Game Design Document

Beyond Time
Team 3G

Team Members

Name	Roles	E-mail & GitHub ID
Haoyu Guan	*Team Captain, Analytics*	haoyug@usc.edu ghyharry
Varun Kapoor	*Product Manager, User Interface*	varunkap@usc.edu *VarunKapoor0*
Khushal Kalidindi	*Stenographer, AI, Gameplay*	*kalidind@usc.edu* *Khushal-USC*

Reference: *Roles & Role Resources*

Group Photo:

Important References

Unity Project GitHub Repository	https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g
Playable Alpha Progress Check Build	https://varunkapoor0.github.io/team3gAlphaProgressCheck.github.io/
Playable Alpha Build	https://varunkapoor0.github.io/team3galpha.github.io/

Alpha Gameplay Video	https://youtu.be/fNuH6bsZk_w
Alpha Survey	Team 3G Alpha Survey Feedback - Google Sheets
Alpha 1.2	https://varunkapoor0.github.io/team3g20thMarch.github.io/
Playable Beta Progress Check Build	*https://varunkapoor0.github.io/team3gBetaProgress.github.io/*
Playable Beta Build	*https://varunkapoor0.github.io/team3gBetaBuild.github.io/*
Beta Gameplay Video	*https://youtu.be/BR-J6B0FWpQ*
Beta Survey	https://forms.gle/mX1PRBJ8d1AWL2RKA
Gold Progress Check Build	*https://varunkapoor0.github.io/team3gGoldProgressCheck.github.io/*
Playable Gold Build	*https://varunkapoor0.github.io/team3gGoldVersion.github.io/*
Gold Gameplay Video	*https://youtu.be/85KN6okXL54*

*Note: It is required to have **different build links** for each of these sections. Do NOT overwrite a previous build with a new one as it will cause issues during grading.*
Reference: Team Tools and Resources - Slide 42

Game Introduction

Logline

Our game is a 2D platformer game with movement in one direction and Time-Switch mechanics.

Player Goals / Win Conditions

Players can skillfully combine time-switch with other features to overcome obstacles and enemies and reach the finish line. The goals/win conditions are:

1. Reach the goal without dying.
2. Beat level bosses.

Game Description

<Beyond Time> is a 2D-platformer game featuring a distinctive time-switch mechanic. As the player, the goal is to reach the end of the level without being attacked by the enemies or getting stuck at the obstacles. The player uses time travel to travel back and forth between 2 different timelines (in the same position), where they will face different monsters, obstacles, and terrain. The player can wisely use the time-switch ability to avoid/interact with the enemies, items and obstacles so as to reach the above-mentioned goal.

Please be aware that players can only move in one direction. Backward movement is achieved by relying on environmental props. Players must choose their routes and passes carefully.

Controls

Player move forward - D
Player Jump - W
Time Switch - SPACE
Shoot - M

Reference: Recommended Control Schemes

Detailed Design

Game Mechanics (How to Play)

1. *Movement restrict mechanic: Use the keyboard movement, player can Jump, go forward but no backward. Backward movement is done by Bounce-back Mechanism.*
2. *Time Switch mechanism: The player can switch time streams, which changes the environment accordingly.*
3. *Bounce-back Mechanism: It is an environmental prop which the player can use to move in the opposite direction a certain distance.*

4. *One Life mechanism: The player dies on being hit once by any damage caused to them.*
5. *Enemy line of sight mechanic: Enemy moves towards the player when the player is within a certain distance and the enemy is facing the player.*

Game Mechanic Research

Varun Kapoor

Game Title	*Chess*
Mechanic/System	*Movement Restriction*
Interest	*The game is heavily influenced by the movement restriction of the various pieces, which adds to the difficulty, and directs the player towards a strategy-based approach.*
Supports other mechanics	*Movement restriction supports the attack phase of the game, when players are removing each other's pieces. Using specific movement combinations with different pieces, attacking the enemy becomes easier, giving them lesser chances of escaping.*
Supported by	*Since the entire game is based around the movement restrictions of different chess pieces, the effects of this can be seen throughout the gameplay, as well as with players of different skill levels. It is supported by :* *=> The pieces can be attacked or killed by the other side i.e safe and unsafe locations.*
Utility	*Player movement in our game is also restricted, with the player only being able to move forward by their own agency. We are looking to add a strategic element to the game using this feature, much like in the game of chess.*

Khushal Kalidindi

Game Title	*Titanfall 2*
Mechanic/System	*Time Switch*
Interest	*The mechanic is interesting because it basically affects every part of the genre (FPS) and makes it more interesting by*

	subverting player default strategies. The mission that the mechanic was featured in "Effect And Cause" was generally regarded as one of the best levels of a video game that year, as it encouraged players to utilize the skills acquired in other fun mechanics like wall running and unique utility mechanics
Supports other mechanics	● *What is done in the past effects the present* ○ *Doors manipulated in past effect present* ● *Movement is enhanced, since momentum is preserved from time line to timeline* ○ *If player can jump from wall that didnt exist in current timeline to jump onto a platform that didnt exist in the past timeline, due to time switch* ● *Enemies with shields or unidirectional control can be circumvented by time shifting, then navigating in the safer old world around the enemy, so you can hit them from behind, rather than attacking head on*
Supported by	- *Player ability mechanic* - *Player or mechs are usually granted some powerup or pick up varying by level, so in this level the player is limited to this time switch mechanic*
Utility	*The mechanic allows for player to traverse past obstacles which are un passable by offering ability to travel to timeline where same area is passable, with alternative challenge instead, so it serves as continuing linear path while also offering combat options with tradeoffs for each timeline approach*

<Haoyu Guan>

Game Title	*I wanna be the guy*
Mechanic/System	*2D shooting*
Interest	*Give the player the possibility to defy the monster. Enhances the player's sense of accomplishment.*

Supports other mechanics	*Special saving mechanism. When a bullet hits the checkpoint, the player can save the game progress at a distance without directly touching the archiver.*
Supported by	*Difficult to circumvent monster and monster blood mechanics. With the game being so difficult, it makes sense to give the player weapons that can defy the monsters. There are levels that force the player to use the shooting mechanic to defeat monsters when it is impossible for the player to move on in a way that avoids the danger. The shooting mechanic of being able to attack remotely at such times is much better than melee. And this approach has a higher operational ceiling, enhancing the player's sense of accomplishment.*
Utility	*We will be adding a 2D shooting mechanic to the game, but instead of defeating enemies, the bullets fired by this mechanic will transport them to another timeline. With this mechanic, we hope to give the player the ability to choose and help them be able to move on in the current timeline.*

Matrices

Twist & Mechanics Matrix

Mechanics	Description	Interaction with Twist	Affected Genre Elements	Type of Genre Innovation	Supports

Time Switch(core-mechanic)	Player changes time streams which changes the surroundings(past/present).	Enemies move different directions in different time streams. Obstacles will change based on the time stream.	Environment, platforms, obstacles, enemies	Addition	-
Time switch monster	For special monsters, a marker is left in place after time traveling	Since players can not go back, markers can better help players avoid monsters/be prepared.	Environment, Player movement, enemies	Addition	Time-switch, Bounce-back
Bounce-back	Player bounce-back in the other direction	Since the player can only move in one direction, the bounce-back allows the player to bounce in the opposite direction.	Player movement	Addition	Time-switch, Shooting
shooting	Players can fire bullets to the direction they face. Those bullets shoot enemies into another timeline	Since the player can not turn back, it can only fire bullets forward.	Enemies, Player life	Addition	Time-switch

Mechanic Interaction Matrix

Subject / Object	**Time Switch**	**Time switch monster**	**Bounce-back**	**Shooting**
Time Switch	**-**	**When time**	**When**	**The bullets**

		switched, if a special monster is shot into this timeline, it appear	**bouncing off wall in previous time, preserve momentum to go onto platform in current time**	**shoot enemies into another timeline, they give the players more choice. But when players time-switch back, they still have to deal with them**
Time switch monster		**-**	**The Marker help players know where the monsters are in the other timeline, so they can use Bounce-back to address those enemies that are behind them**	**When players' bullet hits time-switch enemies, the enemies will been switched to another timeline, and leave a marker in the original place**
Bounce-back			**-**	**Bounce-back gives the player the ability to get behind enemies who are following them and shoot them.**
Shooting				**Bullets, when colliding with each other, destroy each other, offering defense for player or enemy**

Reference: Example Matrices

Single Mechanic Challenge Matrix:

<Time-Switch Mechanic>

Challenge	Location	Difficulty	Player Must Learn	Instructions	Required Skills
Challenge 1	Beginning of the first tutorial	Tutorial	Controls for movement and time-switch mechanic	Always shown in upper-left corner	None
Challenge 2	Second tutorial	Tutorial/Easy	How to avoid enemies/ how to find gun and shoot	Pop-ups Text	Controls for movement
Challenge 3	3rd tutorial	Tutorial/Easy	How to use bounce-back and move yellow platform	indicator arrows	Controls for movement
Challenge 4	Begin of first level	Medium	How to use time-switch mechanic while jumping	Small white bars indicate where platform are in the other timeline	Controls for movement and time-switch mechanic
Challenge 5	middle of first level	Easy	How to get the gun while using time-switch and jump	None	Controls for movement and time-switch mechanic
Challenge 6	End of first level	Medium	How to use bounce-back while time-switching and avoid enemy	Marker for special enemy	Controls for movement and time-switch mechanic(and shoot)

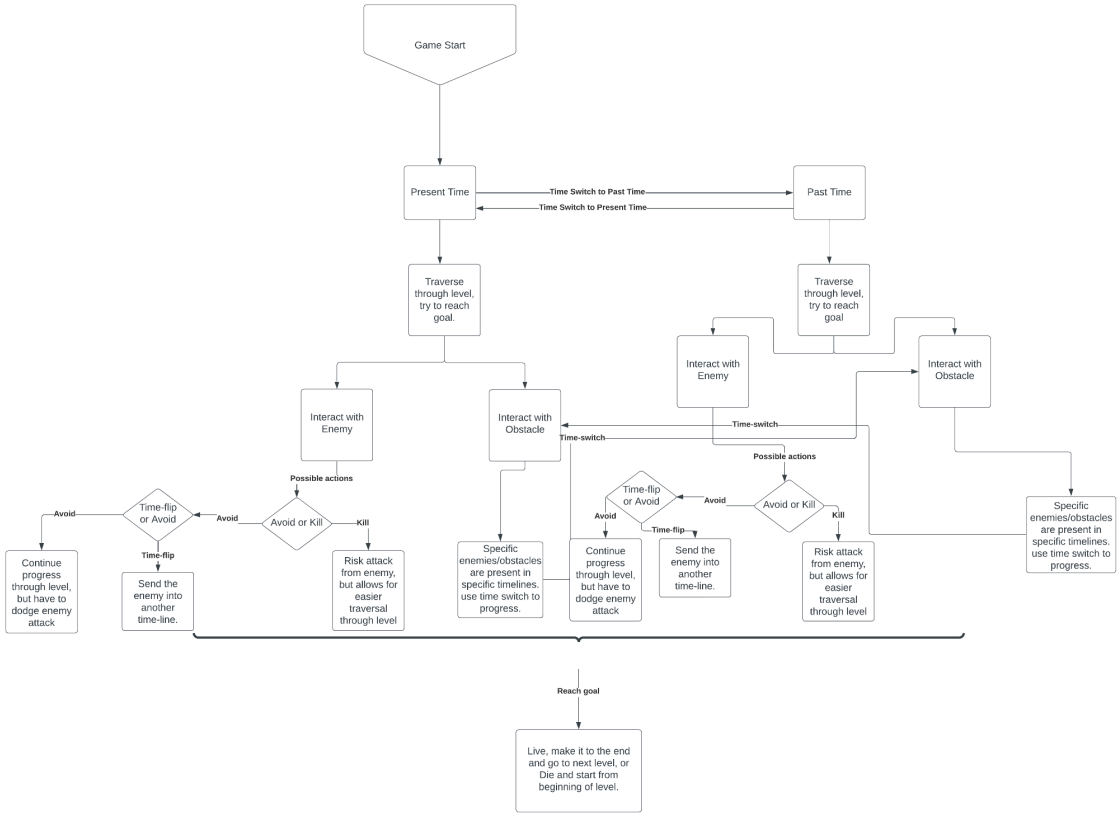
Sketches and Diagrams

Mechanic/Level Sketches

Add sketches / screenshots depicting level designs, mechanics incorporated and/or ideas you'd like to implement in the future.

