

Libertà

Design Documentation

COMP4002 – Coursework 2

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Prototype Design and Specification

About this Game

Libertà is a first-person puzzle game, the player will face 3 chambers with different difficulties in order to escape. To do this the player will have to solve physics based and inventory and exploration based puzzles.

The game consist of a main chamber and 3 puzzle chambers, chamber 1 to introduce and test physics puzzles, chamber 2 to introduce and test inventory and exploration puzzles, and finally chamber 3 the last chamber that will test the players previously gained knowledge.

The player will be in constant pressure due to the ticking down clock that will be heard through the game, Libertà also includes two different endings depending on the speed of the player, it is not expected that the player will be able to solve it quickly on a first run, instead going for some re-playability, so the player has a reason to replay the game, to improve their time and get a different ending to the “story”.

Core Game Play and Objects

The core game play may be divided into two categories, physics based where the player will need to pick up, carry or drag objects to progress, on the other hand we have inventory based gameplay where the player will explore to find items he can pick up and use in the world somewhere so he can progress, we these two mechanics we can make many different puzzles with different difficulties and will be able to expand the prototype and still have a nice and noticeable difficulty curve even with a shorter game length.

The main core objects are:

- Pickup-able objects, objects the player may pick up and carry them around, they will follow the player-s character and camera, such as cubes and planks;
- Drag-able objects, similar to pickup-able objects but they will not be able to lift these, instead requiring them to drag them around the floor;
- Buttons objects, objects that require something to be standing on them to activate, usually cubes (or the player);
- Interactable objects, in the form of levers, usually used to mark progression;
- Inventory items, any item that may be picked up by the player and stored in the inventory to later be used to progress in some fashion, a perfect example is the key card although many more show up;
- "Inventory Reader" objects, these are any objects that wait for the use of a certain inventory item within a certain range to activate an event, following the example a key card reader, that when the player uses a key card opens a door;
 - o We should also mention a special variant of these objects the Podiums found in Chamber 3, that when using certain items on them, will display this item and keep it inside the object so it can be picked up again.
- "Door" objects, any object that may have both an open and closed position and may switch between them at any point, we will find several examples of these, doors themselves, but also hatches, glass cases or safes;
- Destroy-able objects, these are objects that have two states, active or destroyed, they may switch from the active to destroyed state, but not come back, it is a one-way transition, usually between two different child objects instead of position of the same object, these may be things that are actually destroyed such as wooden boxes, but it can also be a bridge that gets built;
- Finally, the last core object is the Clock object, a main clock in the main chamber that will be heard from almost the entire map, reminding the player that he is on a timer, keeping them sharp and pressured, this clock will also track whether the player loses, if it reaches zero or which ending the player gets, a faster time will reward the player with a different ending.

Game Flow and Difficulty

We can divide the game into different sections, after starting from the menu, the player will find themselves in a cell of some sort, first thing the player sees is "ESCAPE" written in red on the wall, this gives the player the main goal of the game immediately, along with this a movement tutorial will be shown, this tutorial will extend into the hallway teaching the player to jump, crouch and run.

After this the player will be led into the main chamber, this will serve as a sort of hub for the player that will lead to all the different puzzle chambers and the exit. On entering the room, the tutorial for interacting with objects will show and straight ahead a red lever to make the player make the connection, this is important as right away we will create an association between the colour red and objects the player can interact with in some way, this will continue throughout the whole game.

The main chamber will contain a big clock with the remaining time till the player loses, this clock will only be started when the player interacts with the lever, giving all the time they need to get used to the controls before inserting the time pressure. The chamber will also contain big red text everywhere that will both tell the story of the place through the game and hint at minor objectives, in here we will have a locked door marked with "freedom" the main goal and on the floor "get both levers" with two arrows pointing at the start of both chambers giving the way to freedom.

On interacting with the lever, the time will start and the doors to both chambers will be opened, here the player may choose any chamber to start with they will both introduce their respective mechanics and are completely independent.

Chamber 1, we will call the chamber to the left, on physics mechanics, will start with a simple closed door, one button and one cube, the player may stand on the button to find that it opens the door and closes it back once the player steps off, a tutorial to pick up items will also be show when nearing the cube. Following the introduction, the player will be met with a harder puzzle that will make him learn the new mechanics and apply them in different ways, this will make sure the player learns keys aspects while at the same time leaving some room for the player to find their own solution to the puzzle.

