



GAM1103: Game Design Fundamentals Document

Part A: Feature Specification: “Toy” Cannon

Overview

The “Toy” cannon is a replica of a pirate-themed cannon designed for interactive play. It allows players to aim and fire projectiles at targets, incorporating sound effects, lights, and relations with visuals that create an engaging experience for the target audience

Functionality

Aiming

- The cannon can rotate horizontally and adjust vertically (ideally at 0°–45° elevation).
- Visual aids (e.g., aiming lines) help target lightweight objects.

3. Firing

- Pressing a trigger launches the projectile.
- accurate “boom” sound effects and a flash of light occur simultaneously.
- The projectile is fired gently for safety.

4. Feedback

- Hits marks trigger celebratory effects, such as pirate cheers or animations.
- Misses may prompt playful taunts or boos from the cannon.

User Interaction

1. Controls

- Intuitive buttons or levers for, aiming, and firing.

2. Feedback

- Visual: Lights flash during firing and on successful hits.
- Audio: Pirate-themed sound effects.

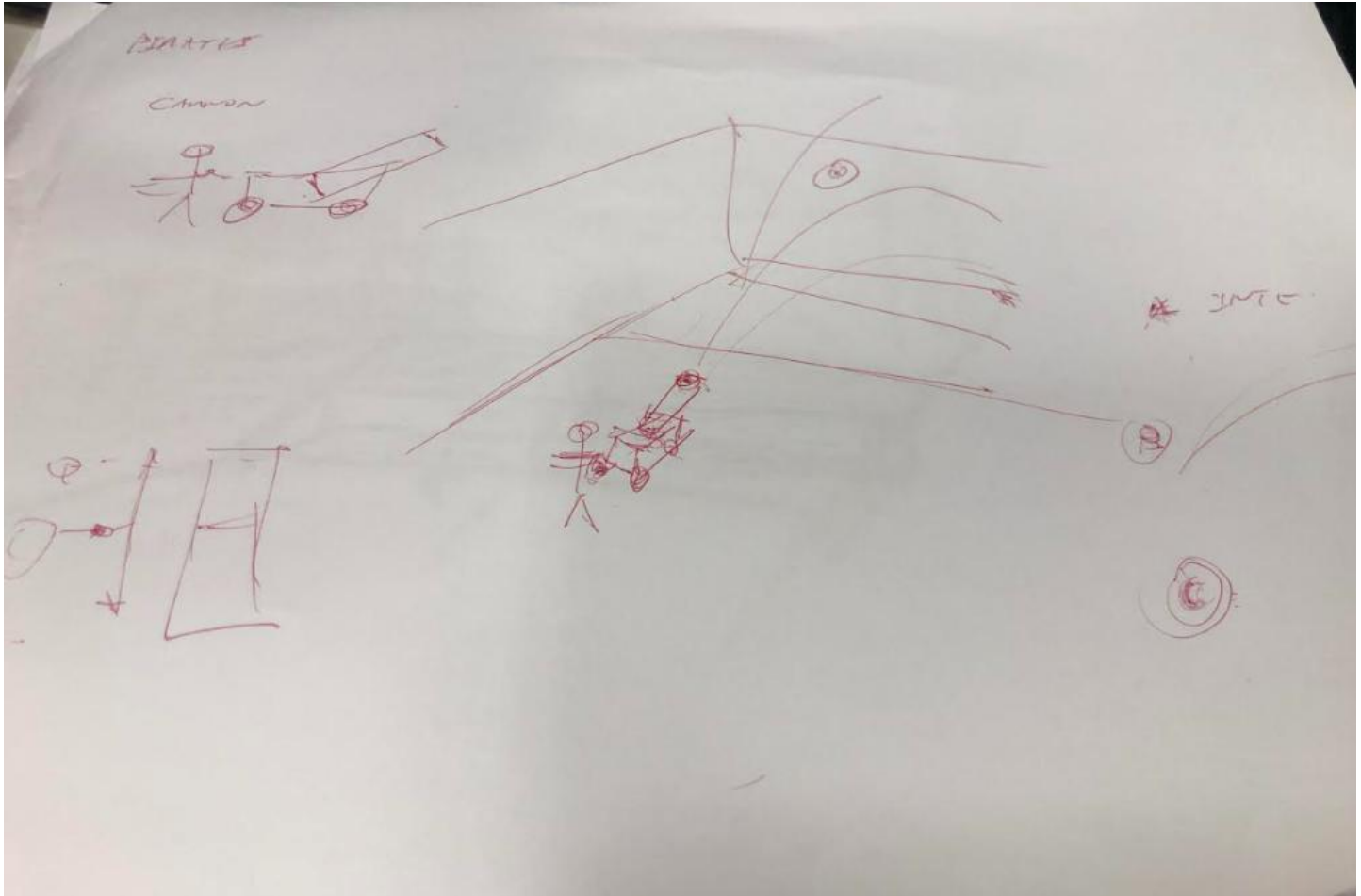
- Physical: A mild vibration is added when firing.

Design and Theme

- Cannon styled with pirate motifs (e.g., engraved skulls, woodgrain texture).
- Targets include gates, moving by pushing and pulling the cannon.