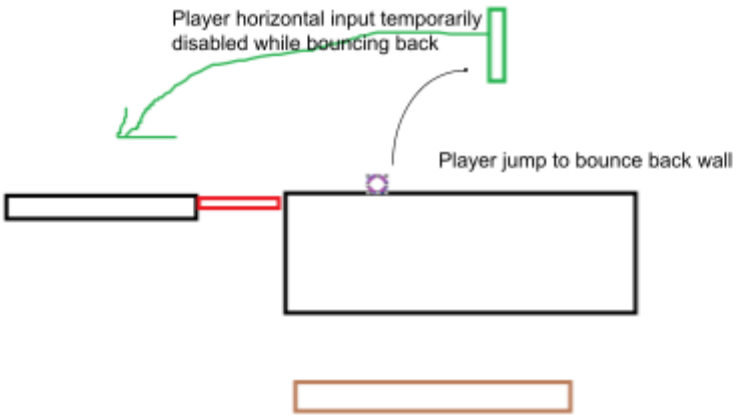
Gameplay Loop

Example image:

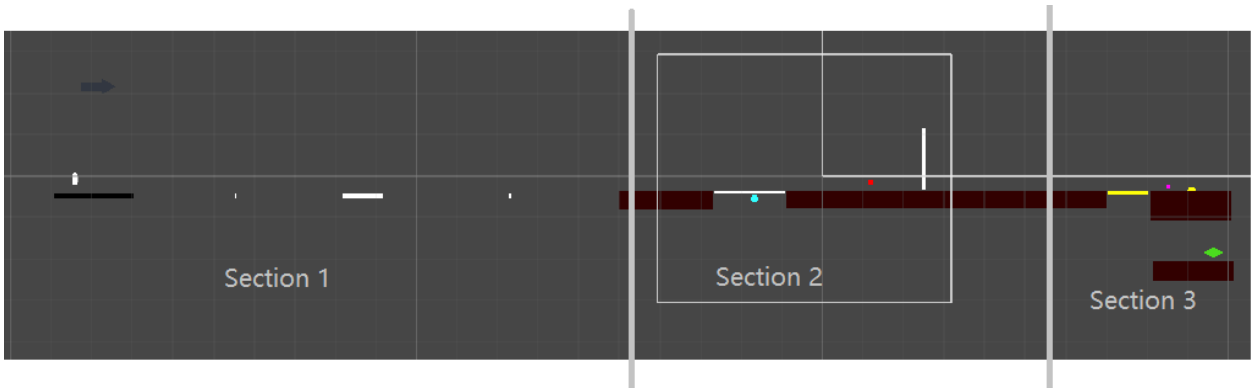


Level Designs and Description:

Example image: how to use bounce-back

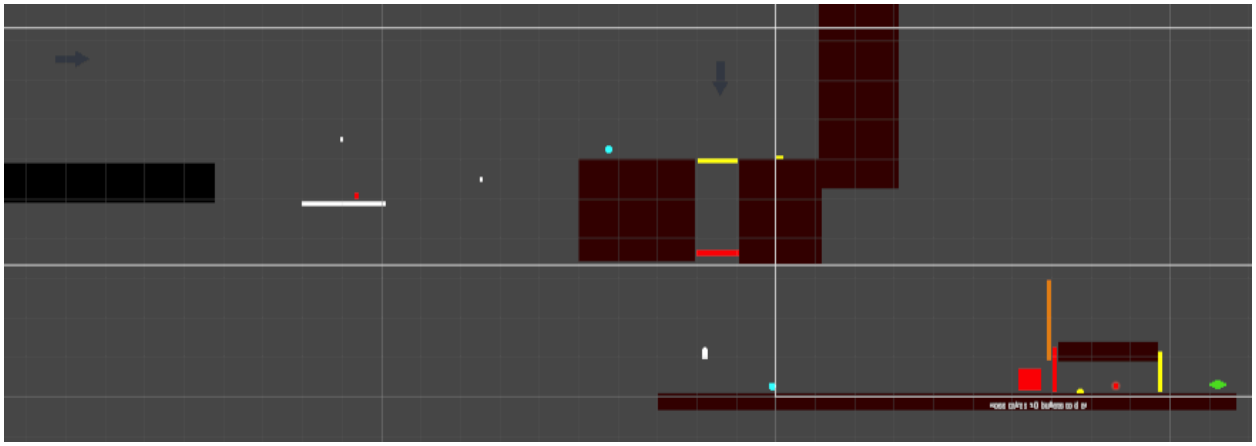


Level 1:



In level 1 Section 1, we challenge the player with platforms in different timelines. The white platforms exist in the observed timeline only, players need to jump-Switch-landing.
In Section 2, players encounter enemies in different timelines. They need to dodge the enemies and the bullets fired by the enemies. They also have the option of figuring out how to pick up the gun and fire bullets to Switch the enemy.
In Section 3, Players will need to apply what they learned about bounce-back in the tutorial. They need to travel through different timelines and avoid special enemies, triggering buttons to move the yellow platforms multiple times to reach the green finish line.

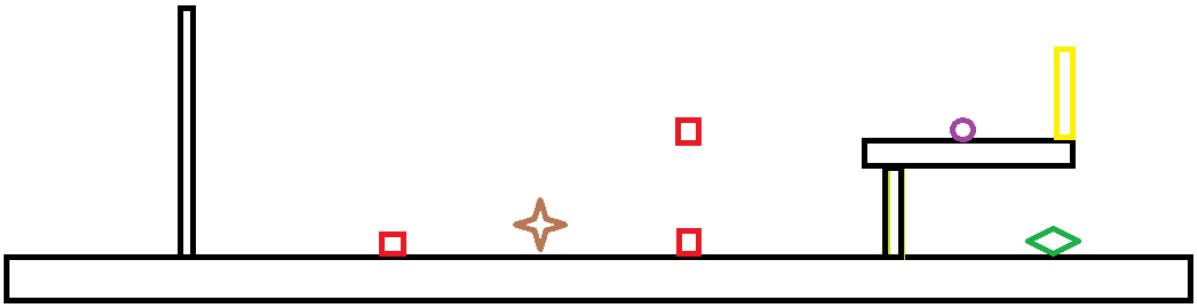
Level 2:



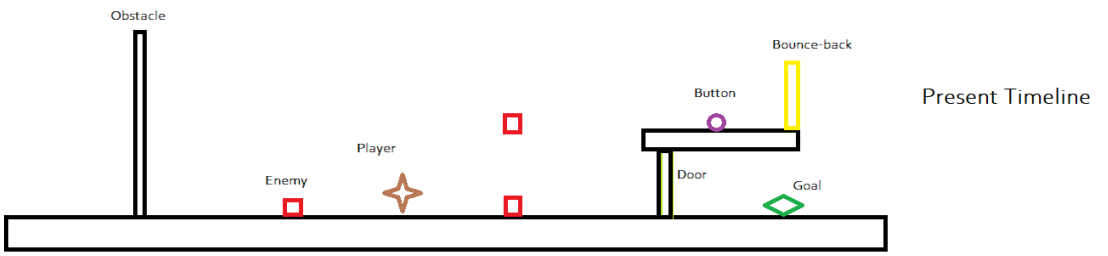
In level 2 we enhanced the difficulty of the challenges, and designed a boss fight.

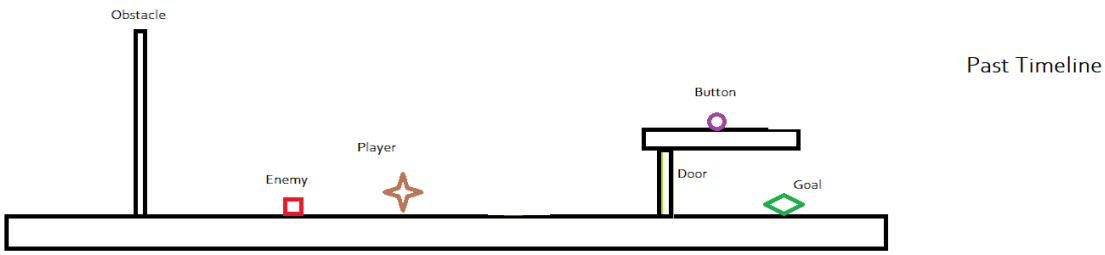
Example of level design with enemies -

1. *A single timeline*

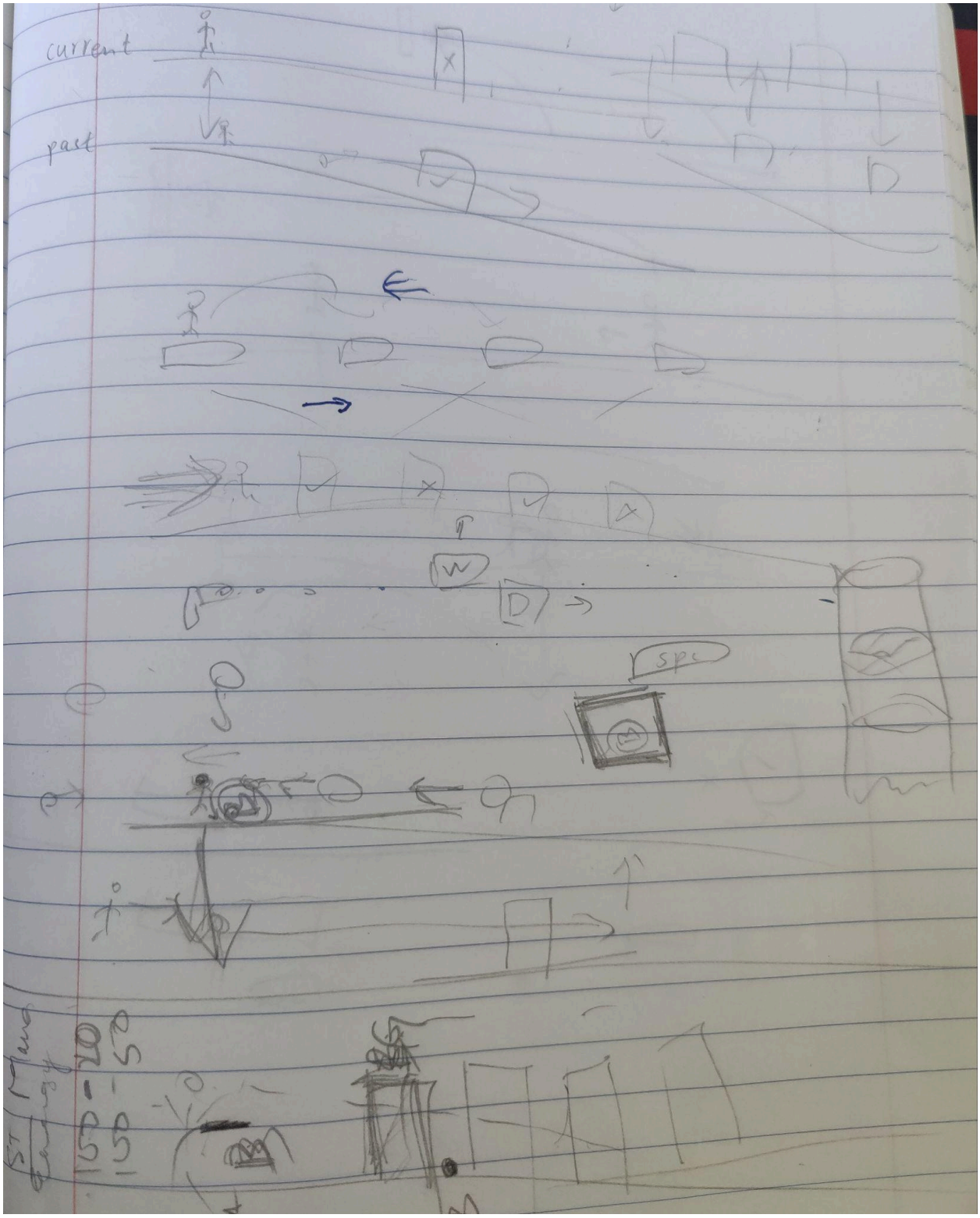


2. *Overview of both timelines*

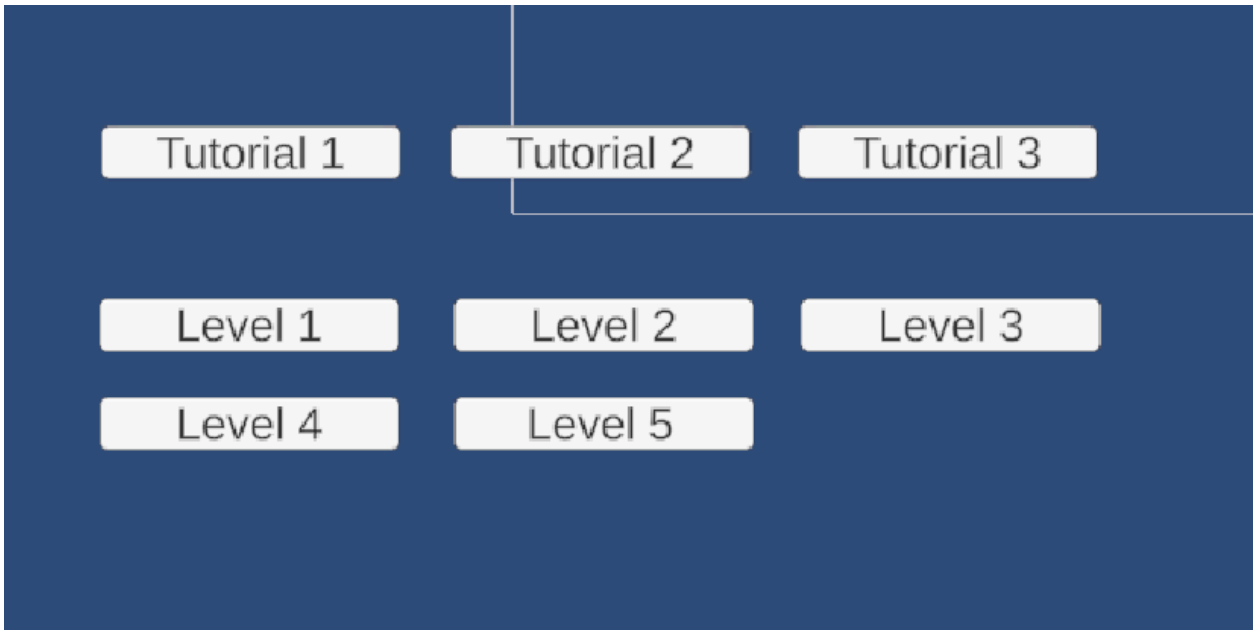




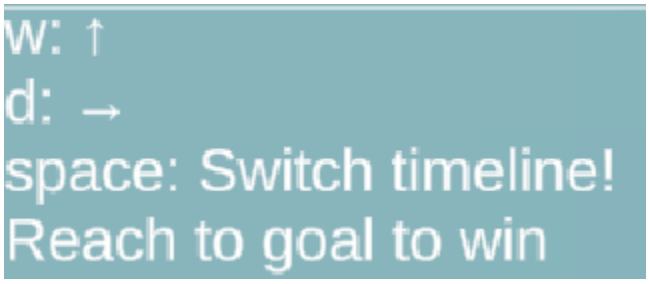
Initial game conception and visualization:


