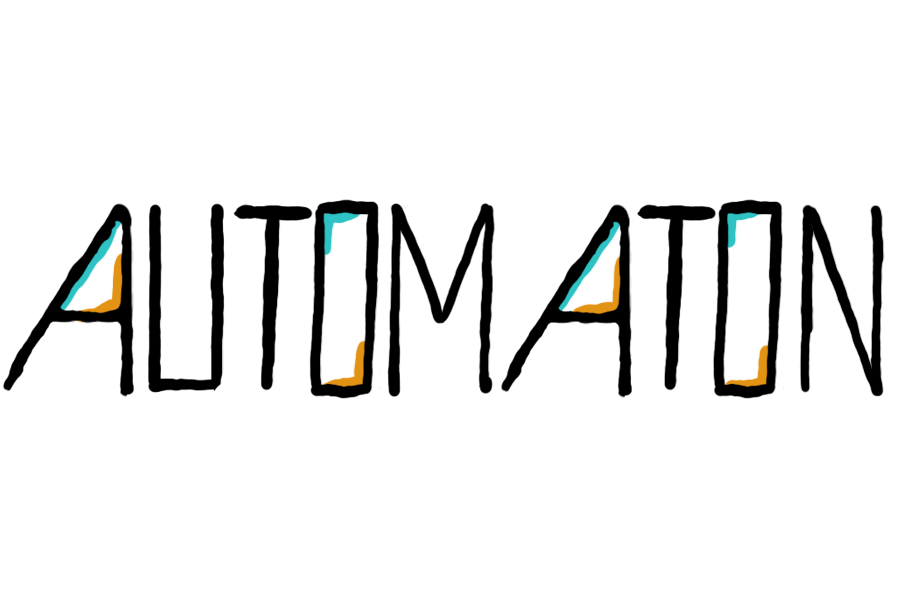
**HND Computer Games Development**

**Graded Unit 2**

**Development Stage**

****

Testing Specification

Overview of the Test Plan

As stated in the game design document, a thorough test plan is needed to ensure the game is of a high enough standard to submit. Since the project overall follows a modified version of the Agile methodology, the testing phases will follow a similar structure. Stage one consists of iterative testing, implementing one small feature at a time and ensuring it is functional with the rest of the product in its current state. Stage two consists of testing grouped components and will begin once all major features are implemented and tested individually, to ensure there are no loose or underlying bugs that may break the flow of gameplay. I have logged these in the ‘Technical Test’ section, as well as any significant bugs that either remain or required workarounds in the Bug Log. Stage three is the final stage and that is overall user acceptance testing, where a group of individuals will be given the game to test in its final form and given a questionnaire to fill out to give feedback on their experience both overall, and on specific game components.

Technical Test

Here is an overview of all of the game’s main functions and their current status in the final product.