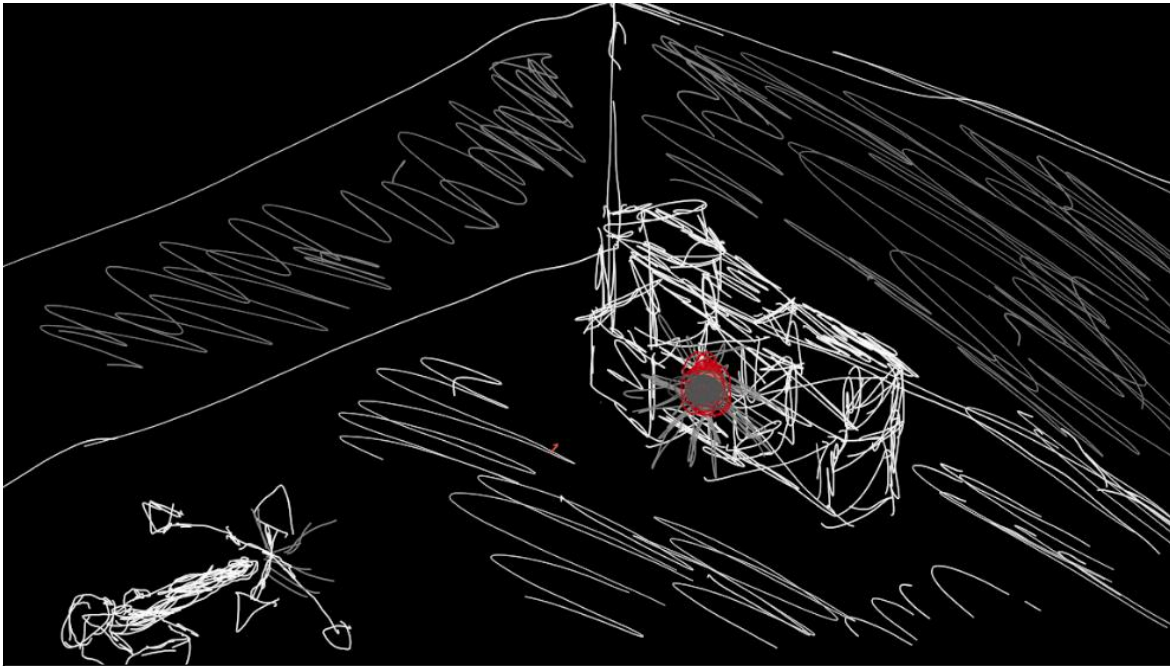
Diagrams

Diagram A



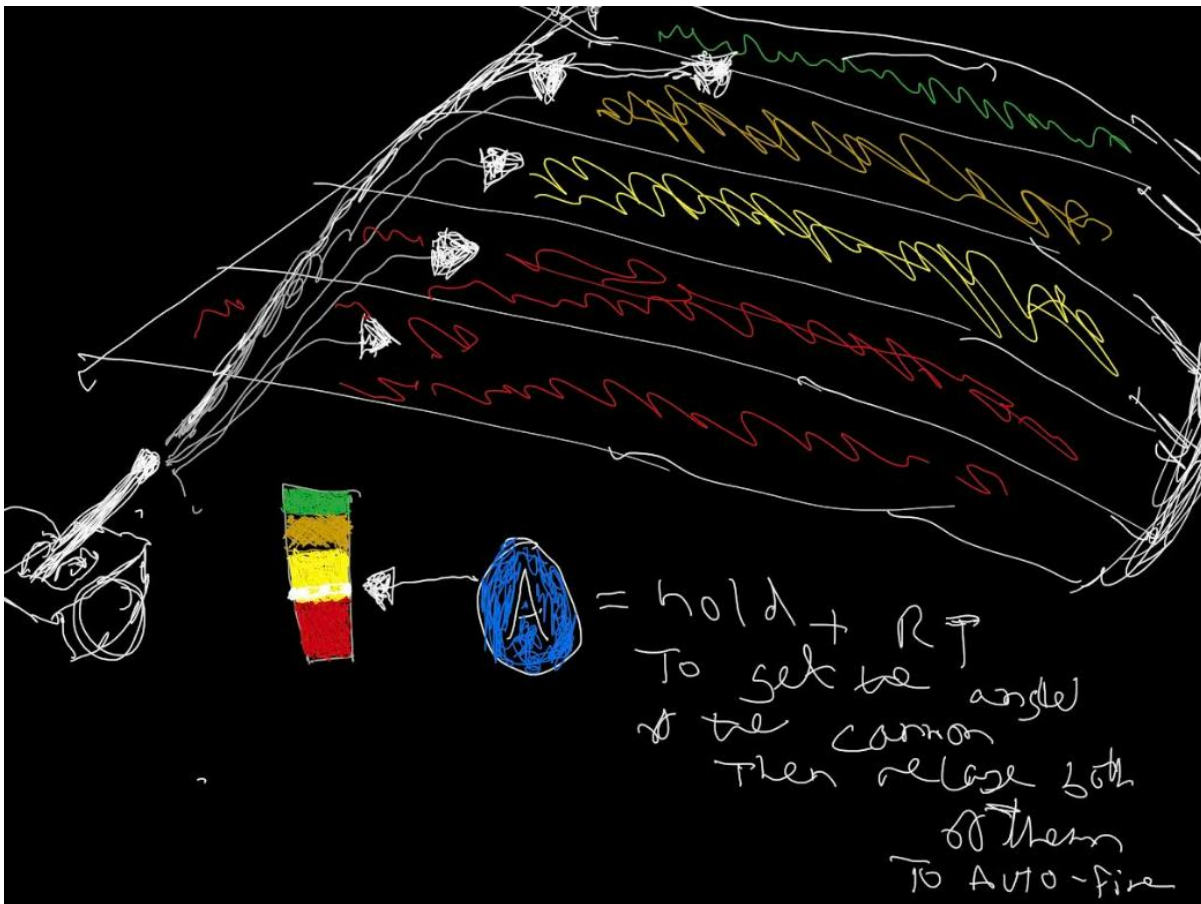
in this diagram A, it is an illustrated that the teacher and I did it together as it shows that player can control the cannon as where to know the distance of the shot by using a table that the player know if it bee hit the target correctly or not

Diagram b



in this diagram B, this demonstrates how the player can control the cannon and know the distance of the shot by using measuring device that the player knows if it hit the target correctly or not. Similar to Diagram A

Diagram C



in this diagram C, this demonstrates how the player can control the cannon and know the distance of the shot by using measuring device that the player knows if it hit the target correctly or not. But with a bar graph like the distance on how the ball will travel by pressing holding A and right trigger on the controller and then release when it is perfect timing, and the player needs as very similar to Diagram A and B

Key points for specifications of my toy prototype:

- Collaborating Pirates of the Caribbean Video Games
- Young people: As it primarily enjoys partaking in activities that are related to
- Participation: Placing the controlled canon into action to encourage by imagination and the player by their judgements.
- Actions: Projectiles thus can be targeted & fired by players at different ranges along with force ranges.
- Outcome: this can bring a sense of successful and satisfaction after removing barriers.
- Specifications: Joysticks are devices as well as buttons for operation enabling fire to alongside be aiming. whether constructed by using powerful and safeguard components.
- The design: Enhances the original concept of Pirates of the Caribbean.
- The Players Experience: All ages may enjoy appealing games with fun elements.

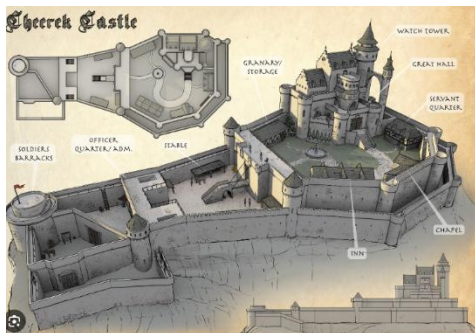
How does it provide meaningful choice?

This is a simple extension of players' freedom to pick how they'll interact with the games; the toy provides vital option. The gamers can choose their own favourite challenges by attacking any structure likewise at house, castle, or fort. Players can also set up their own strategy for blasting down the blocks, taking into consideration for the cannon power levels, timing, and angles. This degree of freedom this can encourages by the creativity and problem-solving skills because the players can try out a variety of techniques to achieve their own objectives. Therefore, this can be providing as a variety of design concepts and adjustable gameplay, the toy itself has an ensures that each play session is specific to the player's preferences, thereby improving overall game enjoyment.

Research.

I look at these pictures below, like castles that gave my ideas for design as the world in Privates of the Caribbean. Also, as well all of the films get references to be used as either the cannon or the fort in the privates of the Caribbean





<https://www.pinterest.com/pin/medieval-castle-designs-and-layouts--818881144757095383/>



Image - <https://www.euroschoolindia.com/blogs/know-about-mediaeval-castles-history-designs-types-and-list/>



<https://knightstemplar.co/explore-medieval-castle-architecture-a-journey-through-time/>



https://www.exploring-castles.com/castle_designs/

In these images above, the ideal looking at the edges of the layout such as the battlements, the windows, towers, and the ground as references to given me as a guide.



<https://eu.statesmanjournal.com/story/life/2018/04/14/movie-tall-ships-newport-oregon/515663002/>



<https://www.britannica.com/technology/privateer>



Audience Research

In the Privates of the Caribbean franchise, the target audience is directing on anyone who is the age of 13 plus and adults as well. This is an extremely popular film of all time. Pirates of the Caribbean franchise's target audience shows that a wide range of people, including adults and teenagers, look to the film. It has an interesting narrative, likeable characters, and an adventure that links together as a generate connect to a broad spectrum of viewers, which accounts for it consider.

Therefore, the engagement to this group, the design of a toy based on a controllable cannon that has components. This can be able to capture the thrill and action from the movies. The toy's ability to let players blast down different buildings, such as houses, castles, and forts, may both suggest on the spirit of adventure as seen in the franchise. This can be providing those fans of all ages with engaging as a creative play experiences.

In my toy, I am focusing on a cannon that the player can control and shoot down many blocks (ideally get thought of the level), moving across the map by the player pushing and pulling the cannon from the start to the ending of the level.

Justification for level location and Toy

The total amount of location and the toy concept of a controlled cannon that can be acceptable because this can be suitable of the light-hearted and adventurous themes of the Pirates of the Caribbean franchise. Ideally, my toy with many diverse types of prototypes of designs such as a fort but not only for this as it has recreated by the famous locations from the movies this can be able to improves the players' interaction of their toy and game experiences.

Therefore, it enables players to involve themselves in the action and recreate the excitement of pirate wars and sieges, such levels of participation are essential. Additionally, providing influence over the projectile satisfies the player's need for hands-on play by promoting strategic thinking and originality as players produce unique methods to approach each design to help younger players and the entire series.

Analytical Reflection: A Cannon-Themed Toy Design Inspired by Pirates of the Caribbean.

My cannon-themed toy, inspired by the Pirates of the Caribbean franchise, has many different types of offers an effective combination of recreation, historical themes, and play potential. The review looks at the architectural choices, the effects, and the total results within the outcome.

Designs Inspirational

In the Pirates of the Caribbean a series, a cannon is not only a simple weaponry; it also represents on the marine of the strengths and the adventures. The cannons is a develop on the special of the sequence in films such as "The Curse of the Black Pearl," from the Black Pearl's. it mostly focusses on the siege of the town of Port Royal to Jack Sparrow's creative escape via cannon. My toy design reflects that core while adapting it for safe and enjoyable playing.

Features

This ideal toy would have had an operating barrel with genuine "creaking" sounds. Suitable aiming mechanism. A safe projectile system based on cannon balls with enhanced components that represent the franchise's features.

Part B: Development Diary

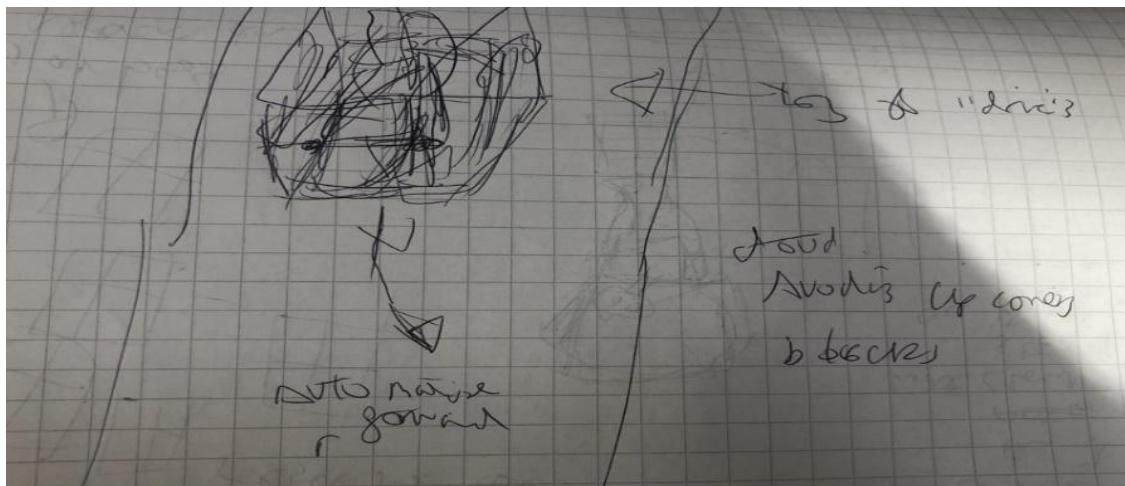
Development sketches for game mechanics and "Toy" design.