current
past
W
D
spc
Sit
Stand
Eat
Sleep
Mind

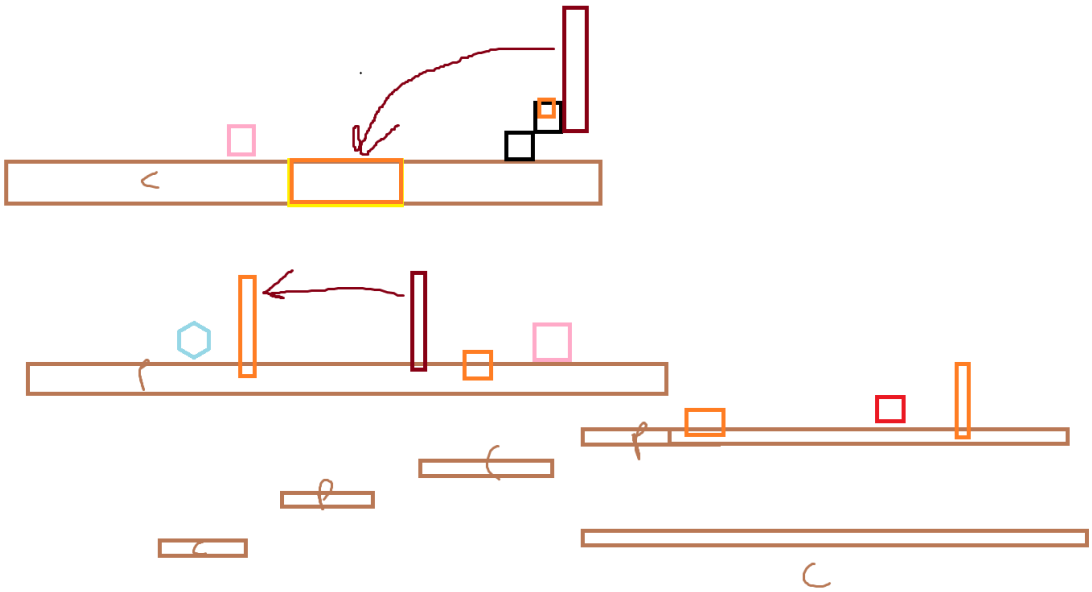
Game UI



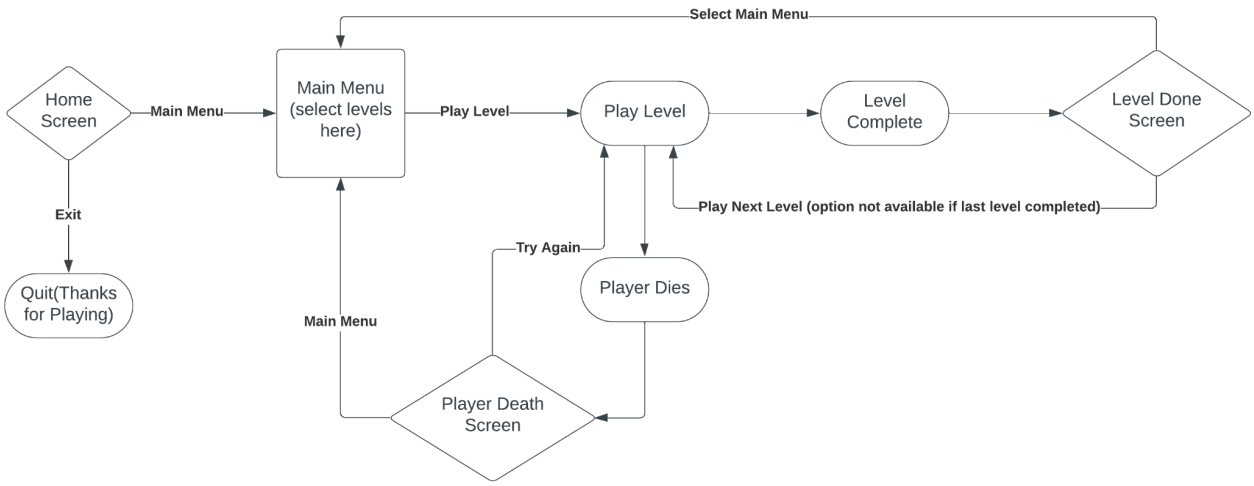
Level select screen is present and functional



Instructions are displayed in the upper-left corner of the window and does not obscure game objects



LEVEL Sketch(using enemy agro to trigger buttons)

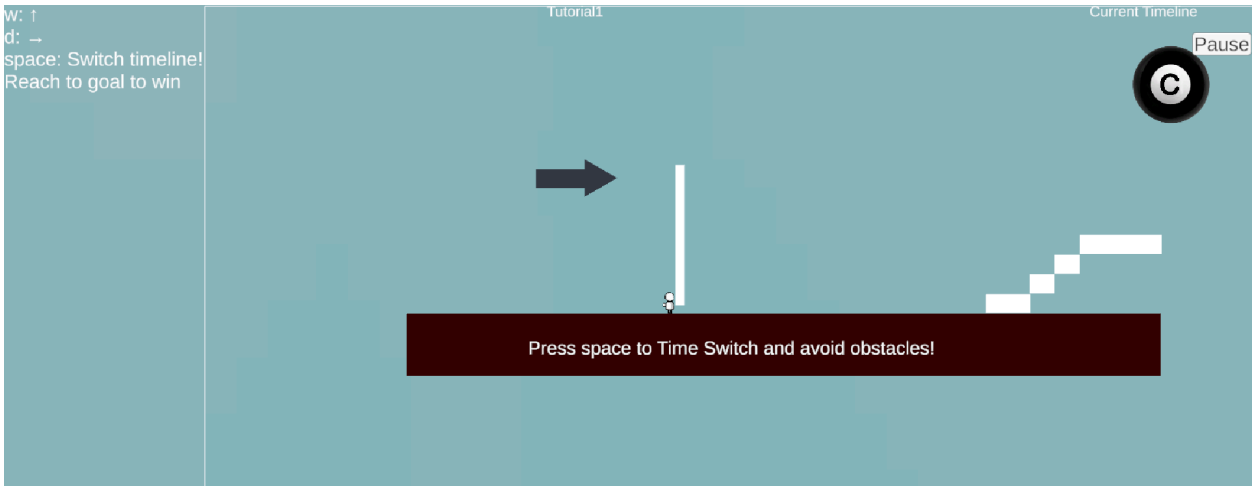


GAME UI FLOW CHART

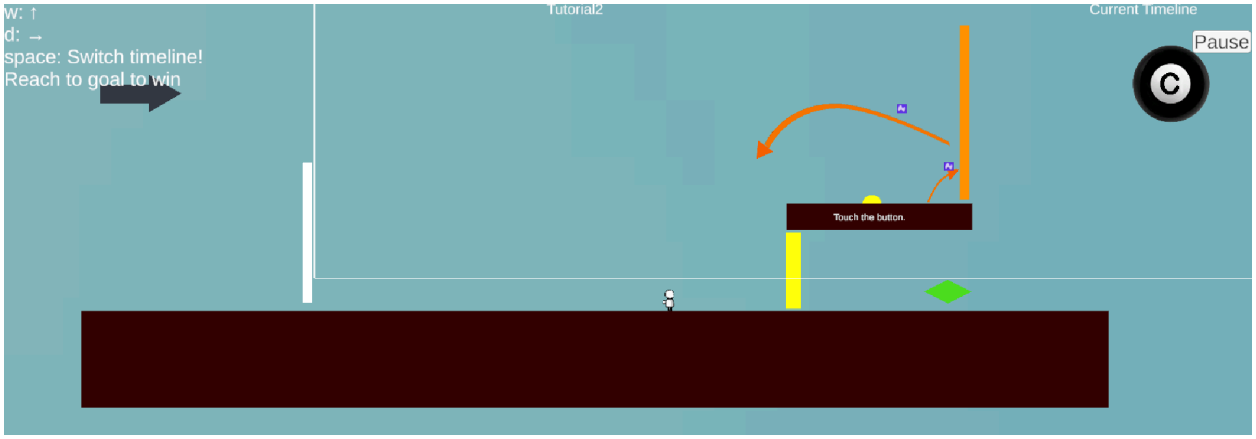
Levels Describe:

Screenshots:

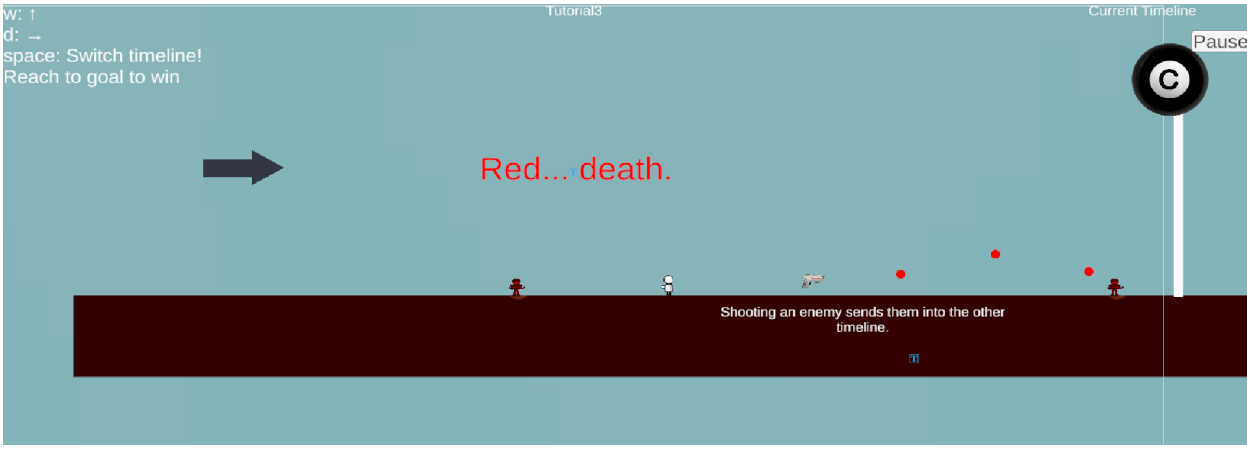
1. *Tutorial 1 - when the player spawns. This tutorial is present to teach the player the basic/core mechanic of time-switching between different timelines, and using it to avoid obstacles.*



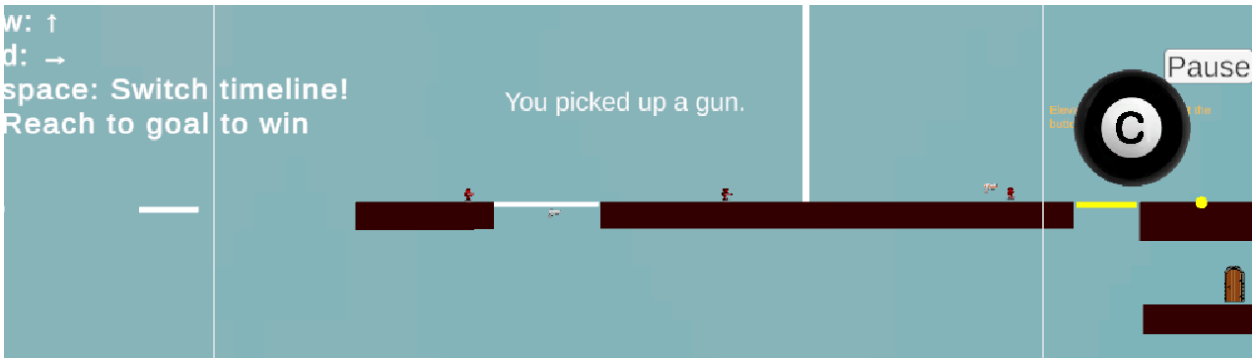
2. *Tutorial 2.- Informing the player regarding the various mechanics of the game. This tutorial teaches the player how to use bounce-back and button.*