|  |  |  |
| --- | --- | --- |
| Function | Description | Status |
| Player can move around world | The player can maneuver around the world using WASD and Arrow keys, as well as rotate the camera and the player model in sync. | Functional as intended |
| Player collides with solid objects | Player can collide with objects that have colliders attached and don’t clip through them. | Functional as intended |
| Player can interact with Sigma | Player can enter dialogue by walking up to Sigma and pressing the ‘Interact’ key. | Functional as intended |
| Player can interact with bomb cube | Player can pick up a bomb cube found in the world and have it placed in their left hand by pressing the ‘Interact’ key. Players can also throw this cube a fair distance by pressing the ‘Interact’ key again. | Functional as intended |
| Player can interact with energy cube | Player can pick up an energy cube found in the world and have it placed in their left hand by pressing the ‘Interact’ key. Players can also gently drop this cube in front of them by pressing the ‘Interact’ key again. | Functional as intended |
| Player can interact with pedestal | When carrying an energy cube, player can press ‘Interact’ key on a pedestal and have the cube removed from their hand and appear on top of the pedestal model. | Functional as intended |
| Player can interact with orange door | If the player throws a bomb cube at an orange door, while the cube’s velocity is more than zero and the cube collides with the door, the door and bomb should disappear and the door can now be passed through. | Functional as intended |
| Player can interact with blue door | Once all energy cubes have been placed on pedestals for that specific level, player should be able to press ‘Interact’ key on blue door and fade transition to the next chronological level. | Functional as intended |
| Player can interact with notepads | When the player presses the ‘Interact’ key on a notepad, the data for that particular pad should become accessible in the codex view | Functional as intended |
| Sigma looks at player within range | While the player is within range of Sigma and looking at him, Sigma will rotate his body along the y-axis to face the player | Functional as intended |
| Player can cycle through lines of dialogue | When in dialogue, the player can press the ‘Interact’ key to move onto the next line in the dialogue queue | Functional as intended |
| Dialogue text appears incrementally | When printing out text to the dialogue box, it should appear one character at a time with a short delay in between, to give a type writer effect | Mostly functional, occasional bug where the text takes a new line before it is ready or inserts a hyphen inappropriately |
| Notepad text appears incrementally | When printing out text to the notepad view, it should appear one character at a time with a short delay in between, to give a type writer effect | Mostly functional, occasional bug where the text takes a new line before it is ready or inserts a hyphen inappropriately |
| Player can select a dialogue response | After the current dialogue queue has concluded, player should be taken to a response window where they can click on one of four responses | Functional as intended |
| Player can exit dialogue | Within the dialogue response box, the player can click on the fourth option – which is always to exit dialogue – and | Functional as intended |
| Sigma plays ‘enter dialogue’ sound effect | Upon entering dialogue, Sigma will play the specified sound effect once | Functional as intended |
| Sigma plays ‘exit dialogue’ sound effect | Upon exiting dialogue, Sigma will play the specified sound effect once | Functional as intended |
| Orange door plays ‘pop’ sound effect | When interacted with, the orange door will play the specified sound effect once | Functional as intended |
| Delta plays ‘walking’ sound effect | When the player is moving, Delta will play specified sound effect on loop, or until the player velocity is zero | Functional as intended |
| Delta plays ‘grappling’ sound effect | Upon grappling, Delta will play the specified sound effect once | Functional as intended |
| Main menu plays ambient background music | Upon entering the main menu, the corresponding background music will immediately play and loop once finished | Functional as intended |
| Levels play ambient background music | Upon entering any level, the corresponding background music will immediately play and loop once finished | Functional as intended |
| Player can access codex | Upon pressing the ‘Inventory’ key, player can pull up the codex menu and view notepads they have collected | Functional as intended |
| Player can access pause menu | Upon pressing the ‘Menu’ key, player can pull up the pause menu and pause their game | Functional as intended |
| Player can access general settings menu | From the pause menu, player can click on the ‘Settings’ button and access the general settings menu | Functional as intended |
| Player can access video settings menu | From the general settings menu, player can click on ‘Video’ and access the video settings menu. They can also adjust resolution, graphics, and full screen settings. | Functional as intended |
| Player can access audio settings menu | From the general settings menu, player can click on ‘Audio’ and access the audio settings menu. They can also adjust the master, sound effects, and music volume. | Functional as intended |
| Player can access control settings menu | From the general settings menu, player can click on ‘Controls’ and access the controls settings menu. They can also select different keys and remap them to other key codes. | Functional as intended |
| Player can access help screen | From the general settings menu, player can click on ‘Help’ and access the help screen. | Functional as intended |
| Player can grapple using double grapple bars | When within range and looking at a grapple bar, the player can press the ‘Grapple’ key and hook onto the bar, swinging back and forth up to 90 degrees each way. They can also hook onto the other side of the bar and do the same thing. | Almost entirely functional, when player initially grapples they seem to teleport slightly forward, although problem this fixes itself if they stay on the bar for a bit longer |
| Player can grapple using single grapple bars | When within range and looking at a grapple bar, the player can press the ‘Grapple’ key and hook onto the bar, swinging back and forth up to 90 degrees each way. They can only do this in one direction, as the bar is single-sided. | Almost entirely functional, when player initially grapples they seem to teleport slightly forward, although problem this fixes itself if they stay on the bar for a bit longer |
| Player can save and load their current game | The player can save their game project in a JSON file and load it upon pressing the ‘Load’ button in the pause menu. | Not implemented, as save system caused many issues with gameplay and was removed, although code referencing this feature still remains in the project |

