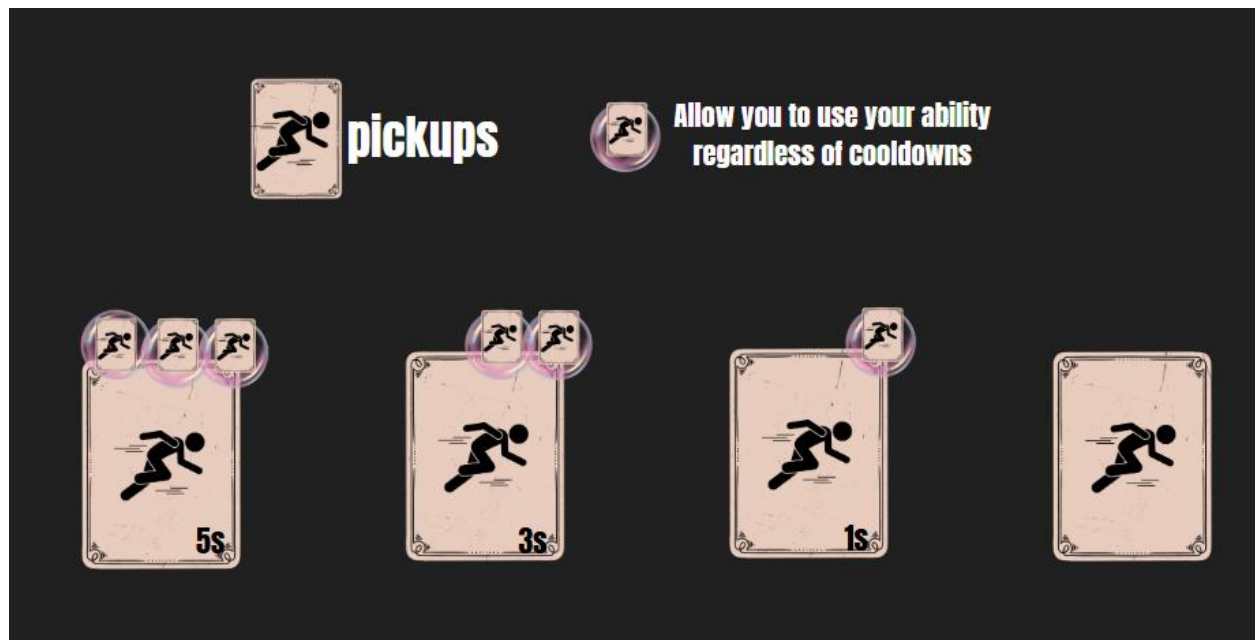
making. This all adds up to encouraging reliability of the level as the player gains a greater understanding of the level and its mechanics.

Overall this results in a split based decision making gameplay, where the player can experiment and get better with the games mechanics every run.

## 2.2 Key elements



The levels aesthetic and sound will play a huge importance in the levels game feel. As you zip around the level in high speeds of fashion, Retro drum and base should start playing. This pared with the dreamy like atmosphere including snow should set the tone for the level.



The card system is of huge importance since this is what allows the player to get creative with traversing the level. This also introduces the split based decision-making factor where the resource management of the cards is vital.

The movement system being refined and suitable for the level is highly important. As the game is heavily based around this and needs to feel good for the level,

## 2.3 Prototyping Core mechanics and systems

The first set of mechanics implemented was the movement system. This game's main functions and juiciness is the movement system, getting the movement right was the first thing to do in the development of this project.

The set of movement mechanics are dash, wall run, groundslam, triple jump and slide