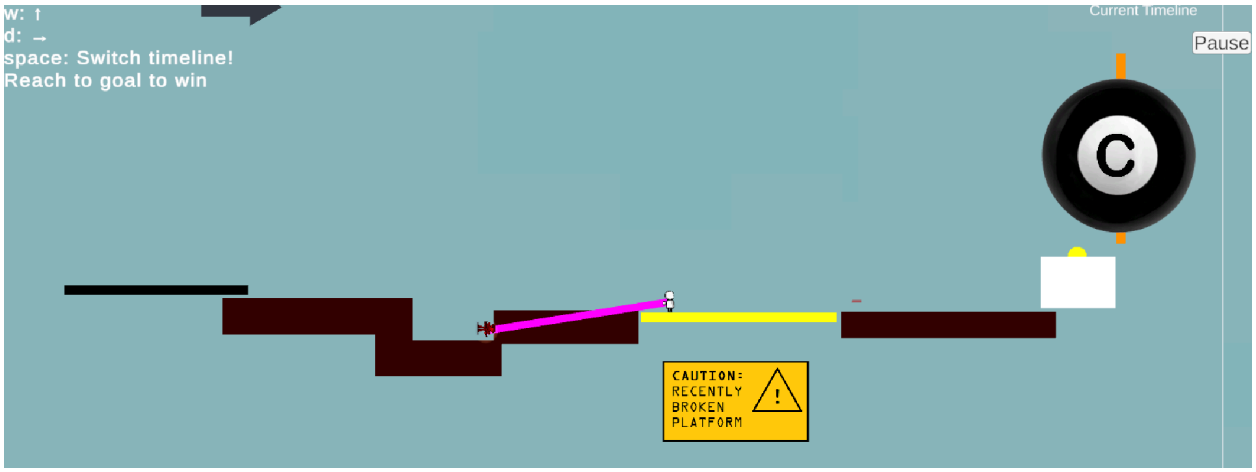
3. *Tutorial 3 - When the player picks up the gun pick-up. This tutorial teaches the player how to deal with the enemies.*



4. *Level 1 - Indicates the possibilities of either dodging bullets or picking up the gun below the platform using time-switch.*

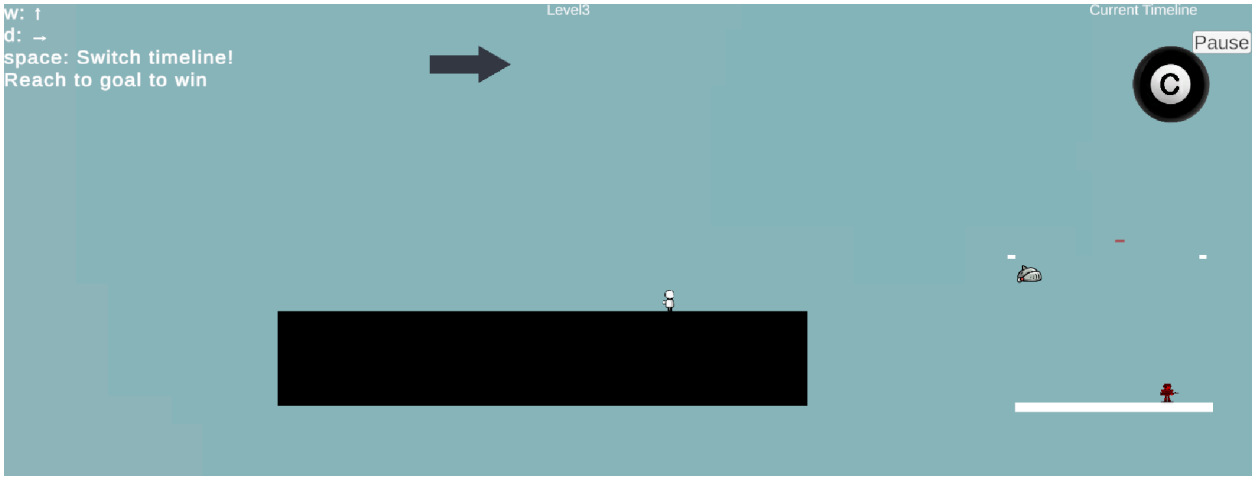


5. *Level 2 - Players can step on the mechanism by attracting enemies.*

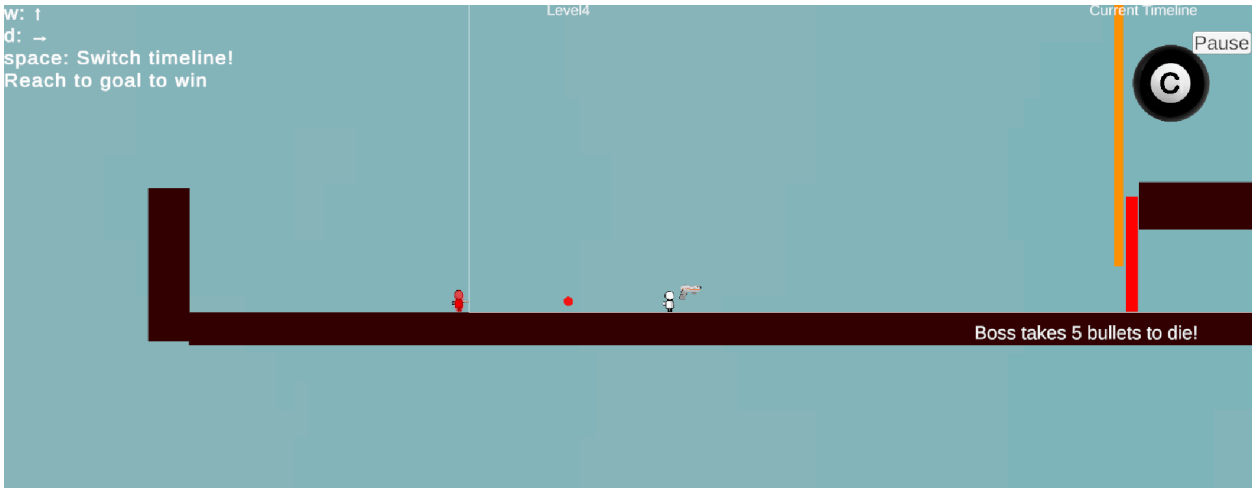


6. *Level 3- Players need to play with the moving platforms wisely.*

7. *Level 4. - Players can choose their path wisely and deal with those enemies.*



8. *Level 5 - Final boss, an evil version of YOU.*



Weekly Prototype Descriptions

Describe each of your weekly prototypes here, noting additions, changes, and improvements. It is important to keep this updated every week.

<u>Week-8:</u>

- *Designed the Main Menu with actions for selecting either Tutorial or Level 1.*
- *Created the Tutorial level for players to understand the mechanics of Beyond Time.*
- *Added shooting mechanics for players.*
- *Added shooting mechanic for enemies.*

- *Modified Bounce-back mechanic implementation such that it "moves" the player back, instead of "teleporting".*

- *Designed mechanic A which works in xyz way*
- *Initially X was placed in Z format. Changed it to Y to accommodate mechanic B. <Add images from your game and explanations>*

Week-9:

- *Added Shooting guidance, arrow guidance for bounce-back to the game*
- *Remove color change while bouncing-back*
- *Fixed enemy stuck in obstacle bug.*
- *Readjustment of shooting mechanism, now the bullets shoot enemies into another timeline*
- *Added Marker for enemies in the other timeline.*
- *Adding Illustration to Tutorials*
- *Improved level design so that game mechanics support each other*
- *Reorganize the GDD and clarify the game concept*
- *Practically implemented analysis metric 2: Location of Death Within a Level in x,y coordinates.*

Week-11-12:

- *Reorganize the Level/UI description,*
- *revise momentum system*
- *Make Level 2, Design boss fight*
- *Fixed bounce back wall, attempted wall effect*
- *Modified Tutorial(obstacles).*
- *Added Next Level buttons for each level.*
- *Modified enemy bullets so that they only appear in the timeline that they were shot in.*
- *Modified the bounce-back functionality so that the player cannot move until they have hit the ground*

Week-13:

- *Reorganize the Boss fight, enemies time-switch mechanism and player/enemies shooting.*
- *Bug fixes, fix bullets logic*
- *Fixed bullet system, changed the shooting behavior of enemies*
- *Integrated all four analytics with firebase realtime database*

Week-14:

- *Improve marker system based on feedback*
- *redesign and implement the boss fight.*
- *Split level 3 into Level 3 and 4.*
- *Designed and developed new level,*
- *modified enemies to chase player more often,*
- *created Shield pickup*
- *Pause menu added*
- *Migrate the controls of the game to a single controller, the keyboard.*

Week-15:

- *Reworked Level 2.*
- *Split level 2.*
- *Added moving platforms.*
- *Added art for the player.*
- *Added art for enemies.*
- *Added art for pickups.*
- *Added music for the game.*
- *Added markers for enemies in level 2.*
- *Added functionality for visually representing when the enemy aggros on the player.*
- *Added visual hints for the player to help them understand when to switch timelines.*
- *Reworked obstacle view in the other timeline(outline).*
- *Fixed bugs in the main menu and the levels.*
- *Reworked tutorials so that they are more comprehensive.*
- *Changed elevator in Level 1 so now it is smooth, with small text explaining 2 button presses required*

Analytics

Methodology Used:

1. *Data Collection:*
    - *Used firebase to track metrics.*
    - *Count the time in sec in front of particular obstacles.*
    - *Record x,y coordinates of each death, overlayed with the level snapshot.*
    - *Count the number of kills the player gets on each timeline per level.*

Data Visualization:

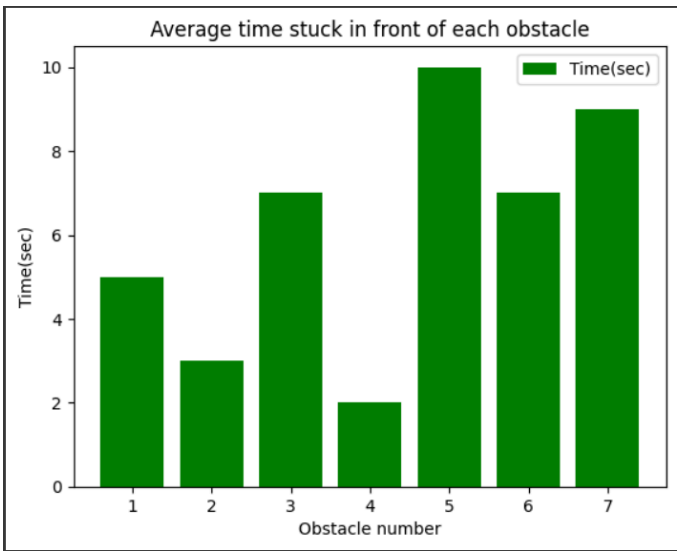
- *Used python(matplotlib) scripts to generate the graphs.*

Analytics - Mockups/Results

Metric #1: *Time(Obstacle)* *** **Implemented** ***

Description: *Time the players stuck in front of each obstacle by sec in average.*

(Mockup Sketch of hypothesized analytics/ Image of actual results)



Justification:
Why was this metric chosen? How will it provide insightful data and how will this data be used to improve your game?
According to our mechanic, the player can only move forward, when they move to the position that is attached to the obstacle they can no longer move horizontally if they did not figure out the way to deal that obstacle. So we can count the time they stuck in front of the obstacle in sec, this reflects whether they truly understand our mechanisms and the methods/tools available to help them out. This will reflect whether or not our tips were obvious and the tutorial was successful.

Interpretation:
List possible results you might obtain with this analytic. What would each of these results suggest about your players and mean for your game? List hypotheses and potential solutions based on the data you have collected.

We may observe a high average stuck time at some particular obstacles. It shows that players don't know how to get over this obstacle. We analyze the local situation and level design to see if our hints are obvious and our tutorials are easy to understand. If we think our obstacles are

too obscure, we will adjust them to be more clear or add more environmental clues to help surmount the obstacle.

The player spends more time in front of the obstacles which have various other game elements, like enemies and bullets. Hence, we are calculating the time spent in front of obstacles which do not have more complicated mechanics around them. In front of obstacles, players have been spending about 0.5 - 1 second, which is the appropriate time to spend in front of these obstacles.

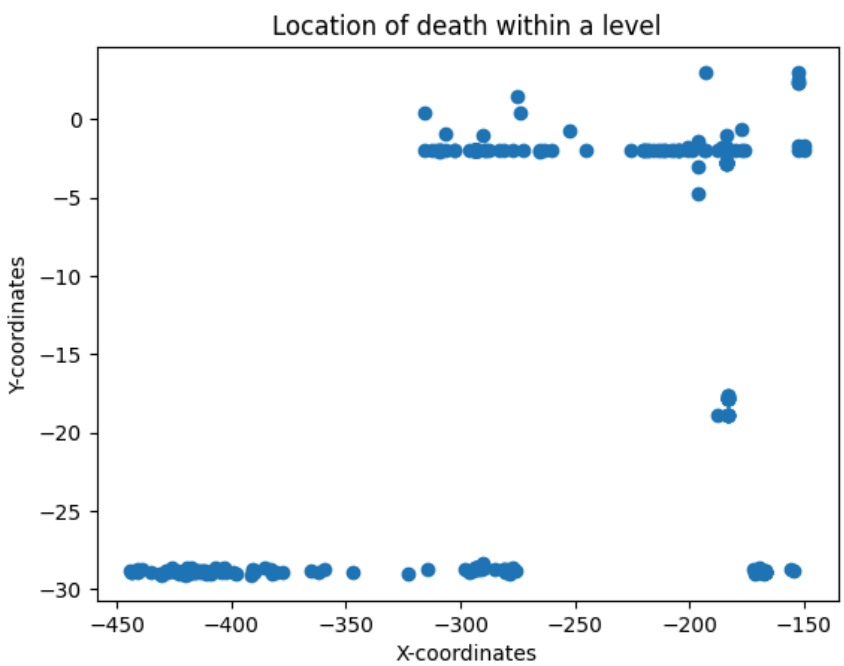
Real Data Collection Proof:

The data collected for the Time(Obstacle) analytic is present here: https://console.firebase.google.com/u/0/project/team-3g/database/team-3g-default-rtdb/data/~2FTimeAtObstacle

Metric #2: Loc(death) ***** Implemented *****

Description: *Location of Death Within a Level in x,y coordinates.*

(Mockup Sketch of hypothesized analytics/ Image of actual results)



Location of Death Within level 1

Justification:

The graph's scatter plot pinpoints where players are struggling the most, with dense clusters indicating tough areas—potential spots for tweaking difficulty. Meanwhile, areas with few deaths may be too easy and could benefit from added challenges to keep players engaged. This visual representation allows us to identify 'hotspots' of difficulty and consider whether these align with the intended level progression and challenge flow. This is crucial for us to balance a level, ensuring it's neither too hard nor too simplistic. Eventually, we will be able to balance levels based on this metric.