Bug Log

Here is a list of significant bugs encountered during stage one and two, and their corresponding solutions or workarounds. Some bugs remain and have no specific solution. These bugs are also logged in the table below, however there should be no remaining bugs that impact the player’s ability to complete the game.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Expected Outcome** | **Actual Outcome** | **Solution** |
| Reading notepads in new room | When the player collects a notepad, they should be able to access its contents from the codex no matter what level the move to next. | When the player enters a new level after collecting a notepad, it is not accessible in the codex and displays a message saying the pad hasn’t been collected. | Unity was deleting and reinitializing all objects and their respective scripts upon entering a new scene, so the array used to store the collected notepads was made static. However, arrays were still being reinitialized each time, so checks are now handled by a set of static booleans instead of an array. |
| Grappling to new platforms | When hooking onto a bar, player should swing back and forth like a pendulum until they release the specified button | When hooking onto a bar, player swings continuously in a circle infinitely | Small error in swing area script in which the player’s position was being constantly changed and rotated instead of the grapple point, swapped this reference out and the function worked as intended from then on. |
| Sigma’s animation and movement | When interacting with Sigma, he should stay in place and continuously animate whilst engaging in dialogue | When interacting with Sigma, his object teleports to a very specific spot in the scene and no longer moves | Sigma’s animator needed to have ‘apply root motion’ checked to ensure that his object would remain in its current position, and not automatically move to the spot where it was originally animated. |
| Animated text on screen | When in dialogue or reading a notepad, text should render one character at a time and take a new line at the last occurring space when it reaches the specified character per line limit | When in dialogue or reading a notepad, text takes new line at specified point once and then never again. | Found workaround. Instead of taking a new line at the last space, script checks if the last character in a line is in the middle of a word, and inserts a hyphen accordingly. |
| Main menu cursor lock | When returning to the main menu, the cursor should reappear and the player should be able to interact with menu buttons | When returning to the main menu after initially completing the game, the cursor remains locked and invisible | No current fix, bug remains in final version. |

User Testing

When conducting user testing, I chose to give the game to a sample of five of my peers from the same course, as I felt they would have a better understanding of the game development process than the average person and thus, provide more detailed feedback. They would test the game and then answer a series of seven broad, open-ended questions to allow them to write as much or as little as they want. I felt this was a better approach for my game than asking them if they agree or disagree with various statements, as it allows the user to focus and comment on specific aspects of the product that stood out to them, for better or worse. This also helps me from a design perspective as well as quality assurance, as I can gauge if the aspects of gameplay that I wanted the user to appreciate or enjoy – such as the simplistic art style or ambient audio – are having the desired effect. I have broken down the results gathered from the testing sessions and how I chose to respond to them, as well as included the original forms below.

Overall, users appeared to enjoy the gameplay experience. Most users provided very constructive feedback, others less so. All users agreed that the game’s objective and instructions were clear and easy to follow, reassuring that my tutorial was effective. All users agreed that the visuals were either effective in conveying the setting of a futuristic space station or at least aesthetically appealing. Most users seemed appreciate the addition of the extra lore through notepads or through talking to Sigma, but I noticed while watching the testers that in practice, only Jamie and Keith stopped to read the notepads or talk to Sigma past the tutorial. Most users either chose to ignore the additional lore after a certain point or would only occasionally talk to Sigma to gain a hint about the level. This reassured my early design decision to keep the bulk of the narrative an optional experience, as some users may just want to get on with the gameplay.