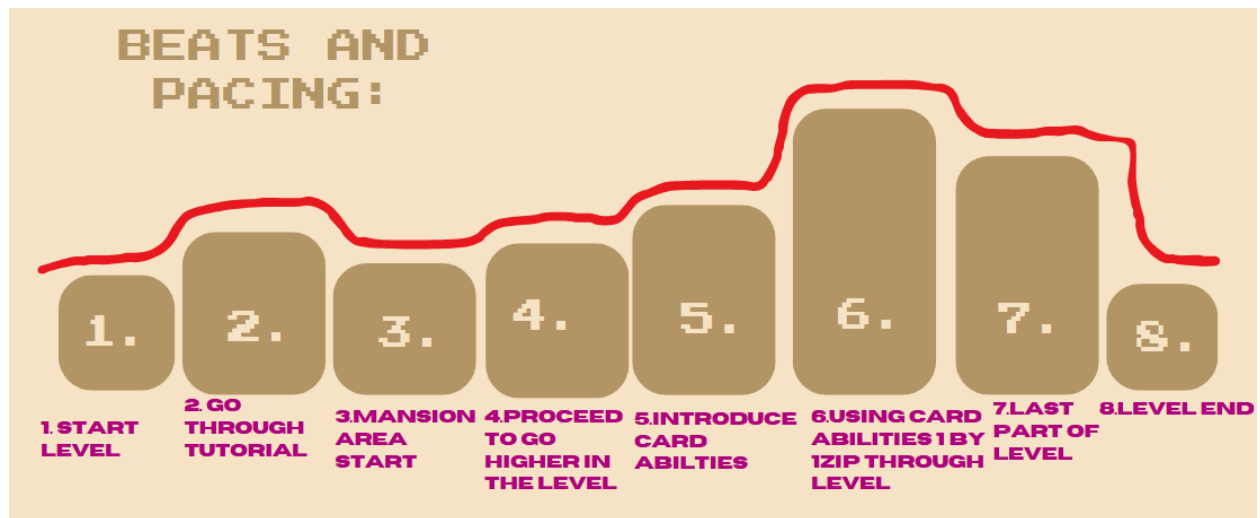


The ground slam is a variation of the slide available in air. This makes it less complicated for the amount of card abilities to manage and keeps 2 in 1 card.

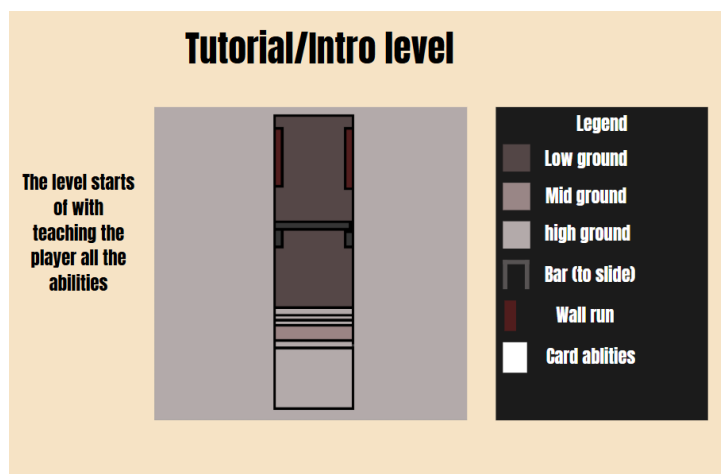
The ground slam is an essential part of the game since this gives the highest momentum to the player.

The card system as shown in the video above was the next essential mechanic since all the exciting gameplay is involved around it. Originally the cards were going to be discarded after use since there would be pickups for them later on, but after further testing allowing them to act as a no cooldown card helped to make it less punishing.

## 2.4 Initial level designs



The level should be fairly linear in design. Card abilities are introduced at the halfway point of the level so the player get used to the abilities first. Once understood the level picks up towards the end.



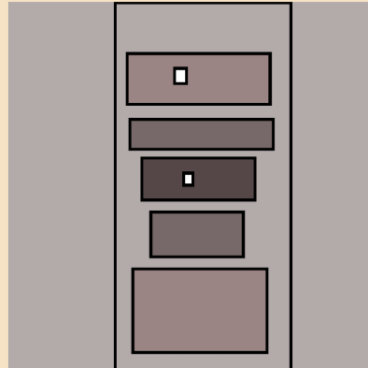


## Tutorial/Intro level



The 2nd section teaches how to use double jump

It introduces cards as well



### Legend

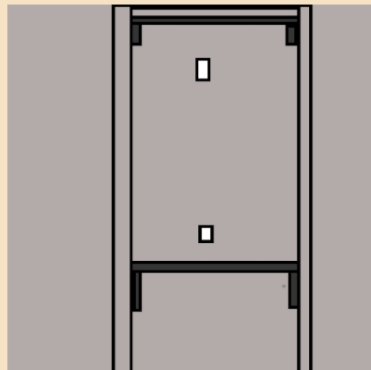
- Low ground
- Mid ground
- high ground
- Bar (to slide)
- Wall run
- Card abilities

## Tutorial/Intro level



The 3rd section teaches you slide and dash

The 2 cards given immediately will encourage the player to speed through the level



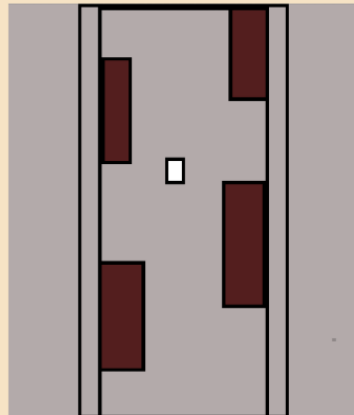
### Legend

- Low ground
- Mid ground
- high ground
- Bar (to slide)
- Wall run
- Card abilities