Interpretation:

For Example, based on the above graph:

The data points in the above graph show us a clear idea of what the player is going through. There are a few deaths in the initial stage, where the player understands the use of time-switch to jump on the platforms to progress through the level. After the initial deaths, the player is met with enemies. This is where the player dies multiple times and learns how to avoid enemies and obstacles at the same time. Since there isn't a cluster of deaths(>5) in a particular segment, our conclusion is that the level is properly balanced. This conclusion may change with more incoming data.

Real Data Collection Proof:

The data collected for the Death Location of the player is present at this location:
https://console.firebase.google.com/u/0/project/team-3g/database/team-3g-default-rtdb/data/~2FDeathLocation

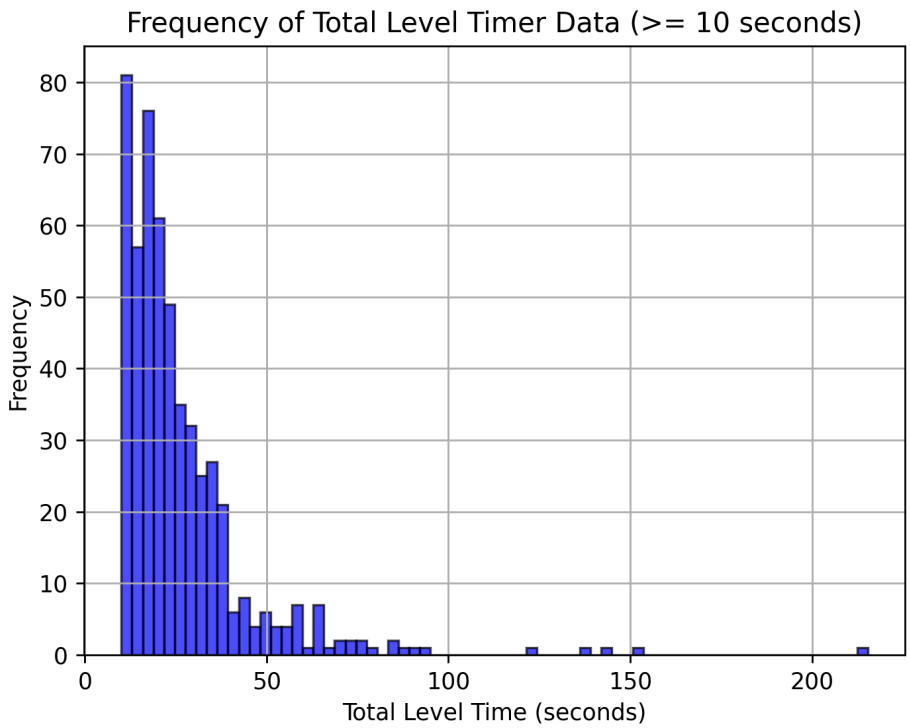
Metric #3: *Time(t1,t2)/level* ***** Implemented *****

Description: *Time spent on each timeline per level.*

(Mockup Sketch of hypothesized analytics/ Image of actual results)

Which timeline players stay in level 1

***Legend**: Timeline Name,*
Number of Players



Justification:
Our game's main feature is the ability to Time-Switch. To analyze whether the player is using this ability as intended, we track the amount of time and when they spent on each timeline in each level. This helps us balance the game and the levels.

Interpretation:
Example: The player spends 20 minutes playing a level. Out of those 20 minutes, they spend 15 minutes on timeline 1 and 5 minutes on timeline 2. Let us assume that we designed the level such that time spent on each timeline should be approximately equal, i.e, ~10 minutes per timeline. The data shows us that our implementation of the level does not match our expectation. With this data, we can balance our level and identify potential reasons to prevent players from experiencing an alternate timeline, especially the second timeline, such that the player willfully spends more time on the second timeline.

The time spent in each timeline for each level is an important mechanic which integrates with our data for the location of death and with the time spent on each obstacle. Spending more time in a timeline can be either the player spending too much time in front of obstacles or regularly dying in the timeline, or a combination of both. This data is helping us better analyze the player experience in terms of difficulty regarding the obstacles and death.

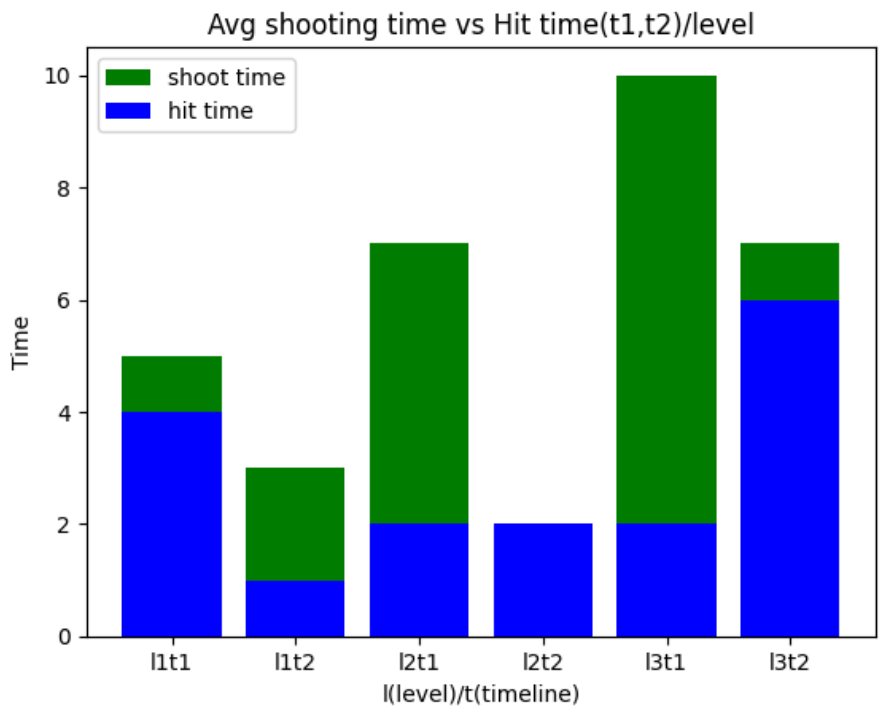
Real Data Collection Proof:

The data collected for the time spent in each timeline per level and is present in this location: https://console.firebase.google.com/u/0/project/team-3g/database/team-3g-default-rtdb/data/~2FLevelTime

Metric #4: *Avg shooting time vs Hit(t1,t2)/level* *** **Implemented** ***

Description: *The average number of times the player shoots and average number of enemies hit on each timeline per level*

(Mockup Sketch of hypothesized analytics/ Image of actual results)



Justification:
Why was this metric chosen? How will it provide insightful data and how will this data be used to improve your game?

This method provides a side-by-side view of the player's use of the shooting mechanism. We gave players the ability to shoot enemies, and we wanted to track whether or not they enjoyed the mechanic. This can reflect on the success of our mechanic design/level design. Measure the average number of times shooting metric was used and average number enemy hitted to get an idea of how accurately and skilled the player got in shooting.

Interpretation:
List possible results you might obtain with this analytic. What would each of these results suggest about your players and mean for your game? List hypotheses and potential solutions based on the data you have collected.

We may observe a high number of enemy shots in one timeline and very few in another. This may indicate that the player is more biased towards passing in this timeline/this timeline generates too many/too few enemies/another timeline is too difficult. We will take into account the last metric to determine which is the ultimate case. We will improve and adjust for that situation.

This metric also integrates with the location of death and the time spent in each timeline. If the player regularly dies in the same areas where there are enemies, then that might be an indication that we need to probably reduce the number of enemies in that area in that timeline.

Real Data Collection Proof:

The data collected for the number of bullets shot in each timeline versus the number of enemies hit is present in this location:
https://console.firebase.google.com/u/0/project/team-3g/database/team-3g-default-rtdb/data/~2FPlayerGameInfo

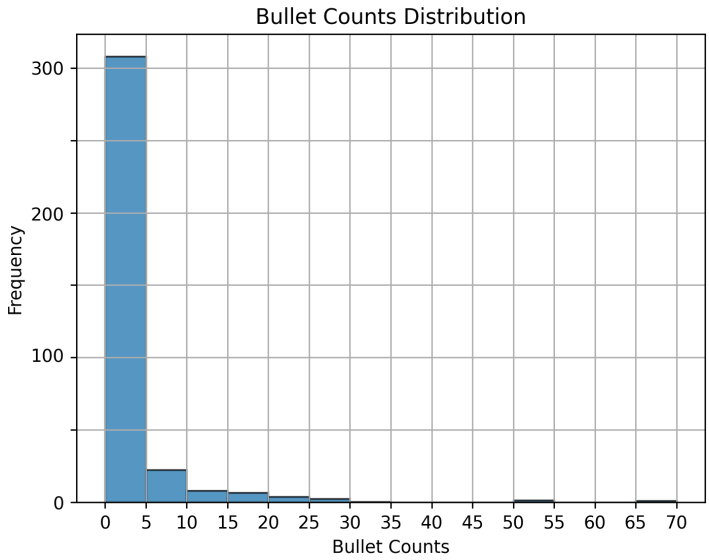
Analytics - Hypothesized Problems & Solutions

Hypothesized problem #1: *Shooting and time-switch keybinds*

Description & Justification: Shooting and time-switch keybinds are making it difficult for the player to play the game.

Justification: Based on the survey responses and the analytics graph, a lot of the players mentioned that shooting should not be on a different controller, like it was with the mouse. Our game made the user use the keyboard and the mouse simultaneously, which is extremely difficult on a laptop with a trackpad. This affected our game heavily in a negative manner, since the player is always playing the game with a disadvantage. The data collected from the bullet count, and the death location pointed towards not only issues with depicting the obstacles and complicated design, but also towards the issue with the keybinds(based off of the survey responses).

Citation: At least one analytic graph, one piece of survey feedback cited
Citation of Graph:



Citation of Survey 1: *"If I can use keyboard to use the gun instead of using the mouse it will be better!"*
Citation of Survey 2: *"I would prefer shoot button to "x" button or some button on the left. So I don't need to move my hand between mouse and arrow keyboards when play the game."*

Potential Solution #1: Migrate the controls of the game to a single controller, the keyboard.
Potential Solution #2: Make aiming based shooting, so mouse shooting is more intuitive.

Implemented Solution: Solution #1
Justification: A short justification why the solution is chosen

Moving shoot to keyboard is easier to implement in this stage of development and is more inline with what the players were asking for in their suggestions. It also makes the game more ergonomically comfortable especially for laptop players who do not have a mouse for using left-click

Detailed step by step explanation of solution implementation

Step 1: Analyse our current keybinds and playtest the game on a laptop without an external mouse.

Step 2: Figure out which keybinds would be more useful for the player while transitioning all the controls to the keyboard.

- Researched existing game layouts like Metal Slug, which can be played with Z, X, and C and Contra, which was intended for arcade machines without mouse shooting

Step 3: Add all the movement related keys to the left hand and move the shooting to the right hand on the keyboard.

Step 4: Set “space” as the time-switch key and “m” as the shooting key.

Commit Link:

https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/3f5f4d21333bea47bdd21a1d661e9e9605a843b2

Demonstrate how the effectiveness of this solution can be future tested:

We can redo an analysis on bullet shooting, so we can see whether players are actually shooting bullets to hit enemies. Ideally we see that players are shooting bullets often, since we encourage players to do so, and as a result they are hitting enemies more often.