Chamber 2, the chamber to the right, on inventory and exploration, will start very similarly, showing some symmetry, a key card will be on a table and a locked door activated by a key card reader will open the way to the rest of the chamber, the player will be taught how to pick up, select and use an item, and within the chamber will get used to different ways this may happen and hidden objects and objectives.

By the end of both chambers shall be a lever that the player will have to interact with, after both are active on the main room a hatch will now be open leading to the third and final chamber, it is important to notice that we make the player return every time, so they are aware of the time they have left keeping them always on their toes. This final chamber will need skills from both of the previous chambers and increase the difficulty of the puzzles making the player think more outside the box to solve it, if the player manages to solve this last chamber in time, the door to freedom is opened and the player may escape, or more likely fall into the trap room if they are too slow.

Depending on how long the player took there are 3 ways the game can end, if the player runs out of time, they lose the game, if they make it withing the 30 minutes they either get an "You escaped" ending, if they complete withing 10 minutes or a "You Win?" ending, on the latter the trap room will be activated where the player will see hints written on the walls such as "Faster, faster, faster", leading them on into a second faster playthrough.

Player Character

The player will be the only character in the game, it will consist of:

- Character Controller;
- Main Camera;
- Player Transform, a transform that will always follow the player's position and rotation (will not take camera, up and down, rotation);
- Hold Transform, a transform that when used with the player transform will get the holding position for pickup-able and drag-able objects, by applying the camera rotation (for pickup-able objects only) and a distance to the player's transform;
- Inventory object, where the items will be kept and used from;
- Inventory Text, object responsible for letting the player know what it is they picked up with some text showing on their HUD;
- Two more objects responsible for the background noise and music are also apart of the player character;
- Although not directly apart of the player its important to mention the HUD screen that contains the inventory's items, a cross hair, and will display any hint or tutorial text needed;

Besides these objects, it is important to mention the scripts attached to the player:

- Player Controller, this will control the players movement, this also contain most of the parameters of the movement such as speeds, mouse sensibility, jump and crouch height, inverted X or Y axis;
 - o This will also control when the player presses esc to pause and un-pause the game, locking the player movement and others such as the clock;
- Carry Object, that will handle the carrying and holding of objects, this will also contain the parameters for it such as minimum and maximum distance, speed, throw force and grab distance;
- Push Object, just like carry this will handle the ability to push objects and the relative parameters;
- Pickup Items, that will handle picking up and storing the correct objects in the players inventory, it will also handle the usage of the items in the inventory.

We should also mention that the player object, besides the character controller will contain:

- A rigid-body component;
- A sphere Collider;
- And finally, a capsule collider above the player, that will active when crouched to know whether the player can stand up or not;

Although the player is the only character I find it important to also mention the Game controller, this object will control several things over the game, most importantly respawns, and object resets (all pickup-able objects should be reset to their original position on the players respawn, the player may do this to get back a lost object that they can't move or reach for some reason preventing the player from locking themselves out of the rest of the game), it will also handle the ending of the game, locking of the game ending and score setting with the score manager.

Physics and Parameters

Most parameters were set by a trial-and-error method with the objective of making a game that feels smooth and easy to control to the player, this was the main objective, making sure the player can move as he wants, because many puzzles may be solved the player's way and so I want to facilitate that as most as possible, the player being able and comfortable to create their own solutions to the problem at hand.

This being a physics-based puzzle game the physics of the objects is very important and was paid special attention to and suffered many significant changes from the basic version of the lab, first major change is obviously the object following the players camera, I found this incredibly important for a bigger feeling of control, it is also important to mention that the cubes and planks have a very major difference. The cube's rotation will be locked on pick up for a smooth movement, but the plank's is not, there is a very clear reason for this, the cubes rotation is not very important as all sides are equal, on the plank this doesn't happen therefore I need to give the player extra control, for this, the planks rotation will follow the players camera, this however, due to the physics engine, comes with a significant increase in instability of the object, especially in lower frame rates, but I found the extra control to be completely necessary for the plank object.

Visual Design Specifications

I feel that is important to mention the visual design specifications that are crucial to the game's overall feel and play.

The first of these is the looks and colours of the game, I wanted the game to have a simple colour palette, the game is mostly black and white, with the exceptions of the red contrast, this red contrast will only show up in certain objects, I wanted the player to know that red objects are worth taking a further look at, so there is a clear distinction when an object may be interacted with or is simply part of the scenery.