In my sketches, as in developments for the game mechanics as a toy design. I created many different ideas in different Disney franchises such as Wall-E, Alice in Wonderland (Tim Burton) and Pirates of the Caribbean as a start then after I design them, I will focus on my final piece of the franchise as a final decision of my choice.

First ideas for Wall-E

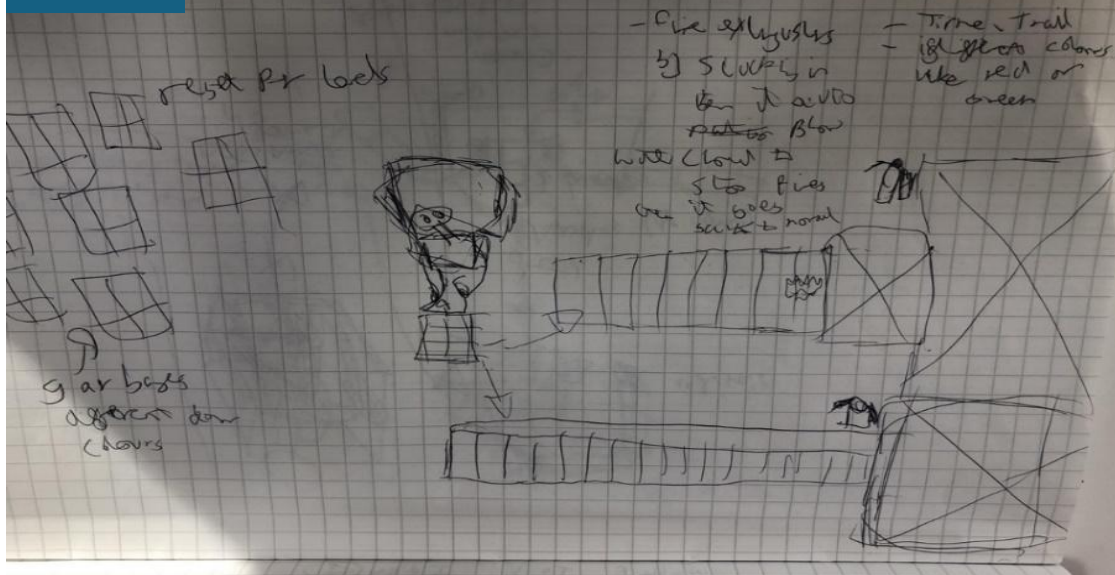
The following designs in is the film called Wall-E.

Figure 1



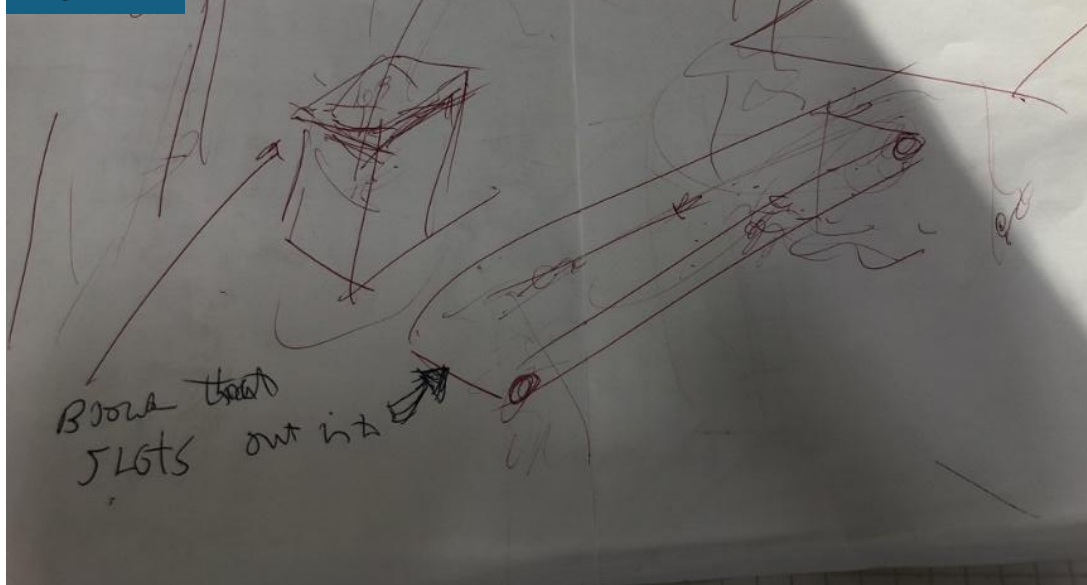
In Figure 1, in the film Wall-E, there is a scene where the humans travel in hover chairs that they can drive in. The idea that the player who controls creates the skin of the chair,

Figure 2



In Figure 2, in the film Wall-E, there is a scene Wall-e move rubbish etc in my toy. The toy was able to collect up the boxes of rubbish then it can be able to get burn. The ideal for this is have an interact with the colour's boxes and sort them out into the right colours such as red goes in the red ne and the gr4een one goes into the green one

Figure 3



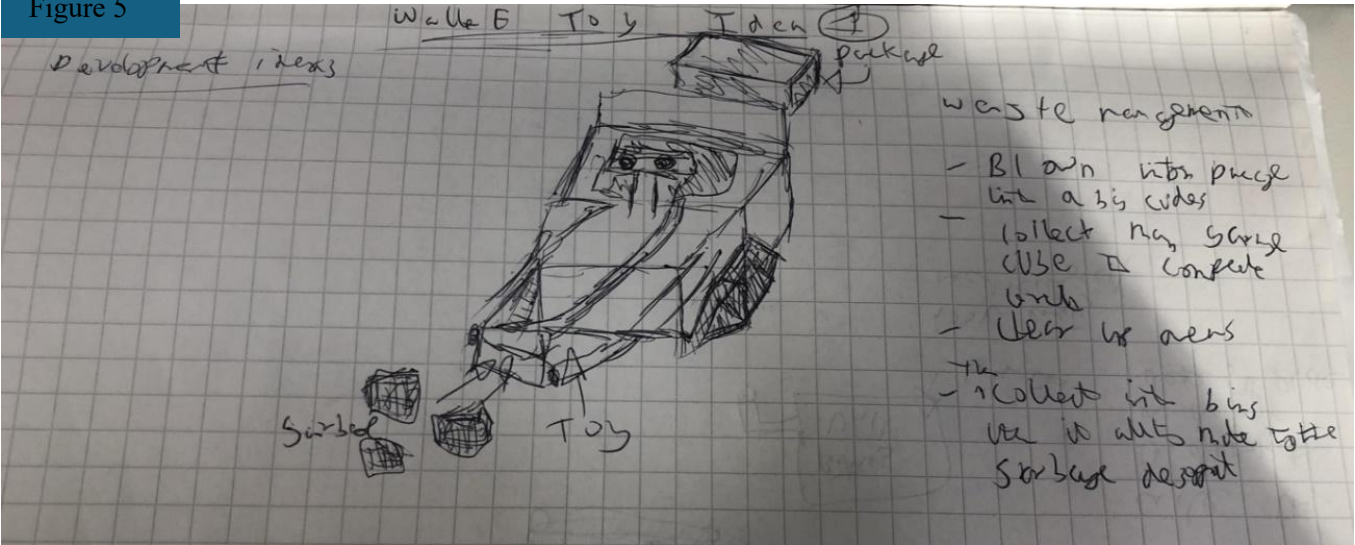
In Figure 3, in the film Wall-E, there is a scene Wall-e. my toy is focus on shooting them into the belt that goes to the burning it to get destroyed

Figure 4



In Figure 4, in the film Wall-E, there is a scene Wall-e. like hoovering the flooring in my toy speaking the player only can hold the hoover while picking up the debris of the ground. Then after it was full the player must put it into the cubes of the debris such as the deposit can sort it out if it was run out of power the player can use the battery unit to change it up for the next sector of the map

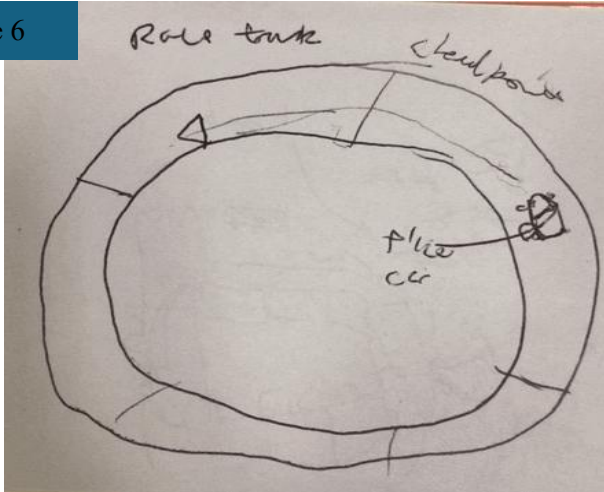
Figure 5



In Figure 5, is quite like the fig. 4 version but this one of sucking into wall-e box on his back then it comes out as a big cube of debris to able to clean up in different and many areas across the world. Then afterward collect them into the garbage deposit to be destroy

Alice in Wonderland (Tim Burton)

Figure 6



In Figure 6 & 7, in the film Alice in Wonderland (Tim Burton), one of my idea focus on a toy which is can only push and pull. The toy is a car that the Alice can drive (with the input of the controller as moving across the racetrack by having some checkpoints like for example time-adding for a race time. In fig. 7, this is only example of a racetrack that the player can pick