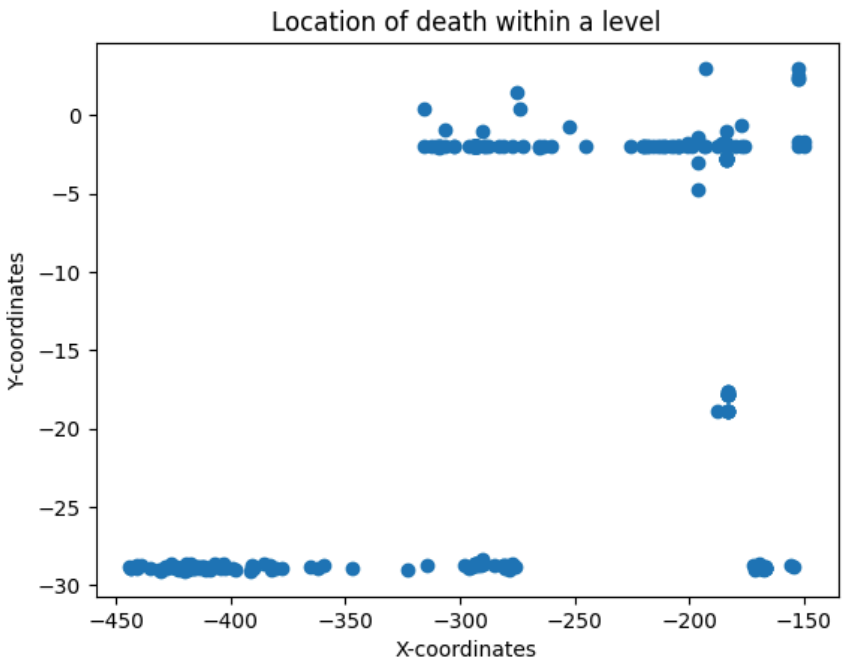
Hypothesized problem #2: *Player dies from falling in the beginning of level 1.*

Description & Justification: We hypothesize that the player does not realize that time switching brings different platforms into view. Based on our collected data, there are a lot of deaths from falling right at the beginning of the first level. This affects the player’s experience of the game, since it is directly related to the main mechanic of the game: Time-Switching.

Justification: Our hypothesis is based on the collected DeathLocation data and inputs from playtesting where players mentioned that they wanted the time-switch mechanic to be more obvious.

Citation: At least one analytic graph, one piece of survey feedback cited

Citation of Graph:



Citation of Survey 1: "*maybe more hints that suggest players not go too far*"

Potential Solution #1: Add markers for platforms which are present in the other timeline, to show players that a platform exists in the other timeline.
Potential Solution #2: Outline the platform's position in another timeline with a semi-transparent shadow.

Implemented Solution: Solution #1 and 2
Justification: We chose to focus more on the outline implementation for the platforms. This implementation allows us to extend the current state of the game for when we add art and moving platforms. The player will be able to see an outline of the platform which is present in the other timeline.

Step 1: We observed where the issue was persisting the most.

Step 2: Added new game objects for the markers.

Step 3: Tested the game so that the markers are present in the opposite timeline of the platform.

Step 4: Make sure that the markers are of the correct size, so that the player does not mistake them for platforms themselves.

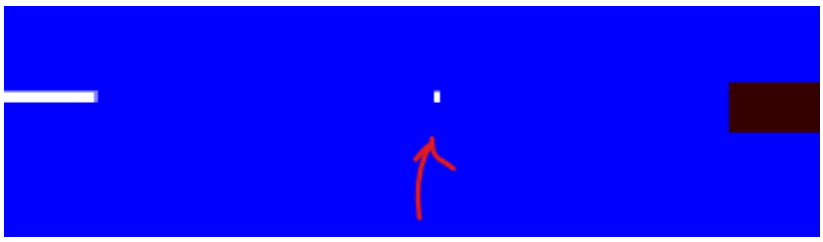
Commit Link:
https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/41fbff7f1644bd397c9b754e3671bcc26fb9dd9f

PastPlatformDisplay then we take one more step
https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/7f3bd81c6907f61f31d03cf3dddff30a1194ced1
PastPlatOutline

Demonstrate how the effectiveness of this solution can be future tested:
If, in the future, the player still dies multiple times at the beginning of the level, we will assume it is because of confusion with the time switch and platforms. On the other hand, if the number of deaths decreases after this implementation(and addition of art), we will assume that our solution worked.

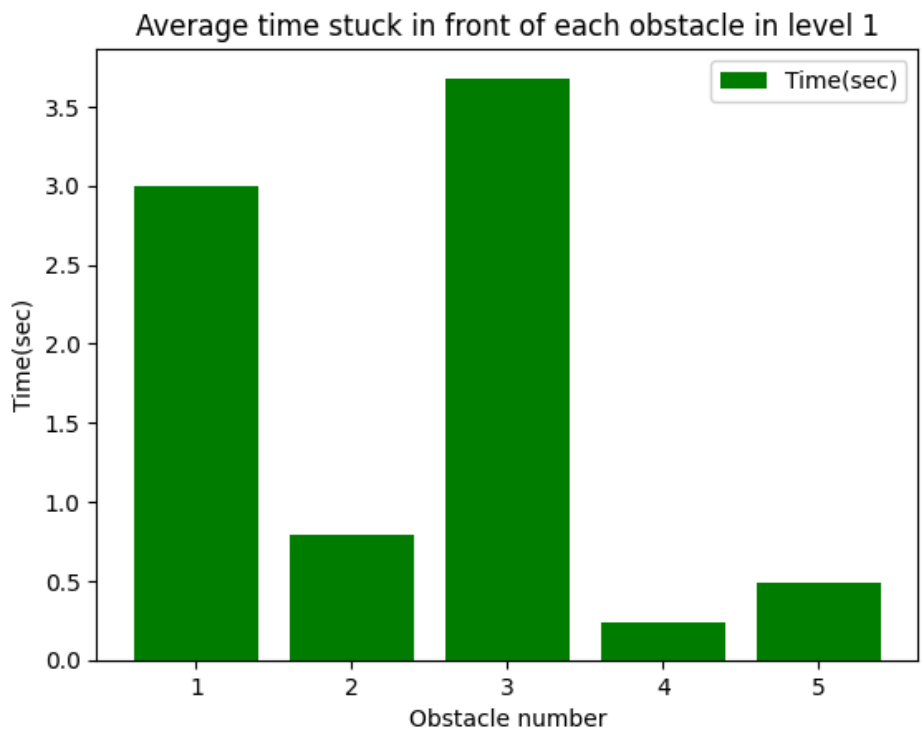
Hypothesized problem #3: *Some Players tend to stand on the little marker on platform of another timeline to move on, rather than time switch*

Description & Justification:
Obstacle number 1 in level 1 is this :



With an average of 3 seconds on it, some players tend to stand on the little marker on the platform of another timeline to move on, rather than time switch with a simple click on C key. Combining feedback from surveys: “Sometimes I do not know when to switch timeline.” We can have a hypothesis that some players don’t really understand the time-switch mechanism and don’t really want to/know how to use it.
(Obstacle number 3 is the platform above the gun, we intend to design in this way, and the time they spend on that is what we are looking for.)

Citation: At least one analytic graph, one piece of survey feedback cited



Citation of Graph:
Citation of Survey 1: “Sometimes I do not know when to switch timeline.”
Citation of Survey 2:

Potential Solution #1: Outline the platform's position in another timeline with a semi-transparent shadow, instead of a physical small marker that they can stand on it.
Potential Solution #2: We keep the markers, adjust their shape and position, so players will no longer be able to stand on markers, which will show the exact border of the platform.

Implemented Solution:
Solution #2:
Step 1: We keep the platform outline only so players will no longer be able to stand on markers, and will show the exact border of the platform.
Step 2: We emphasize the time-switch in the tutorial and also added a timeline indicator ball, which glows at certain points to hint player to change timeline
By using similar scenarios repeatedly, they are forced to use time-switch to familiarize the mechanism.
Justification: In last week's play-test, we found that players didn't fail to understand the time-switch. They tend to choose to move on using small markers because they want to challenge themselves. And psychologically, they tend to face the known as opposed to using time travel to face the unknown, even if it's relatively difficult. We outline the exact position of platforms to avoid confusion.

Commit Link:
https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/6142524c101d23089f44482491889b23fddcd0e6

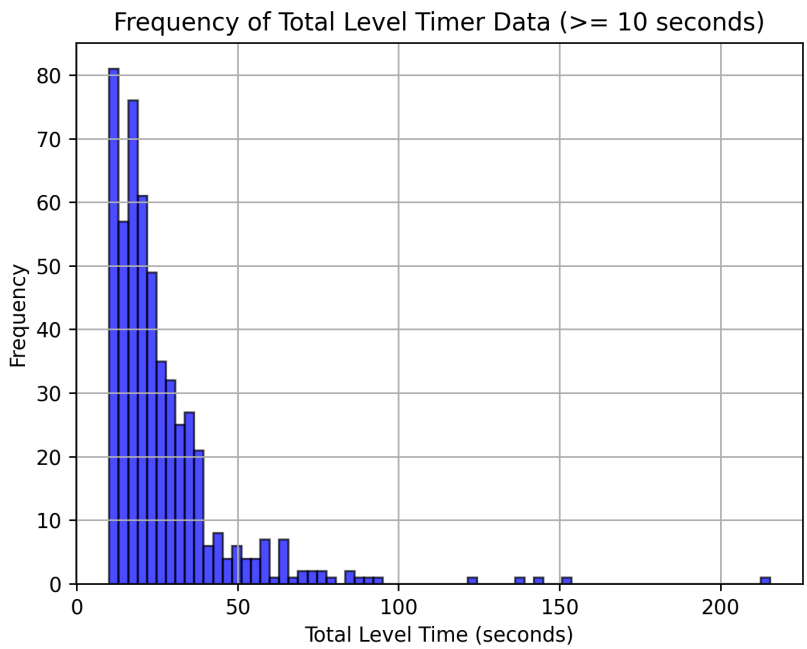
Demonstrate how the effectiveness of this solution can be future tested:
The markers for each platform no longer support players to stand on it. We will no longer be able to record the time the player stood on them, but we do have a record of where the player died, at the corresponding x,y coordinates being recorded. Players have played the game before, and they should fall less frequently on simple platforms than they did before, but with the changes we've made to the marking system, we can tell if our update is working by comparing the frequency of player deaths in that area.

Hypothesized problem #4: *Degree of Level complication*

Description & Justification: The player is not shooting regularly to time-switch the enemies, and they are using time-switch and the extended jump mechanic to overcome the enemies, which reduces the complication degree of the level.
Justification: Based off data collected from the 4th metric, which contains the number of bullets the player shoots in Timeline 1 and 2, and also the number of enemies the player hits in Timeline 1 and 2, we observed that the players seldom use the bullets to avoid the enemies, but use the time-switch mechanic along with the extended jump to completely bypass the enemies. This affects the experience of the game since shooting the enemies is a major part of the game, and bosses are also affected by it. We assume that adding more complication to the levels and enemies will make the player not only shoot the enemies but also regularly switch timelines.
Looking at the data collected of the total amount of time the player spends in a level, it is tending towards less than 50 seconds, and the majority of the data is tending towards less than 30 seconds. This, combined with the data that players are not shooting enemies because they can avoid them just by jumping and/or time-switching, points to our hypothesized issue that the levels are probably too easy for the player. This is also

backed up by the survey response. The data in the chart below has excluded the portion that did not complete level 1.

Citation: At least one analytic graph, one piece of survey feedback cited
Citation of Graph:



for level 1

Citation of Survey 1: *"Add better enemy scenarios. I can use time switching and jump to hide all enemies…"*
Citation of Survey 2: "*Probably because the theme of this game is time travel, so the characters can't go backwards. But during exploration I don't know when I need to switch timelines, resulting in sometimes missing important points but not being able to back up.*"

Potential Solution #1: We can add new levels with more complicated level design and enemies which shoot.
Potential Solution #2: We could time-switch the enemies instead of killing them.

Implemented Solution: Solution #1 and Solution #2
We have implemented a solution which integrated both of the potential fixes. We have added new levels with more complicated level design, which is what the players had requested via the beta survey result. We have also made all enemies in the game unkillable. The catch is that they are teleported to the other timeline on being hit by the player's bullet.

Commit Link:

https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/9cbc475638a1f2967d0137858ce3f2a39e145dfc

Justification: Via this approach, we kill two birds with one stone: Make the existing levels more interesting by changing the functionality of the enemies, and also add new complicated levels, which add to the overall level design of the game.

Step 1: Change all the enemies to be teleported on being shot by the player.
Step 2: Test the enemies, and solve bugs related to the markers that the enemies leave behind on being teleported.
Step 2.5: Add indicator that enemy is aggro'd to player
Step 3: Add new levels with more obstacles.
Step 4: Added more vertical layers to the newer levels.
Step 5: Added more time switch platforms to the newer levels.
Step 6: Integrate all of the above changes into a new build.

Demonstrate how the effectiveness of this solution can be future tested:

These solutions to our hypothesized issue can be tested by the number of bullets the player shoots in later stages of the game. If the player still doesn't shoot enough bullets even on the more complicated levels, it means that we need to fix the level design. On the other hand, if the number of bullets shot increases to an acceptable degree, then this means that the change worked.

Weekly Progress

List the individual work done by each team member up to that week in the table below. Add short descriptions of the work done and add a link to one relevant Github commit for the respective work done by that team member.