Gameplay wise, all users enjoyed the grappling system as a mechanic, however about half of users struggled with getting the hang of grappling from one hook to another in certain areas. This is intentionally meant to be challenging and intense, as one of the core elements of gameplay is timing and planning your movements carefully. However, in practice it seemed to hinder the experience for some players with slower reflexes and became more frustrating than enjoyable. If given more time, I would modify the grapple bars to have slightly larger collision boxes so there is a greater opportunity to attach onto them while in the air, and hopefully lessen this problem. I would also take Daniel’s criticism of changing the pause menu key from Tab to Escape, as this is more typical of other games and is more intuitive.

Some users encountered minor bugs throughout playing, however these were almost exclusively visual errors. Daniel encountered an issue with the shadows from Unity’s built in lighting system, where the closer he got to a shaded area, the darker it became to the point of being completely black, rendering the area almost invisible. This only occurred on college computers and did not occur on my home computer when I was setting it up, leading me to suspect it was a flaw of how lower end systems with less powerful graphics cards render lighting. To combat this and ensure the game was fit for all systems, I removed the shadows entirely. There was also an issue where the cursor would periodically unlock itself for seemingly no reason when running the game in-engine, which two testers had an issue with. Again, this never occurred on my home computer, and only within the college. My solution was to export and give the executable version to the remainder of the testers, as this strange bug only occurred within the Unity Engine. Almost all users encountered a minor issue with the grappling system where if standing at certain angles, the heads-up display would claim they were in range of a bar when they were just slightly out of it. This is a flaw of my own programming, and an issue I did not have time to fix, so it remains in the final product, however it does not affect the game’s functionality or cause any gameplay-specific bugs to occur.

Overall, the game is effective in implementing the chosen design and delivers the intended experience to users, despite minor problems.

Playtest #1

Name: Daniel Martin

Date: 25/04/2019

Occupation: Student

Please type your answers underneath the questions.

1. **How would you summarize your experience of the game overall? Were instructions clear and did you understand the objective?**

Overall the game experience was good, instructions could have their own screen for preset controls and objective was clear

1. **What were your thoughts on the visuals/art direction?**

Visuals were good, shadows got in the way but overall impressed

1. **How did you find the controls/mechanics? Anything you particularly enjoyed or didn’t?**

Controls are well thought out, I thought the grappling hook was a cool idea and original. Fix the cursor bug and all is well.

1. **Were there any parts of the game overall that you particularly liked or disliked? Anything you felt was too hard or too easy?**

I like the iPad idea with a backstory and “Sigma” that you could talk to and ask questions at anytime

1. **Did you encounter any bugs or strange glitches?**

Shadows getting in the way of seeing bombs or cubes

1. **If you had to change anything about the game, what would it be?**

Change pause button from tab to escape

1. **Any additional thoughts or criticisms?**

N/A

Playtest #2

Name: Keith Parsons

Date: 25/04/19

Occupation: Student

Please type your answers underneath the questions.

1. **How would you summarize your experience of the game overall? Were instructions clear and did you understand the objective?**

The game was simple to play, the objectives are clear enough to complete the game and the instructions are clear.

1. **What were your thoughts on the visuals/art direction?**

the visuals are very detailed; they do give the feeling that the setting is a space station

1. **How did you find the controls/mechanics? Anything you particularly enjoyed or didn’t?**

The walking controls are okay but the grappling control is a bit glitchy I would say and the fact that you can combo grappling together and the cursor lock is a bit of an annoyance

1. **Were there any parts of the game overall that you particularly liked or disliked? Anything you felt was too hard or too easy?**

I liked the narrative of the game it was very intriguing I also liked how there is a codex screen to view the lore from the data pads. I also liked the dialogue mechanics as it adds more feeling to the game. The thing I didn’t like is how you can’t combo grappling together. Because of the grappling issue I felt doing the jumps that require you to grapple from grapple point to another were hard compared to the single ones. The game was easy to play but I wouldn’t call the game far too easy.