## Tutorial/Intro level



The 4th section teaches you wall run

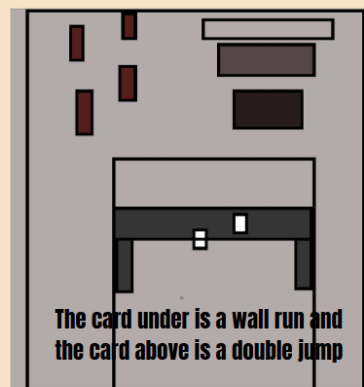


Legend	
	Low ground
	Mid ground
	high ground
	Bar (to slide)
	Wall run
	Card abilities

## Tutorial/Intro level

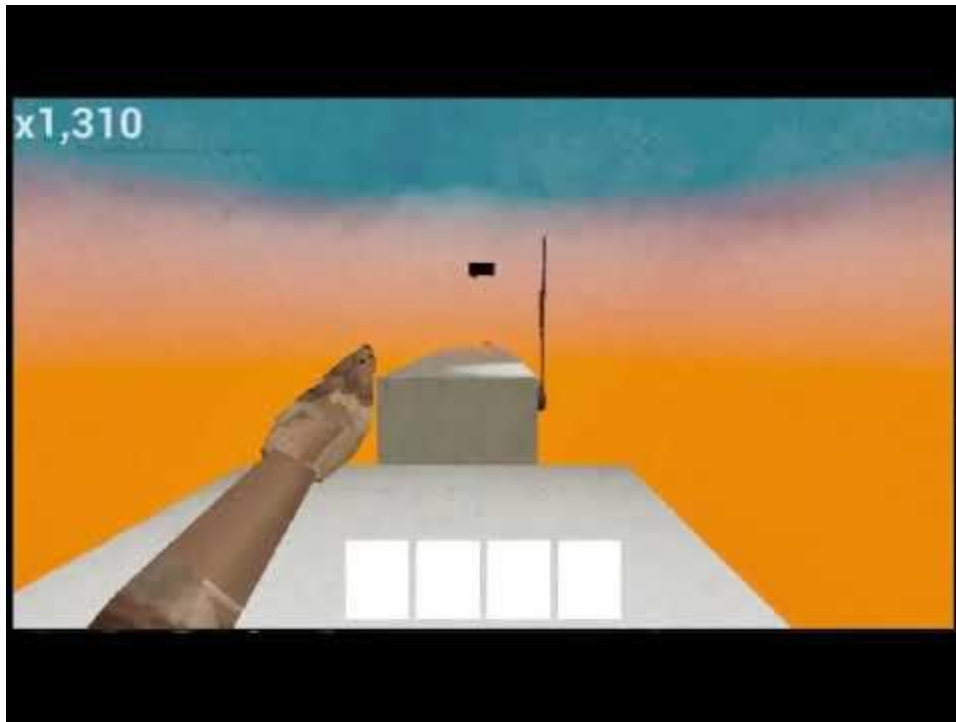
The 5th section introduces the decision making aspect of the game where the player is given a choice on which paths to take

The player can use either slide or jump to obtain either card then proceed to progress the level based on which ability has been aquired



Legend	
	Low ground
	Mid ground
	high ground
	Bar (to slide)
	Wall run
	Card abilities

The tutorial level should introduce one ability at a time for the player to get used to the mechanics once done the level picks up and tests the player skills. This is done to ease the player into how the game feels and the way the course needs to be executed.



Adding juiciness Like effects and camera shake will make using the movement abilities more fun. This will also encourage the player in using the abilities as much as possible.



There is a score added as well for player satisfaction. The cards are colour coded and are also on the hand as well for added detail. Each card pickup in the level will be colour coded to the ones on the UI for the player to easily identify what each card is. The cards also shake and make sound when used and when the cooldown is over, for more information on when the ability is available.

### 3 Conclusions

In conclusion The project must deliver on great game feel, aesthetics Movement systems and card systems. This should add to an overall polished gaming experience. Players should feel they are playing a ps1 game ahead of their time, which this project aims to deliver. This in addition with replay ability and decision making gameplay is what will make the game complete

### 4 Moving forward

This process has changed my approach when it comes to planning out this project, especially when it comes to inspirations and everything the project should be taking influence from. When it comes to The workflow of the project nothing much will be changed since getting the mechanics and aesthetics come before the level that way creating the level will be much more smoother. Changes in the aesthetics towards the end of the level might change since making the level feel the same all the way through would make the level less exciting.





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