Week Number	**Team Member**	
Week 7-8	***Khushal Kalidindi***	***Varun Kapoor***
	Shooting implemented *(WIP) Alpha Prototype Shooting by Khushal-USC · Pull Request #1 ·*	*Initial code, shooting, bounce-back* *https://github.com/CSCI-526/cs-526-spring-2024-wednesd*

	CSCI-526/cs-526-spring-2024-wednesday-project-team-3g (github.com) *Analytics, mechanic research, GDD, code*	ay-project-team-3g/tree/3b336c2faae8eb4e80ee14704c45cfd3f816e2a9 *Analytics, mechanic research, GDD, code*
	Haoyu Guan	
	Level Design, tutorial: https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/tree/5e2e58be3c006d683df20692d22eef0cd591ff44 , scratches, Analytics, mechanic research, GDD, code	
Week 9	***Khushal Kalidindi***	***Varun Kapoor***
	added patrol and tpenemy · CSCI-526/cs-526-spring-2024-wednesday-project-team-3g@dccd5b3 (github.com) *Added guard patrol, implemented new time switch enemy type, helped update GDD w/ analytic descriptions*	*https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/tree/0ecbd508e4e5c0e293cc659082130d8a07019a47 - Added firebase analytics for player death location, code and UI for marker for time-flipped enemy, modified tutorial and level 1 for guiding player. Modified GDD.*
	Haoyu Guan	
	https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/d11eef748fe8be084a75251a6fd294d18d6815ee *Added arrow guidance for bounce-back to the game. Adding Illustrative text/guidance to Tutorials. Improved level design. Reorganize the GDD. Plot for Analysis.*	
Week 11-12	***Khushal Kalidindi***	***Varun Kapoor***
	player bounce back wall effect and readded player bouncebacktimer · CSCI-526/cs-526-spring-2024-wednesday-project-team-3g@ef055c0 (github.com) *Fixed bounce back wall, attempted wall effect, scrapped later due to bugginess summarized and organized GDD notes and*	*https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/tree/d603801cd28a704d649eccf86fd30560f6cd7b59 Modified Tutorial(obstacles). Added Next Level other buttons for each level. Modified enemy bullets so that they only appear in the timeline that they were shot*

	pushed small bug fixes for beta build	*in. Modified the bounce-back functionality so that the player cannot move until they have hit the ground. Added boss code for level 2. Bug fixes. Modified GDD.*
	Haoyu Guan	
	https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/5a174e5e0d3e98f0f10df1d5cb1f20fdb90bdb98 *Reorganize the GDD. Level/UI description, revise momentum system, Mechanics/Analytics rectification, feedback/note organization, Make Level 2, Design boss fight*	
Week 13	***Khushal Kalidindi***	***Varun Kapoor***
	merging bullet fix branches, to include bullet changes as well as enemy changes by Khushal-USC · Pull Request #2 · CSCI-526/cs-526-spring-2024-wednesday-project-team-3g (github.com) *Fixed bullet system, changed the shooting behavior of enemies, summarized and organized GDD notes, summarized the feedback and changes we made from Alpha to Beta and pushed small bug fixes for beta build*	*https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/tree/c5bf50eef3345cbe18d43e28b32527b5b4cab94e* *Integrated all four analytics with firebase realtime database. Bug fixes, modifications to bullet logic. GDD.*
	Haoyu Guan	
	https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/f39ac352bb30912f383b34262a0012b5c516d37f *Reorganize the Boss fight, enemies time-switch mechanism and player/enemies shooting. Design Survey, Bug fixes, fix bullets logic. Describe level, GDD*	

Week 14	***Khushal Kalidindi***	***Varun Kapoor***
	Made new level, added shield pickup, modified	*https://github.com/CSCI-526/cs-526-spring-2024-wednesd*

	enemy script to always … · CSCI-526/cs-526-spring-2024-wednesday-project-team-3g@5926f8e (github.com) ***Designed and developed new level, modified enemies to chase player more often, created Shield pickup, re-organized notes in GDD and created graph for Analytic Hypothesis***	*ay-project-team-3g/tree/d078f7f39e42e122d11cebc20ae28dfab487f887* *Tested the game, and then added bug fixes to all the levels. Added level name to DeathLocation analytic. Added pause menu throughout the game. Added consistency to the level elements. GDD, and analytics, worked on the hypothesized issues.*
	Haoyu Guan	
	https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/9cbc475638a1f2967d0137858ce3f2a39e145dfc *Improve marker system based on feedback, redesign and implement boss fight. Split level 2. Analytics: data cleaning, analyzing, graphing, up rise hypothesis problem and organizing GDD. Summarize the notes and survey*	
Week 15	***Khushal Kalidindi***	***Varun Kapoor***
	https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/7f3bd81c6907f61f31d03cf3dddff30a1194ced1 *Level 2 Changes, Moving Platforms, Enemy vision indicator, New TimelineIndicator/Hint system, new BounceBack FX, new Platform Outline system with Shaders, Level 1 elevator rework*	*https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/tree/2d40880c90b09971fb38445bed14a26398778af4* *Art for player, enemies, pickups in all levels. Art for jetpack, helmet and gun. Bug fixes through all levels. Added music for the game. Presentation and GDD work.*
	Haoyu Guan	
	https://github.com/CSCI-526/cs-526-spring-2024-wednesday-project-team-3g/commit/081b7d2af08c944c530de716e07bc0692416ad38 *Bugs fixed, boss bullet color change, # of bullet to die change, enemy marker level 2, bounce back in level 1 adjust,*	

	shoot tutorial improve, GDD find each improvement commit, level describe

Note: This is to be followed for the rest of the semester. Make sure it is updated each week.

Review Notes/Feedback:

Notes/feedback that you receive from staff and playtesters, as well as possible improvements you could make based on it. It is important that the stenographer makes note of these each week, but other team members should also keep track of incoming feedback.

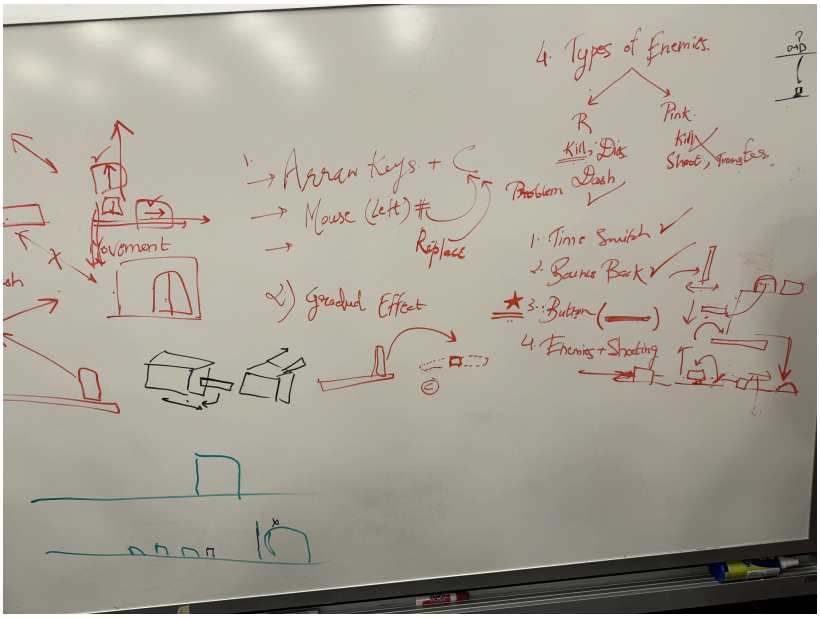
Playtest/TA Meeting Notes

Date	Summarized Notes

[02/28/2024] (See 1 in Raw Notes section)	● Players unclear on controls, particularly shooting, which they didn't attempt due to lack of awareness.
	
	● Initial gameplay reveals features like wall-climbing and color-coded mechanics, users find these features confusing, steep learning curve and frustration.
	  ○ Solution to both above problems is improved tutorialization by streamlining tutorial levels, segmenting chunks of tutorial level to teach different mechanics
	
	● Difficulty understanding objectives and navigating the level
	● Unclear feedback on player actions like "switching" or "using bounce-back"
	  ○ Solution: make movement clearer to player through visual feedback from bounce back and from moving around

[03/06/2024] (See 2 in Raw Notes section)	Enhance Tutorial Structure: ● Break the tutorial into smaller, focused segments ● Include dynamic enemies in the tutorial to teach players about combat mechanics ● Explicitly include a segment on using the jetpack Visual and Text Improvements:

	● Make the text explaining the gun mechanics stay on-screen longer, ensuring players have enough time to read and understand how shooting works. ● Ensure that all in-game text is consistent in size ● Add visual indicator for gun acquisition: (When players obtain the gun, introduce a visual cue) Aesthetic and UI Enhancements: ● Lighter shade of blue for the background ● Move the arrows on buttons to a different location ● Implement distinct UI for player death and level completion ○ Allow player to Try Again, or go to main menu. If they complete, show next level or main menu
Meeting Notes with TA(March 7th 2024): (See 3 in Raw Notes section)	Refine Text Elements: ● Adjust the font size ● Implement more interactive or visual learning elements Segment Tutorials: ● Separate tutorials into distinct sections ● Introduce basic movement and jumping with a staircase obstacle Gameplay Mechanics and Visuals: ● Address collision issues, especially with teleportation mechanics, to prevent players from unintentionally entering obstacles. ● Clarify through level design or indicators that platforms and obstacles may change based on time mechanics ● Make bounce-back mechanics more intuitive. ● Adjust platform widths to increase challenge but ensure they remain fair User Interface and Feedback Enhancements: ● Introduce visual cues or a specific indicator when the player picks up the gun ● Consider a "revive mechanic” Visual and Aesthetic Adjustments: ● Make the background a lighter blue ● Ensure that time mechanics are consistently represented ○ Past interactions effect present ● Add clear visual indications of platform lengths

March 27 2024	 - Too many enemy types, should consolidate to a single enemy type - Button is not involved enough with existing game mechanics - Should change to keyboard only system, not keyboard and mouse - Maybe make time switch gradual, rather than instant
[03/20/2024] (See 4 in Raw Notes section)	• Players need to press C again and again -Solution: Changed the time Switch hotkey to Space for better ergonomics • The character will slide even if Player release the controls -Solution: Delete momentum system • Gun text too fast -Solution: Increase the time of display of textual indications • Text is too small -Solution: Rescaling the instruction text • Add more complexity -Solution: add level 2 and more, emphasize the impact of past timeline on present timeline • Bullet kill player himself -Solution: Change the speed of player bullet • Reduce the frequency of enemies shot

[04/10/2024] Play test notes (See 5 in Raw Notes section)	• DOES NOT LIKE USING LEFT MOUSE TO SHOOT -Solution: Change key bind of shoot to N or M • did not like when enemy surprised them from previous timeline -Solution: provide initial marker of enemies in another timeline • rarely used shooting, didn't like uni direction -Solution: Migrate the controls of the game to a single controller, the keyboard. • no pause menu to go back to main menu -Solution: add pause menu to back to main menu or retry • level 2 little long, needs checkpoint -Solution: add checkpoint or divide level 2 • pressing c to time switch was awkward -Solution: change key of time-switch to space or N or M

Alpha Survey Notes

Summary of Alpha Playtest Survey:Team 3G Alpha Survey Feedback - Google Sheets

What Was Unclear:

- Players found the effects of timeline changes to be unclear and inconsistent.
- Some players were confused over specific game mechanics, such as the function of the yellow button, the role of the pink enemy, and when to switch timelines.
- The jump feature, including issues like being able to jump multiple times to reach a fixed height and jittery player movements, was frequently mentioned as unclear or unnatural.

What Was Good About the Game:

- Players enjoyed the time-switching, the button design, and the inability to move backward
- Tutorial level helped players understand how to play the game
- Features like the bounce-back mechanic were highlighted as enjoyable parts of the game that players wanted to see more of.

What Additional Features Would Be Nice

- Making the timeline effect more obvious, fixing the jump feature and smoothing out player movements.

- More challenging maps, suggesting the addition of more dynamic obstacles and enemies, and improving the use of the toggle mechanic.
- Bigger instruction text, clear indications of power-ups, and fixed hints for key actions (e.g., firing with "Ctrl") were suggested to improve clarity and player experience.

Based on the above review, we have listed the following issues and potential fixes:

Issue/ Feedback	Potential Fix 1	Potential Fix 2
Don't know what the power-up is doing(Shooting)	*Shooting guidance. Added text for guidance for the pickup.*	
Bounce-back black color change functionality unclear.	*Remove player color change. Added arrows for displaying the functionality of bounce-back.*	Make bounce back force consistent, restrict player in-air movement while they are bouncing back
Don't know which blocks do what(which ones are enemies, bounce-back, etc)	*Add text in the tutorial level to inform players what various elements do.*	*Learn from death.*
Enemy stuck in obstacle	*Fix via code, make the enemy patrol a limited area.*	
Bounce-back instruction unclear	*Add arrow guidance to the game*	
More challenging maps	*Add extra levels.*	*Modify existing levels.*
Instructions are not clear	*Increase font size of instructions and make them consistent.*	*Use level design to teach the player about specific mechanics.*

Beta Survey Notes

Summary of Beta Playtest Survey:[<Team 3G> - Beta Prototype Feedback Form Template (Responses) - Google Sheets]

What was enjoyable:

- Many players found the concept of time switching to be innovative and engaging. It added a strategic layer to the game that players appreciated.
- The tutorial was clear for some players, effectively teaching the game mechanics without relying heavily on text.
- The overall design of the levels and the use of time mechanics were praised for adding depth to the gameplay. Using time to change the level layout was mentioned as a highlight.

What was unclear or frustrating:

- Some players were confused by certain elements within the game, like the yellow and red items, and suggested that an in-game reminder or heads-up display might be useful.
- Abrupt changes, especially related to time switching, caused confusion. Players sometimes didn't know what to expect after a switch.
- Controls for movement and jumping are unintuitive or difficult,issues with jump distance or the inability to move backward.

What improvements could be made:

- Key bindings should be adjusted for convenience and to prevent the need to switch between the mouse and keyboard. Specific suggestions included binding the shoot button to a key like "X".
- The addition of checkpoints was a common suggestion to mitigate frustration from having to restart levels after a mistake, particularly in longer levels.
- Implementation of indicators to better inform when and where to switch timelines, and hints for enemy locations prior to time shifts.