Figure 7

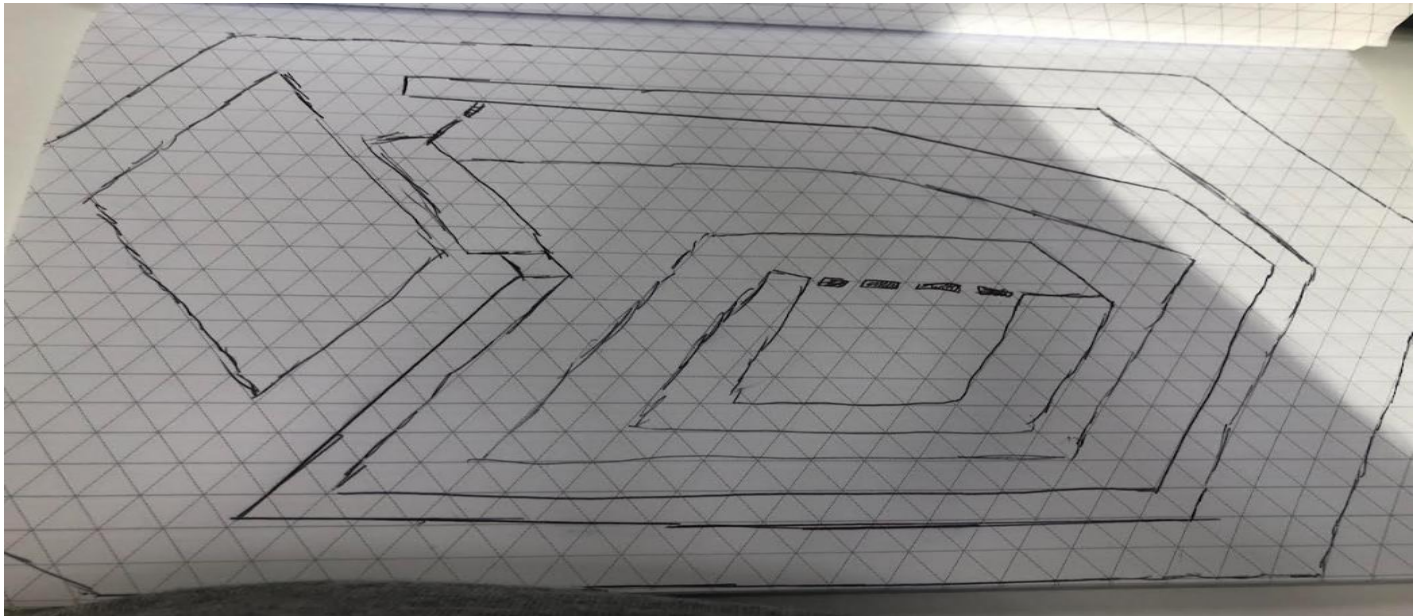


Figure 8

In Figure 8 & 9, in the film Alice in Wonderland (Tim Burton), another idea is having a plane that Alice can control but not bombs but only tea pots that drops down as in fig. 7, this is a map of the demo where the player drops the teapot bomb on the building such as towns, forts, checkpoint etc so her army can go through out of the level and win

Figure 9

The sketch is a hand-drawn site plan on graph paper. It depicts a layout of buildings and infrastructure. At the top, there's a row of small rectangular buildings. Below them, a larger rectangular building is labeled 'Bldg'. To the right of this, a circular structure is labeled 'Motel'. A road runs horizontally across the middle of the sketch, with a bridge crossing it. Below the road, a river flows. Various symbols like 'X' and dots are used to mark specific locations. The sketch is oriented horizontally on the page.

Private of the Caribbean

Finally, the franchise that I focused on and wanted to use as my toy and the world such as the architectures and the key structures that I wanted to have in my game prototype.

Figure 10

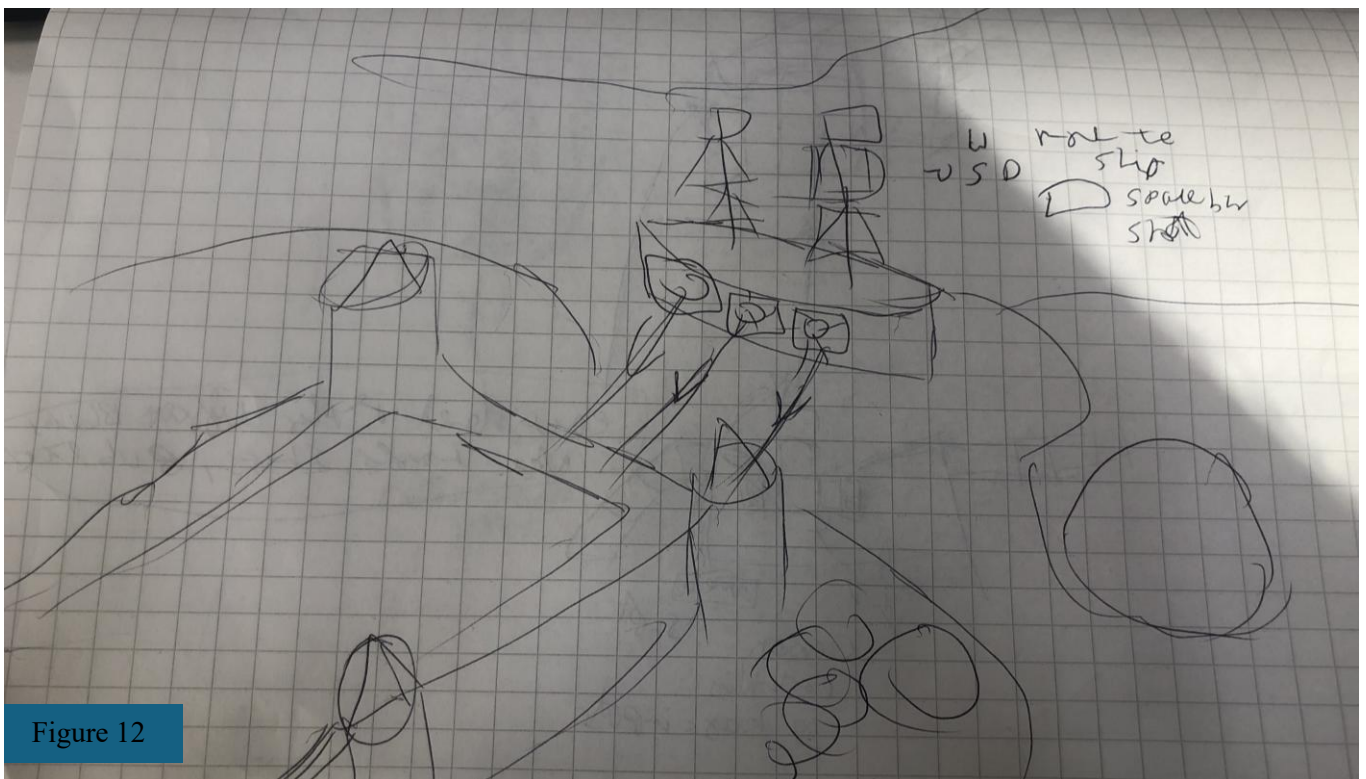
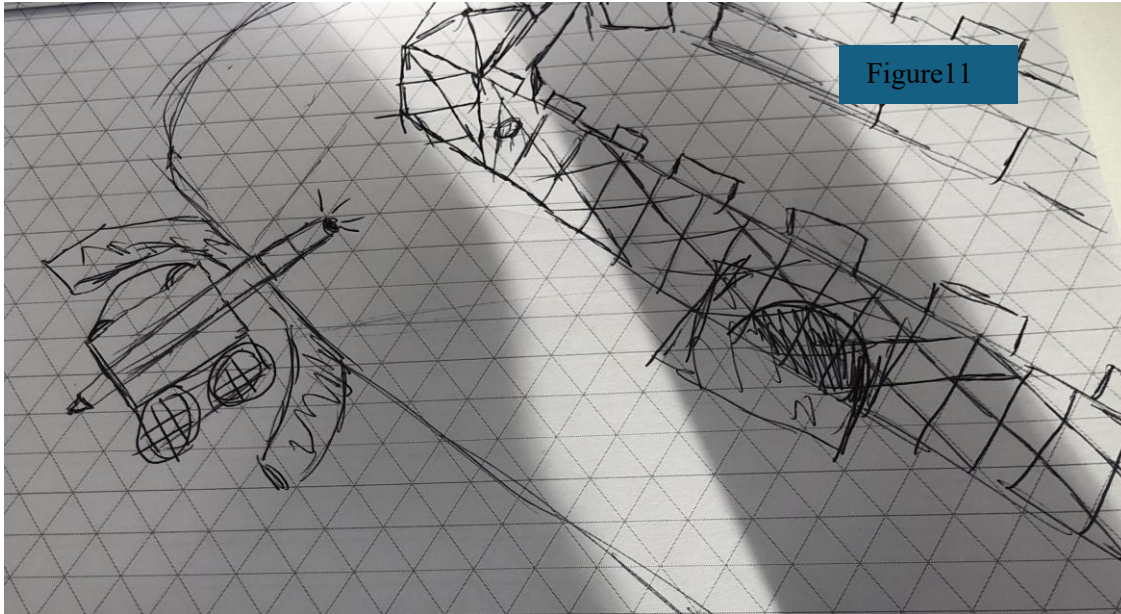
each bell replays different blocks like Levels, Shops, BUI etc