1. **Did you encounter any bugs or strange glitches?**

There is a visual glitch were the game shows you are in range of grappling but it turns out you aren’t and there were one or two collision issues when you land on a platform after grappling.

1. **If you had to change anything about the game, what would it be?**

The thing I would change is the ability to combo grapples but other than that the game is pretty good as it is other than the cursor locking issue

1. **Any additional thoughts or criticisms?**

The games puzzles are easy enough to complete and understand, the other thing is that the game should have a controls or help menu inside the pause to show game controls. The game needs to have combo grappling.

Playtest #3

Name: Jordan Collie

Date: 25/4/19

Occupation: Student

Please type your answers underneath the questions.

1. **How would you summarize your experience of the game overall? Were instructions clear and did you understand the objective?**

The objectives of the game were very clear and laid out. The game itself was fun to play with a good level of difficulty and enough obstacles to keep the player entertained.

1. **What were your thoughts on the visuals/art direction?**

All of the characters in the game were well designed and were interesting to the player. The level looked great.

1. **How did you find the controls/mechanics? Anything you particularly enjoyed or didn’t?**

The grappling added a lot of difficulty to the game. For myself was very difficult to get past the double grapples while trying to click on the second grapple.

1. **Were there any parts of the game overall that you particularly liked or disliked? Anything you felt was too hard or too easy?**

See as above

1. **Did you encounter any bugs or strange glitches?**

There were no bugs or glitches present in this run-through of the game.

1. **If you had to change anything about the game, what would it be?**

I would make the clickable field on the grapples larger.

1. **Any additional thoughts or criticisms?**

None.

Playtest #4

Name:Jamie Mills

Date: 37nd Japril

Occupation: pro driver

Please type your answers underneath the questions.

1. **How would you summarize your experience of the game overall? Were instructions clear and did you understand the objective?**

The game experience was fantastic. Simple objectives with clear instructions and a fun mechanic to play with.

1. **What were your thoughts on the visuals/art direction?**

Simple but effective

1. **How did you find the controls/mechanics? Anything you particularly enjoyed or didn’t?**

Really enjoyed the mechanic in this game – works better than expected too – felt like Tarzan!

1. **Were there any parts of the game overall that you particularly liked or disliked? Anything you felt was too hard or too easy?**

I really enjoyed it when the level got more difficult. Trying to figure out your path before/during swings makes for a more intense experience.

1. **Did you encounter any bugs or strange glitches?**

A little issue with the distance for the grappling hooks but doesn’t lead to any gameplay issues

1. **If you had to change anything about the game, what would it be?**

I would add more obstacles that are only one-sided

1. **Any additional thoughts or criticisms?**

Really enjoyed this game, especially the extra lore!

Playtest #5

Name: Cameron

Date:25/04/2019

Occupation:

Please type your answers underneath the questions.

1. **How would you summarize your experience of the game overall? Were instructions clear and did you understand the objective?**

Instructions were clear as was the objective

1. **What were your thoughts on the visuals/art direction?**

Looked good and reminded me of games like qube and portal

1. **How did you find the controls/mechanics? Anything you particularly enjoyed or didn’t?**

The controls were fine but grappling from one grapple hook point to another takes time to get used to

1. **Were there any parts of the game overall that you particularly liked or disliked? Anything you felt was too hard or too easy?**

The difficulty increased at a reasonable pace however the start is a bit too easy

1. **Did you encounter any bugs or strange glitches?**

no

1. **If you had to change anything about the game, what would it be?**

Make the collectables not pointless

1. **Any additional thoughts or criticisms?**

no