Based on the above review, we have listed the following issues and potential fixes:
= implemented fix

Issue/ Feedback	Potential Fix 1	Potential Fix 2
Shooting and time-switch keybinds are making it difficult for the player to play the game	Migrate the controls of the game to a single controller, the keyboard.	Make aiming based shooting, so mouse shooting is more intuitive.

Player dies from falling in the beginning of level 1	Add markers for platforms which are present in the other timeline, to show players that a platform exists in the other timeline.	Outline the platform's position in another timeline with a semi-transparent shadow
Some Players tend to stand on the little marker on platform of another timeline to move on, rather than time switch	Outline the platform's position in another timeline with a semi-transparent shadow, instead of a physical small marker that they can stand on it	We keep the markers, adjust their position so that they show up exactly on the edge of the platform. We just emphasize the time-switch in the tutorial.
The player is not shooting to time-switch the enemies, Level too easy	We can add new levels with more complicated level design and enemies which shoot.	We design some scenario that players have to shoot
Players did not like when enemy surprised them from previous timeline	Provide initial marker of enemies in another timeline	
no pause menu to go back to main menu	add pause menu to back to main menu or retry	
level 2 little long, needs checkpoint	Add checkpoint	Divide level2 into 2 separate levels

Gold Progress Check Fixes:

All the highlighted solutions from above have been fixed

Gold Final Build Fixes:

- Added a enemy line of sight indicator, to show when a enemy is aggro'd and chasing after the player
- Added a more obvious indicator of timeline, which also glows at certain points to hint to player to change timeline and moments where players frequently get stuck
- Added moving platforms with lines to show where they will move to add complexity to platforming

- Added art
- Split Level 2 into 2 different levels to resolve issues of player frustration(See notes 6)
- Changed from using markers to outlining

Alpha To Beta Fixes:

- Fixed sliding and unreliable movement from Alpha
- Bullets no longer are homing, instead shoot at snapshots of player location so player can more easily dodge
- Level 2 made easier to allow player to progress
- Added Shooting guidance, improved clarity of mechanics by enemy behavior consistent(if any enemy)
- Fixed Enemy Patrols so they don't fall off the map easily

External References

Link to any references (tutorials, assets, etc) from other sources used in your game here. Explicitly state how they are used.
*Note: You get credit solely for what you have developed yourselves. Assets will not count towards the grade and **must** be mentioned below.*
If external assets / code / tutorials are used without reference, you will incur negative consequences.

Name	**Link**	**Usage**
2D Simple Character : Swordman	*https://assetstore.unity.com/packages/2d/characters/2d-simple-character-swordman-133259*	*Art for the player, hat(including shield pickup).*
2D Sci-Fi Weapons Pack	*https://assetstore.unity.com/packages/2d/textures-materials/2d-sci-fi-weapons-pack-22679*	*Gun model(gun model for the player and for the pickup).*
Door	*https://www.pixilart.com/draw/pixel-door-0fc84f0c3d4c39f*	*Used for the level goal.*
Free 2D Mega	*https://assetstore.unity.com/packages/2d/free-2d-mega-pack-177430*	*Used background images and art for enemies.*

Pack		
RestClient	*https://github.com/proyecto26/RestClient*	*RestClient library by Proyecto26 for firebase database connectivity from Unity to firebase Database.*
Butterfly Dance - cryogeneye.	*https://open.spotify.com/track/1uKPMtyoJlxdzeI3XgZg3n*	*Song used in the game, by Varun Kapoor.*

Appendix

Misc

Other miscellaneous information if any.

Raw Notes

Number	Notes
1	Press play - options. Do tutorial Reading controls Use arrow and wasd No back Can climb the wall - sticky Pressed c Died from red box Back to main menu - restart No shooting yet - (they didnt even try shooting because they didnt know) Switched Used bounce-back Black- go backwards Why do we change into black - Death Level 1

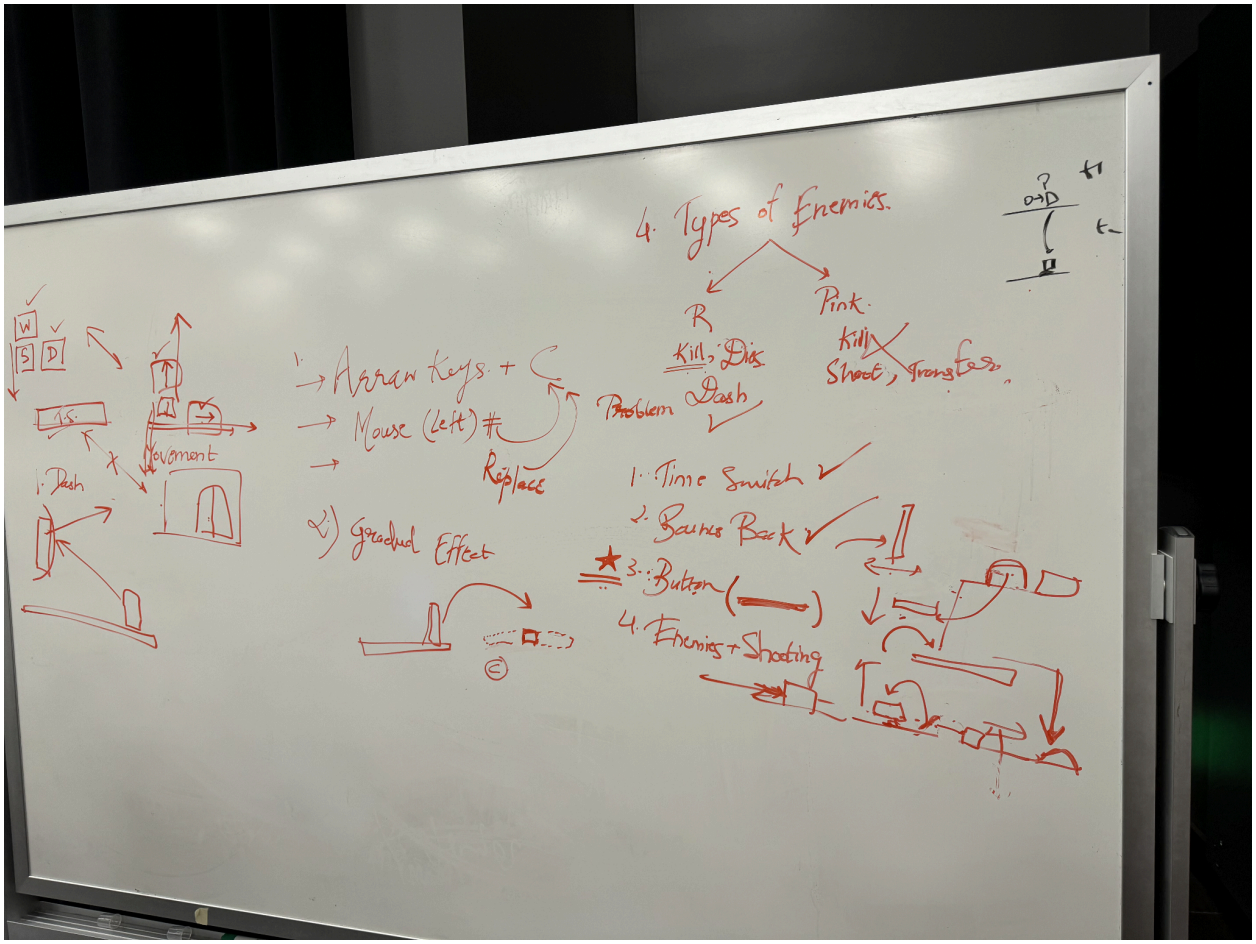
	Don't know where to go Switched Can fly a bit Little strat Flying makes it easy Yellow-do they jump over it Black - bounce back frustrating power Did not switch third time Unclear bounce-back - frustrating
2	Add more clarity for bounce-back vs button. Top left description need modify Make a bridge in tutorial Divide tutorial in to multiple Make enemy dynamic in tutorial Extend gun text time Text size consist Add visual cube in front of player when they got gun Lighter blue background color Button arrow different place UI for player die and win Jetpack in tutorial Boardline of platform
3	fix font size of instructions, improve overall text readibility teach player movement more ● give staircase for jumping over fix potential collision bugs with teleporting into obstacle improve clarity, note that people will ignore text ● help player note that platforms will be different from timezone to timezone ● add bridge part from level 1 to tutorial, along with additional platforming challenges ● add something dynamic, not necessarily dynamic ● remove enemy from first tutorial, and in future tutorials add some enemy movement collecting gun text disappears too quickly, add something to player for picking up gun revive mechanic potentially? make background light blue, make platform more narrow keep time mechanics consistent separate the tutorials more, movement in one, enemies in another, time switch in another make wall indicate that it pushed the player back add next level and go back to main menu button jetpack, jump higher, glide in air, adds more elements add indication of length of future platform remove shooting and add patrol for enemies for first few levels increase bullet velocity make it clearer that the button needs to be pressed multiple times

4	Pod playtest review: Open tut Switch, reading text Pressin c again and again Against the wall Go only right Movement player slides even when they are not pressing down the button End of each stage move to the next stage after completing Weird glitching motion with bounceback Enemy appears in both timeline Gun text too fast Too much work with the buttons Text is too small Collision with wall Player slides without pressing button Player struggling on level 1 Jerkiness in movement Refine the buggy visual Control systems not using mouse button Time to absorb mechanics Instructions larger Assets fine for instructions Add more complexity msFound tutorial level 1 Discovering jetpack mechanic through testing player jump, realizing they are unable to move backward Using time switch to traverse first set of platforms Player is able to touch button and bounce back smoothly to get through tutorial 2 Player hits the red enemy, and learns to avoid it. Does not learn of enemy chasing behavior yet. Player learns about 2 different types of enemy, pink and red Player is able to discern that they should time switch to get blue ball under platform Player confused about different between pink and red enemy by level 1 PLAYER HAVING FUN Player able to use bounce back button again from learning about it in tutorial level Player finds movement helping in correcting their mistakes midair Player runs into their own bullet, kills themselves :(, becoming a little bit of a problem now

	Player didn't make it to the end of level, missed the new time switch puzzle and new mini boss. Game is too challenging, specifically combat, and the player dies too easily. Add platform transitions, like growing in size Can S? Yellow confused? Physics make it easy Bullets kill himself Difficulty in level 2
5	Playtester 1: unclear whether they should start tutorual enjoys time switch obstacles good instructions likes arrow instructions to show bounce back DOES NOT LIKE USING LEFT MOUSE TO SHOOT likes markers to show the platform position in different time lines used time mehanic to switch timeline did not like when enemy surprized them from previous time line dying on first level after bounce back onto platform, enemy position should be changed insta dying sometimes, need a enemy marker to display where they are Playtester 2: pjysyics bug on red platform having issues with timing on the red platform time switch part rarely used shooting, didnt like uni direction like switiching timeline, hints about whats happening in previous tiemline player got stuck in first level, was able to use time siwtching to get out of it. finds that jumping can trivialize certain platforming challenges, just being able to jetpack over thing player misinterpreted regular walls as also being able to bounce back on. no pause menu to go back to main menu player did not go back to previous timeline to see that enemy was show main menu button on tut 3 is bugged, replays the level

	player doesnt realize the you have to hit button multiple times to lower platform multiple times player enjoys time swtich menchanics level 2. player got stuck inside the orange wall somehow for a bit player wants some time before reaching boss control scheme is bad 3 diff tutorials is too many, enemy getting shot into previous timeline was not clear, p much irrelevant to gameplay game is engaging, just neets more explanatioans. Playtester 3: player immediately thinks jump is weird, need tutorial to explain that its a jet pack, next level button bugged, sometimes just restarts the level player did not go to previous timeline to see enemy was shot into previous timeline player realizes they can skip an enemy, not fun to try to do the platform puzzle to pick up gun, just wants to skip player was confused that the button needed to be pressed multiple times time switch should be tutorialized more (from CP: avoid linearity) level 2 little long, needs checkpoint player never shoots enemy doesnt realize that enenmy can be shot into different timeline player enjoyed time switch, felt like bounce back and unidirection was too simple, pressing c to time switch was awkward(he plays league), prefers shift to time switch
6	

	PlayTester1 : Jessica Tutorial1 Player realizes they can only go forward UI should be bigger Exit does nothing rn Tut 2 Player sees bounce back work Tut 3 Enemy tutorial bit unclear, unsure if you have to kill all enemies or just run past Level 1 Player is using marker to see if there is monster or not Player asking for checkpoin after the first part Add hints Player did not know enemies can chase DEFINITELY ADD CHECKPOINTS Level 2 Make it clear what shield does Make it clear that player does not necciessarily need pickups Make it clear that enemies can avitivate buttons too Make it clear that player should timeswitch to kill enemy Buggy level, player can skipp through lots of it accident Level is harder than expected, player getting frustrated, but its still kinda fun. PlayTest1 Tutorials player likes to use space ins Markers rotate sometimes Enemies should have consistent glow Level 1 Platform markers PLAYER JETPACK Player ignore a bunch of mechanics


4. Types of Enemies.
R
Kill, Die
Pink
Kill
Shoot, Transfer
Problem
Dash
1. Arrow Keys +
Mouse (Left)
Replace
W
S
D
Movement
1. Dash
2) Gradual Effect
1. Time Switch
2. Bounce Back
3. Button
4. Enemies + Shooting