Canon
Control
Key inputs

In fig. 10, the toy has Buttons for, aiming, and firing as the is a Visual aid (e.g., aiming lines) help target lightweight objects. So, the player can be able to shoot at the blocks as in each level its replacement by a different block out like changing in shops, castles, forts as an outline of the design

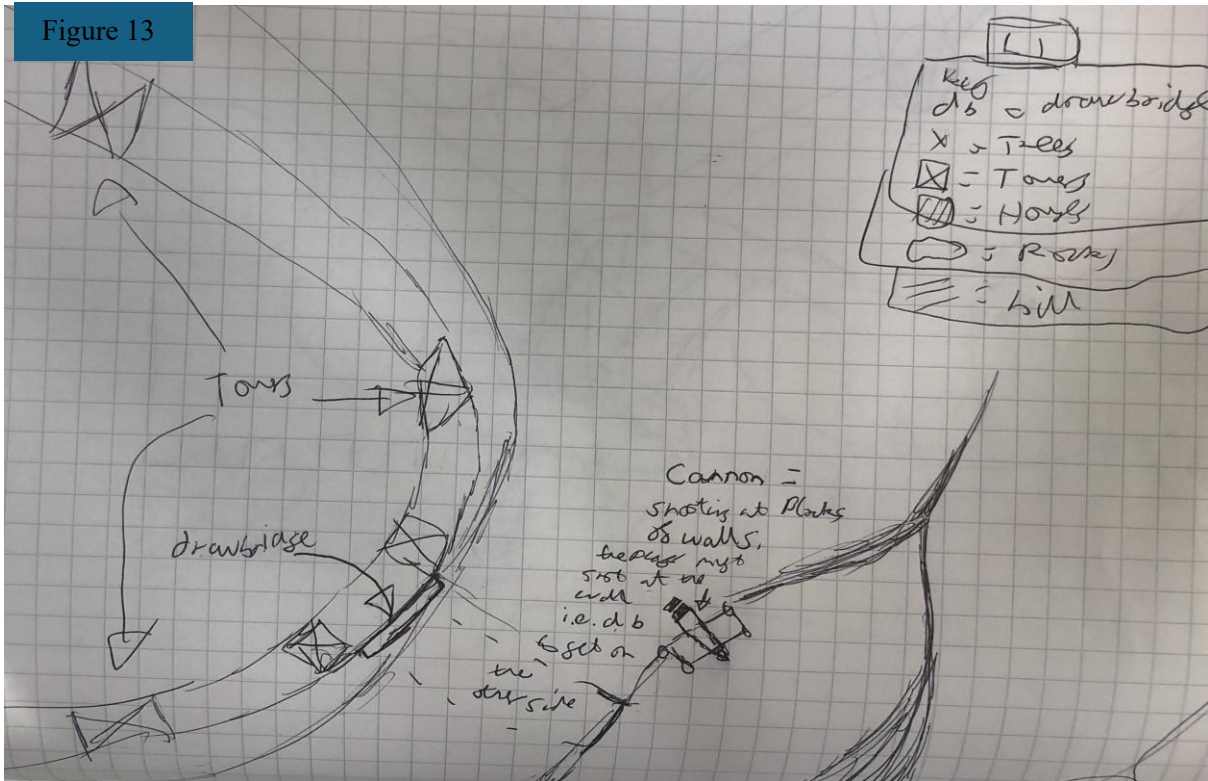
Development sketches for level design (Isometric)

In Figure 11. Ideally, the player uses pressing a trigger to launch the projectile. This Accurate “boom” sound effects and a flash of light occur simultaneously when firing the cannon as the projectile is fired gently backwards for safety.



In Figure 12. Ideally, the player uses pressing a trigger to launch the projectile at the walls of the castle I use the wasd keys so the player can control the ship. the ideal is for the Xbox series controller then the pc version of it. Like the analog control to control the ship and fire the cannon by using the right trigger to shoot as in the Private of the Caribbean where the Black Pearl shooting at the fort

Figure 13



In Figure 13 & 14. Ideally, for this design and the toy the quite simpler to fig. 12 but its only control the cannon by shooting at the walls or at the drawbridge as an ideal that there is somewhat of a trigger that the drawbridge well go down so the player can be able to push the cannon to the next sector of the level. In fig.14, this is only a design where this is based on the town where the player must shoot at the gates and then different types of levels to the castle area like in fig. 12.