With the design of the environment I wanted to somewhat tell a story, although the game does not focus on that, I wanted to be at least some reason that gives life to the environment since it will be all the player will interact with, the modern simple feel of the chambers show an advanced entity in control, maybe even watching, the several doors at the beginning show the presence of more people before in the chambers, that explains the writing on the walls, many of these with unfortunate ends, although there are no bodies in sight, good examples are in chamber 1 "Not Fair" can be found near the broken stairwell, maybe giving a look into when it did break and the unfortunate the person suffered, in chamber 2 the yellow key card may be found near laughing text, someone locked themselves inside with the key cards to try and stop others, or the person which found the code, maybe even the same person, fitting end. This all serves to bring this environment to light, to try and make the player feel like they are being apart of something bigger and alive which I find makes for more fun, interesting and captivating gameplay.

Prototype Instructions

It's important to mention that reading this before playing the game will ruin the experience as it contains the solutions to the puzzles.

On starting the game, the player will be introduced to the main menu, important to note here the 30:00 at the top, introduces the aspect of timed run, and will, whenever the player finishes, hold the session's best time.

After pressing start the player is introduced to the starting cell, escape being their only objective there is only one path to take, the hallway shows the player the state of disarray that place really is and the tutorial will introduce the movement.

When reaching the main chamber three things are pulled to the player's attention, a lever that will start everything, a locked door with "Freedom" written on it, and some instructions someone left behind "Get Both Levers", the player will interact with the lever the doors will open and the timer will start, which chamber the player enters first does not matter.

Entering on the chamber to the left the player will be introduced to the button and the cube, standing on the button opens the door stepping off will close it back off, arrows point at the cube and by picking it up he can place it in the button and move further into the chamber. First thing the player will see is the opposite door and another button, finding another cube becomes the objective, inspecting the room further the player will find the entrance to the side room and the stairs down and at the end some light coming through, looking closer the player will find the cube and need to push the big block away to gain access. A big gap now stands in the way, the big red plank seen before now gains a purpose and accessing the cube is the next step. With the cube in our possession, we need to get it to the button, the player may take any approach he wants, projected solutions may be, using both big blocks to jump from one side to the other, using the plank to bridge the gap between the two big objects or even using the plank to ramp up to the other side. Getting the cube on the button will ensure the lever can be pressed and the chamber is solved.

Entering the chamber on the right, the player will pick up and use the key card to enter, first two doors are yellow key card locked, showing that there are more key cards around, checking through the glass door windows the player will find the yellow key card behind a yellow locked door, another way must be found, further inspection shows the broken-down vent and the way in. The player will keep exploring the rooms finding he needs a red key card for the lever room and finds two more rooms he can open, in one a locked vent cover and in the other a screwdriver, the way to the yellow card is secure, holding the yellow card the player will now find two more newly accessible rooms, one will contain a safe but no luck with the code,

the second although seeming empty at a first glance we may find an axe hidden in one of the corners of the room, with this we can make our way through the wooden planks blocking the other room and in there the code, with it in hand we will find the red key card inside the safe and the second lever is activated.

This will open up the hatch on the main chamber, first thing the player will see is "Find the Statues" and "Which? Where?" signs of a combo lock and three objects to find, beneath the stairwell the player may catch a glimpse of a red cube behind some boxes (these have the same texture as previously broken wooden planks) using the axe on these will reveal the way to the box, but also a sand bag and some wooden planks, here we will also find the horse statue behind an opened door on removal of the statue the door will close trapping the player inside, placing the sandbag in the podium will open the door back again, placing the statue back will also let the player out in case the sandbag is not yet in his possession, and the first statue is gotten, the second may be found after a set of blocks that lead into a fall, some of these are fake and will drop the player into their doom, on one of them stands another cube looking up from there will show a marking on the ceiling showing that that square is safe and the path from one side to the other with similar red markings. A big wall now stands in the way of the player again, many choices present themselves, we can use the plank to ramp up or get the cube to use the plank as a swing, up there only a push-able object stands between the player and the bear statue, getting the cube may seem trivial at first but the player will either have to use to the plank to bridge over to it or go for a daring jump to reach it. With both cubes in hand the final statue stands behind a glass case with two buttons each side, the solution is clear how to get over the gap is not, the player now can use either physics or the inventory to fix it, we can use the planks we got from the boxes and used them near the gap to create a bridge or return for the plank and use that to bridge over. With all statues we just need the combination, further inspecting the podiums will reveal a red base, each with a different format, checking the podium for this format where we got each statue will let us know where to place each respective one.

The door comes down next to the statues, the arrow pointing up and the "Freedom" text tell us to go back up, the door is open the exit unlocked, the ending you get only depends on how long you took.

Imports and Licenses

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