Figure 14

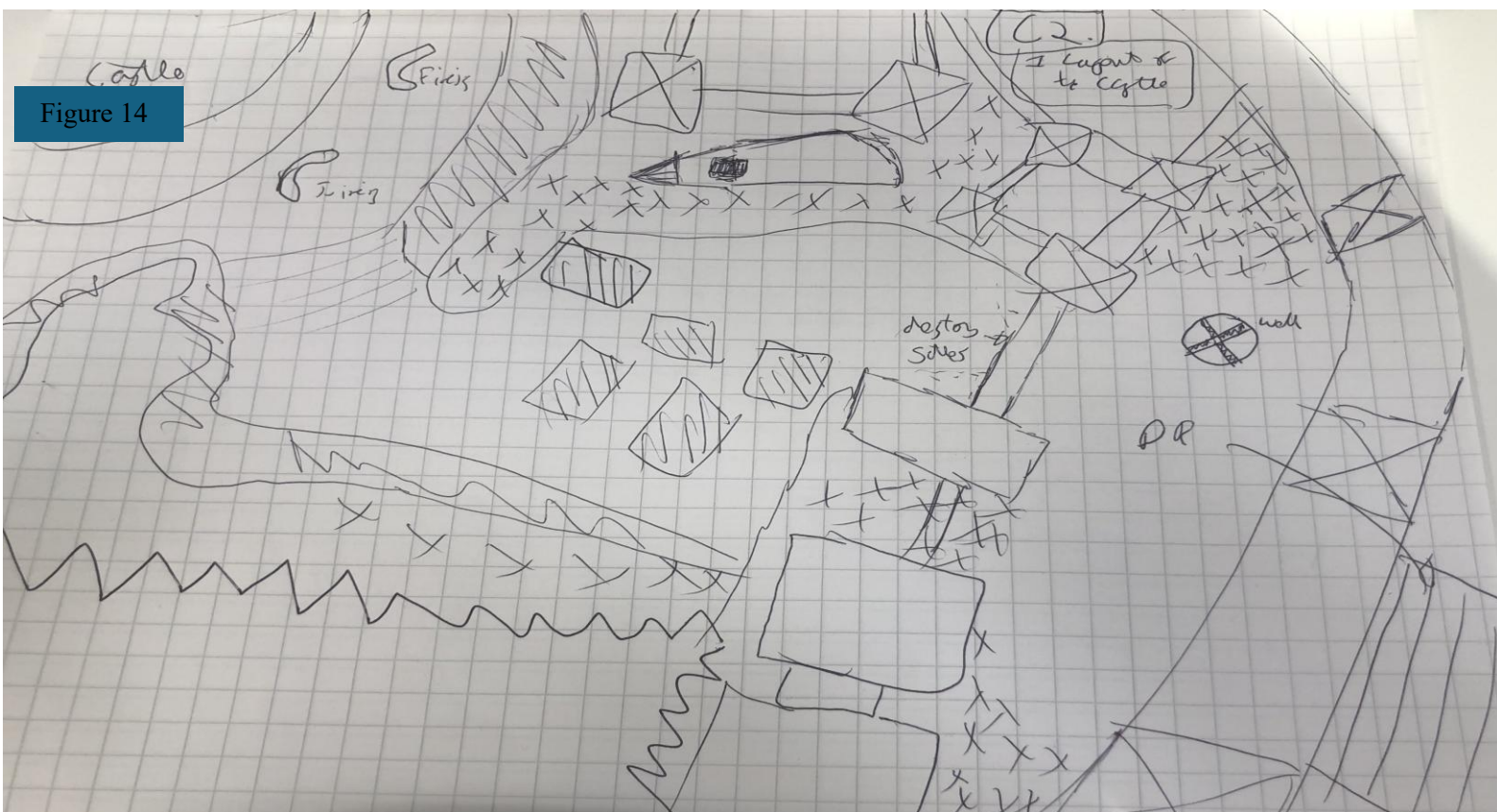
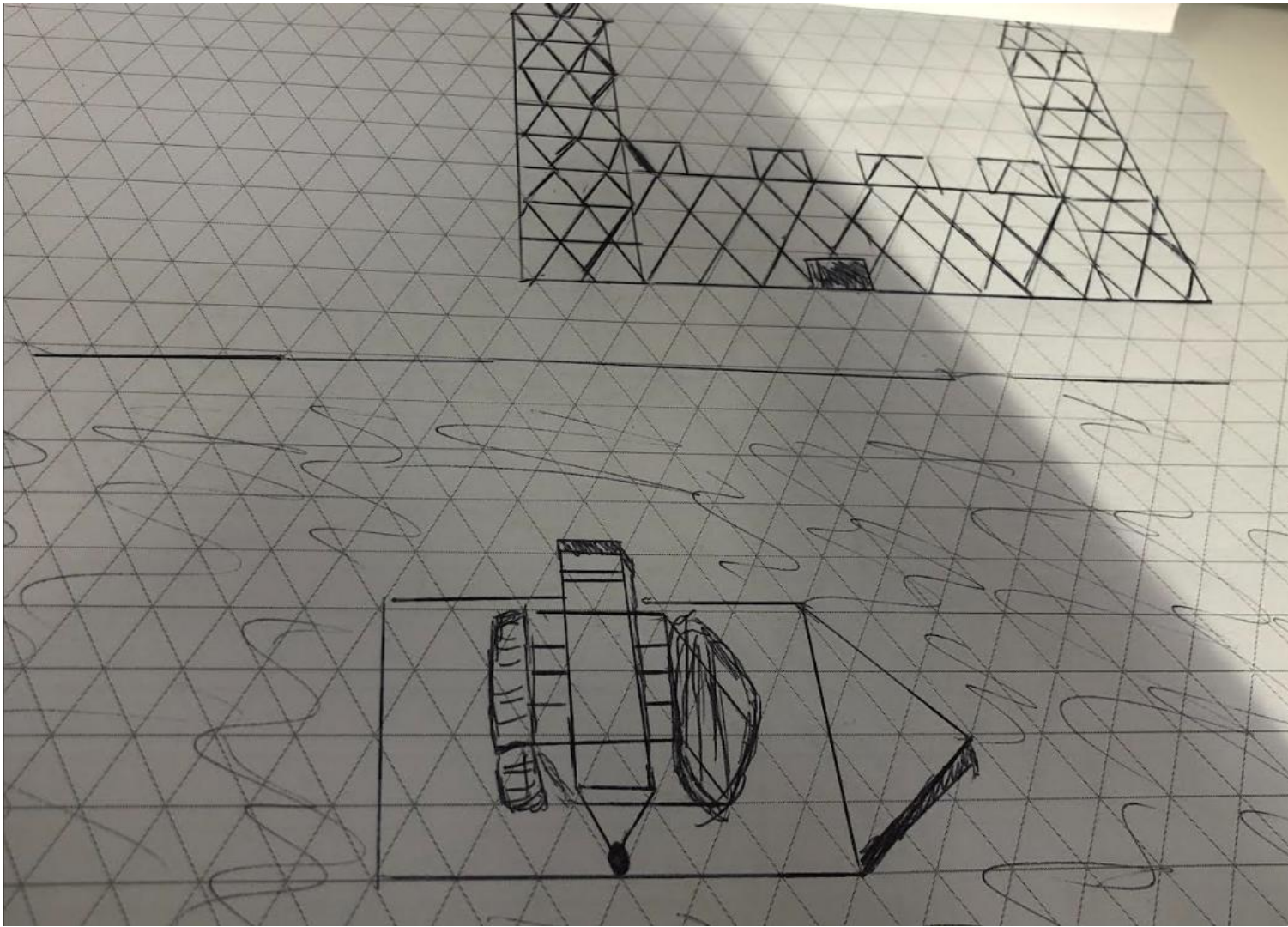
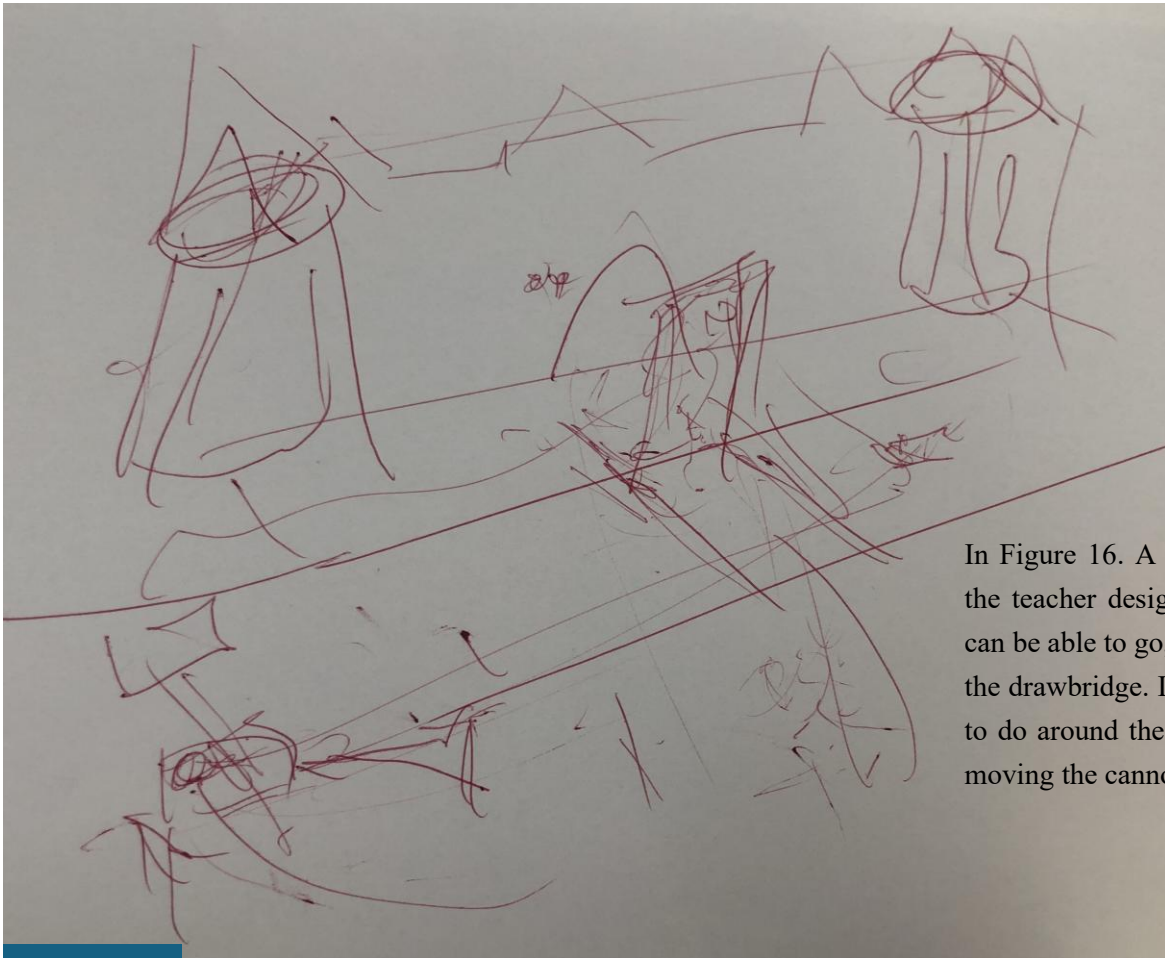


Figure 15



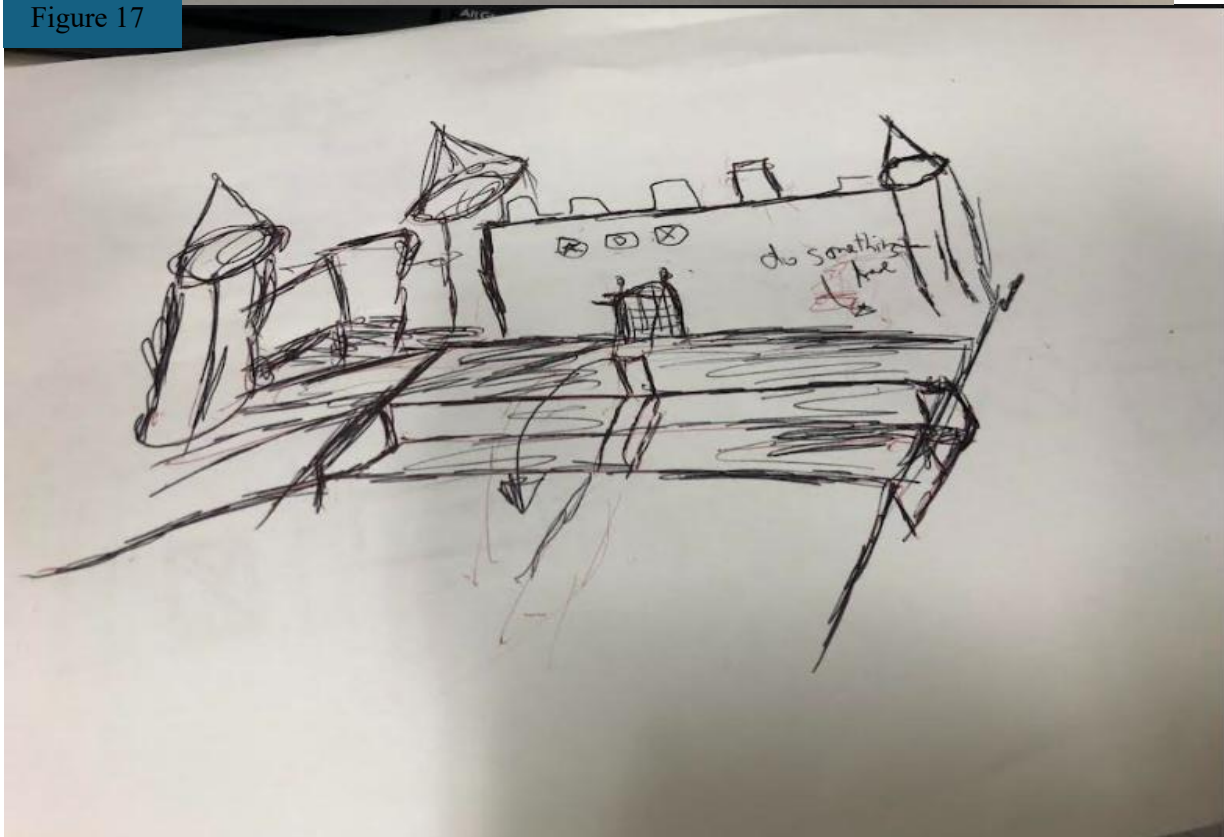
In Figure 15. If possible, for this design and the toy, where the player only shoots at the castle walls while the A.I boat travels down the river automate without the player interact this

Figure 16



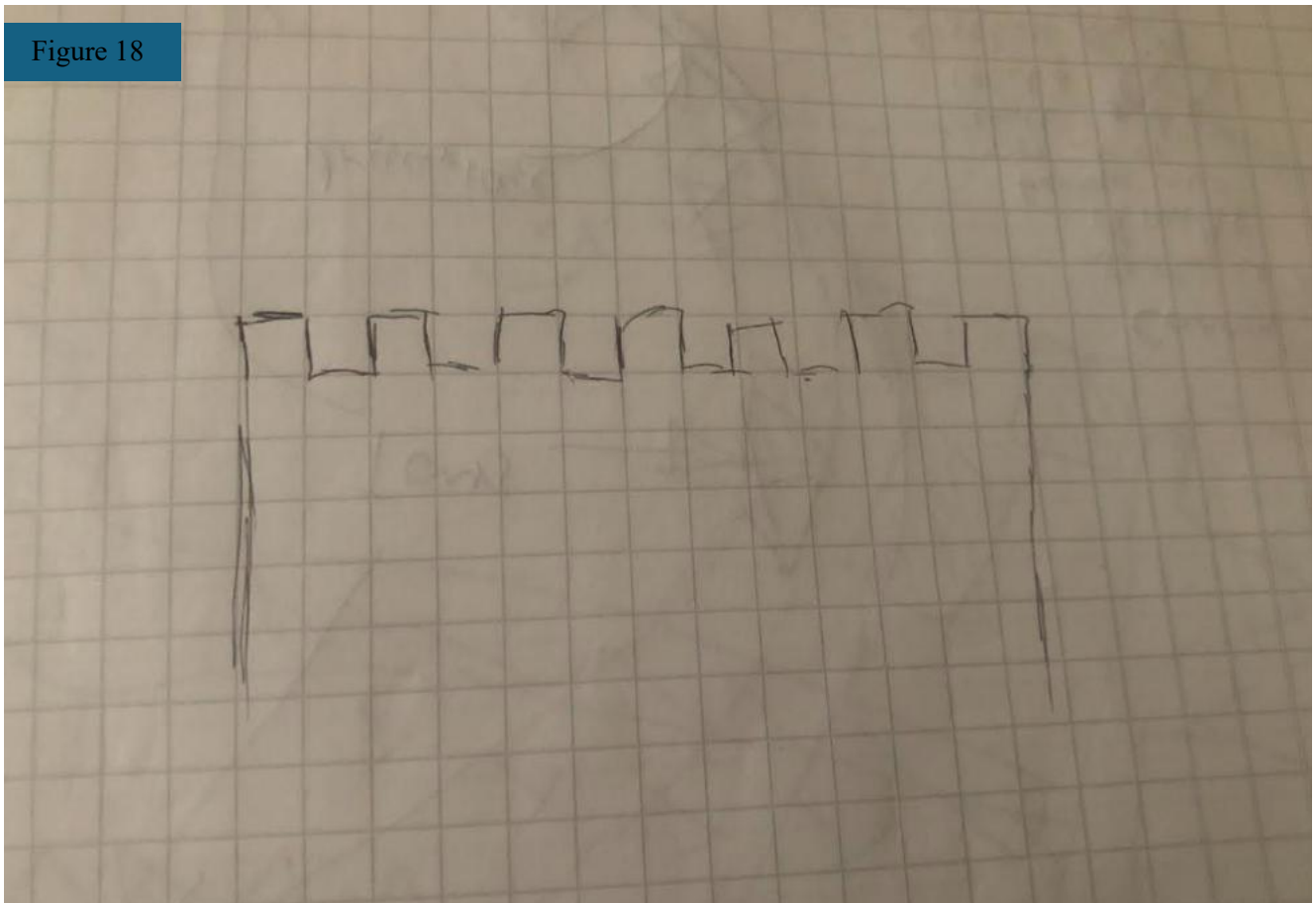
In Figure 16. A design that me and the teacher design where the player can be able to go, shoot at the trigger the drawbridge. Interacts with things to do around the castle walls before moving the cannon toy

Figure 17



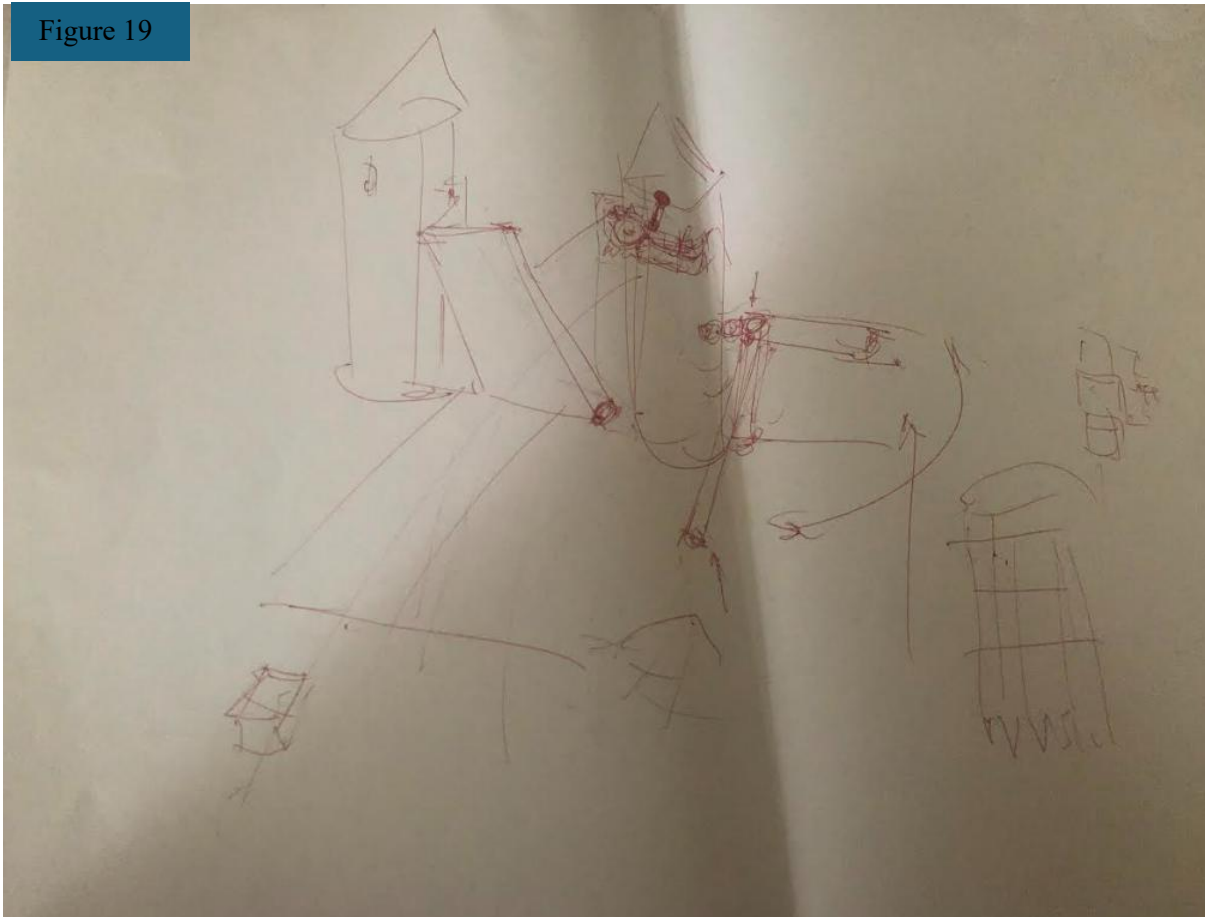
In Figure 17. A design layout, where the player can be able to go, shoot at the trigger the drawbridge. Interacts with things to do around the castle walls before moving the cannon toy very similar to fig.16

Figure 18



In Figure 18. A design layout fort walls 1x1 metre ideally

Figure 19



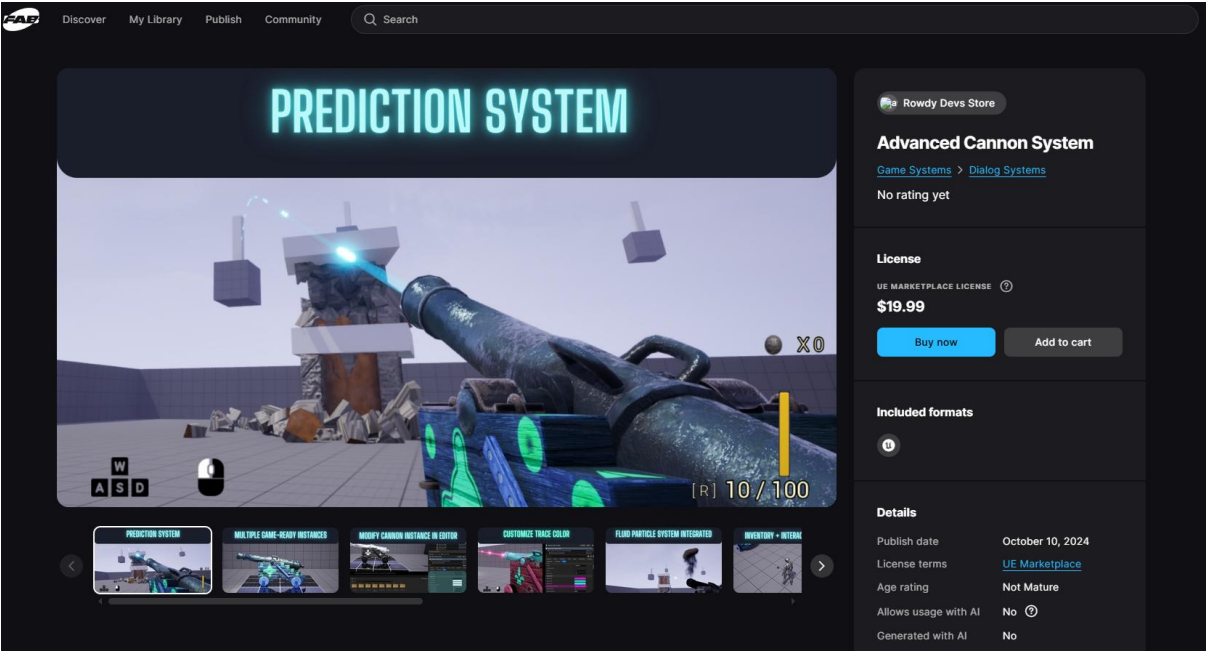
In Figure 19. A design layout, where the player can be able to go, shoot at the trigger the drawbridge. Interacts with things to do around the castle walls before moving the cannon toy similar to fig.18.

Figure 20



In Figure 20. A design layout, where the player can be able to go, in different layers like going up in different level of the game

My ideal toy design is by using a template as if I have more time to prepare such as coding and making the toy work. I found out on this template that I can be able to use it as an advanced cannon system for my toy.



[Advanced Cannon System](#) | Fab But using the Xbox controller, not keyboard users.



Development and iteration have occurred in all aspects of my design work, Mechanics, Toy, and Level Design.

Sketch Name	Category	Mechanics	Toy Design	Level Design	Additional Notes
Cannon	Core Mechanic	Cannon aiming, reload timing, and	A functional cannon toy with adjustable	a small island providing cover	Focuses on player strategy

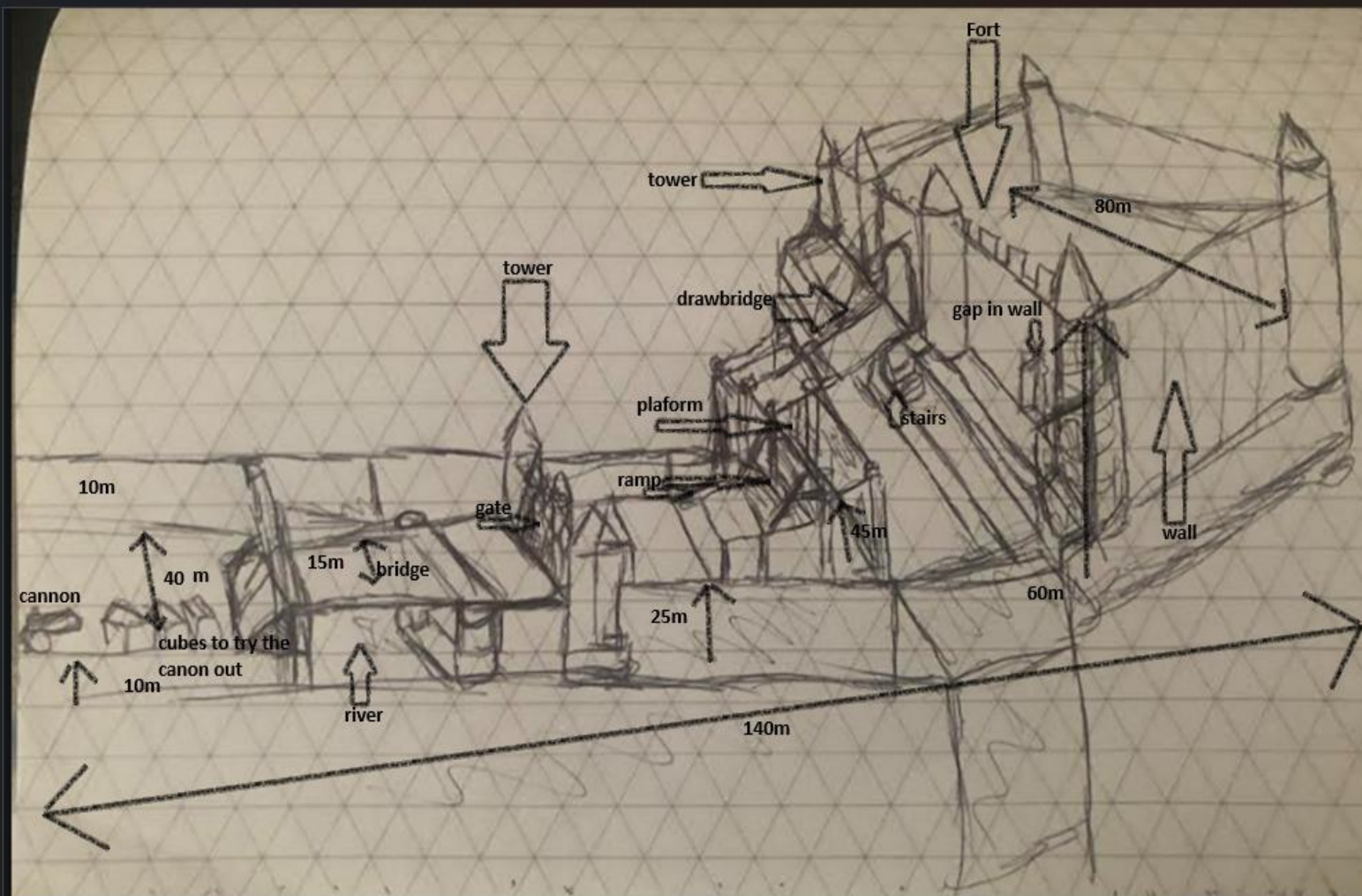
Sketch Name	Category	Mechanics	Toy Design	Level Design	Additional Notes
		tracking calculation.	angles, and firing projectiles.	and dynamic weather effects.	and precision aiming.
siege	Mini-Game Mechanic	Shoot down the gates	A spring-loaded cannon toy with swappable projectile designs.	Coastal fort with defensive walls, and ramps.	Enemy difficulty increases with each wave.
Cannon	Action Puzzle	Solve puzzles by firing a cannon at specific targets to activate mechanisms.	A puzzle cannon toy with colour-coded cannonballs for different effects.	British fort with destructible walls, and collapsible platforms.	Encourages creative problem-solving and timing.
Cannon	Combat Mechanic	A cannon to destroy enemy fortifications.	A cannon toy with a rotating base and interchangeable projectile options by the player inputs.	A fort, and destructible from the structures.	The ability to control the cannon can bring freedom to the player.

Diary

Date	Day	Entry
Week 1		
11. Nov	Monday	I research the films, that I might do for my toy by watching the films such as Wall-e, Alice in Wonderland (Tim Burton and Pirates of the Caribbean
13. Nov	Wednesday	Rewatch the films and write notes that I can use as toys that I can use to design
15. Nov	Friday	From the notes that I wrote down, I designed different types of settings such as the films - Wall-e, Alice in Wonderland (Tim Burton and Pirates of the Caribbean
Week 2		
17. Nov	Sunday	Draw out a toy from Wall-E, in Fig. 1, to Fig. 5
20. Nov	Wednesday	Drawn out the toy from, Alice in Wonderland and the Privates of the Caribbean – fig 16
22. Nov	Friday	I spent in designing my video game cannon toy that brings to life in Privates of the Caribbean
Week 3		
24. Nov	Sunday	I sketched out new designs for my video game cannon toy. I experimented with different shapes, and lines for the ideal look that combines elements of the toy.
27. Nov	Wednesday	See the blueprint, that I have designed I know the level map in isometric scales.
29. Nov	Friday	I have asked for some help like how to design the cannon
Week 4		

Date	Day	Entry
1. Dec	Sunday	Work on the level as different parts of the map are getting higher and higher so the player knows on the finish goal
4. Dec	Wednesday	I worked on the layout for my cannon toy's features. I want to include a rotating barrel and detachable parts that might be customised for the player's needs
6. Dec	Friday	Look up on YouTube what I can use like the system to move the cannon
Week 5		
8. Dec	Sunday	Find this website Advanced Cannon System Fab thinking of using this template
10. Dec	Tuesday	I created an obstacle course for my cannon toy. As it navigates through challenges and designs the layout for fit for purpose
13. Dec	Friday	Finish the final level as added in the blocks so the player can destroy, added final details as well into the design

Final Blueprint to scale & in isometric with annotations.



Part C: White room

Cannon Themed Toy Design Pirates of the Caribbean Inspired Interactive Play Experience,

YouTube link: <https://youtu.be/jOWgOgVQnSk>

Cannon Toy Mechanic For The Pirates of the Caribbean;

YouTube link: <https://youtu.be/Oyq915jOm98>