Project Deliverable H

Prototype III and Customer Feedback

Team 1

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Abstract

The document outlines the creation of our third prototype, the testing process, and the gathering of feedback from potential user, as well as a careful analysis of our third prototype and an explanation of the changes from our first and second prototypes.

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1 Introduction

This document showcases our third prototype, which improves upon the first and second by using feedback from our clients and other people and including other subsystems not included in the previous prototypes. It also includes how we plan on testing the success of our prototype, our stopping criterion, and our results, as well as images, and feedback on how the prototype looks. Using this feedback, we updated our target specifications, detailed design and BOM. We finally included a detailed explanation of improvements from our previous prototypes.

2 Prototype III

2.1 Prototype IIII Test Plan

The goal of this test plan is to analyze more specific subsystems that we established at the beginning of the deliverables and assess how they fit into the second prototype of our VR game. This test plan does not represent the entire project but rather a part of our VR game. Its purpose is to ensure that the added subsystems are well functional in our VR environment.

On the right side of the table, there is a result scale where everything in green indicates that the test objective has been successfully met to expectations, everything in yellow indicates successful accomplishment close to expectations, and red indicates that we have not yet had the chance to successfully accomplish these test objectives.

ID	Test Objective (Why)	Description of Prototype used and of Basic Test Method (What)	Description of Results to be Recorded and how these results will be used (How)	Estimated Test duration and planned start date (When)	Stopping criterion	Results
1	Analyse Critical subsystem: News channel about AW.	Analytical, Specific	Easy to understand and blend seamlessly with the environment. Informative aspect of VR	(05/03/24)-(10/03/24)	Satisfies design scale, Until deadline	Success
2	Analyse Critical Subsystem: Dog moving and stop whining on click	Analytical, Specific	Appeal to emotions of users, cause users to feel concerned	(05/03/24) - (10/03/24)	Satisfies design scale, Until deadline	Held until asset purchase – in progress
3	Analyse Critical Subsystem: Sound of glass breaking	Analytical, Specific	Provoke feelings and slightly startle the user	(05/03/24) - (10/03/24)	Satisfies design scale	Success
4	Analyse Critical Subsystem:	Analytical, Specific	Camera movement should not cause	(05/03/24) - (10/03/24)	Satisfies design scale	Success

			dizziness for users			Success
5	Analyse Critical Subsystem: Background music	Analytical, Specific	Implement background music for emotional appeal	(05/03/24) - (10/03/24)	Satisfies design scale	Success
6	Analyse Critical subsystem: Subtitles in English and French	Analytical, Specific	To enhance comprehension of News channel, inclusive approach	(05/03/24)-(10/03/24)	Satisfies design scale, Until deadline	In progress
7	Analyse Critical Subsystem: Elements depicting presence of a child. Toys, Scribbles...	Analytical, Specific	Address ethical concerns of autonomous weapons and appeal to user's empathy.	(05/03/24)-(10/03/24)	Satisfies design scale, Until deadline	Success
8	Analyse Critical Subsystem: Bullet holes	Analytical, Specific	To showcase the effect of unregulated autonomous weapons. To demonstrate the user how autonomous weapons have affected them.	(05/03/24) - (10/03/24)	Satisfies design scale, Until deadline	Success
9	Analyse Critical Subsystem: Soundproof room	Analytical, Specific	Ensure that noise from this room is muffled. To demonstrate the need to be quiet to the users.	(05/03/24) - (10/03/24)	Satisfies design scale, Until deadline	Dropped
10	Communicating and Getting Feedback: Friends	Physical, Comprehensive	Feedback/ideas Improvement suggestions	(09/03/24) - (10/03/24)	2-3 times Until deadline	Success
11	Communicating and Getting Feedback: TA	Physical, Comprehensive	Feedback/ideas Improvement suggestions	(09/03/24) - (10/03/24)	Until suggestions implemented	Success

2.2 Analysis of concepts (Prototype III)

The broken glass on the floor symbolizes the chaos within the home, illustrating the profound impact of autonomous weapons on people's lives. It signifies a reality where individuals live in constant fear and disorder, where cleanliness and organization are not guaranteed. By incorporating broken glass, we aim to underscore the disruptive nature of autonomous weapons and the resulting upheaval in daily life. Additionally, the broken glass is a consequence of a shattered vase, further emphasizing the theme of noise and its dangers. Posters on the wall explicitly caution residents to be cautious about making noise, as it could attract the attention of autonomous weapons. The presence of broken glass heightens the sense of peril, indicating that those in this environment face increased risk of endangerment.

The bullet holes on the walls serve as a subtle detail to convey the message that the sandbags inside the house are intended for protection against gunshot wounds, emphasizing this aspect within our message. Such attention to detail enhances the explicitness of our message. It is these precise details that contribute to the uniqueness of our project and demonstrate our team's commitment to creating a meticulously crafted environment that feels authentic.

The news channel on the TV is one of the most crucial elements in our prototype three. It provides users with explicit explanations of the dangers of autonomous, which is the primary objective of our VR game. This newscast runs for approximately 30 seconds, allowing users to quickly view or listen to the broadcast, and another 30 seconds for them to explore the environment. A key feature is that this newscast does not show a physical body representing the news anchor, but rather uses audio components and video representations relevant to the message. We ensure that this news channel plays right at the beginning of the game, so users are immediately sensitized to the dangers of autonomous weapons and do not spend time being lost in understanding their objective**.**

User instructions at the beginning of the game: This new component, added to our prototype three, will allow users to better navigate the environment, thereby understanding what actions to take and what the environment offers. The message is clear and concise to prevent readers from spending time on lengthy instructions and to allow them to spend more time experiencing the environment. This component is crucial for orienting users to the specific elements we have added to the game. For instance, it informs them that clicking on the sandbags will provide an explanation of why they are there.
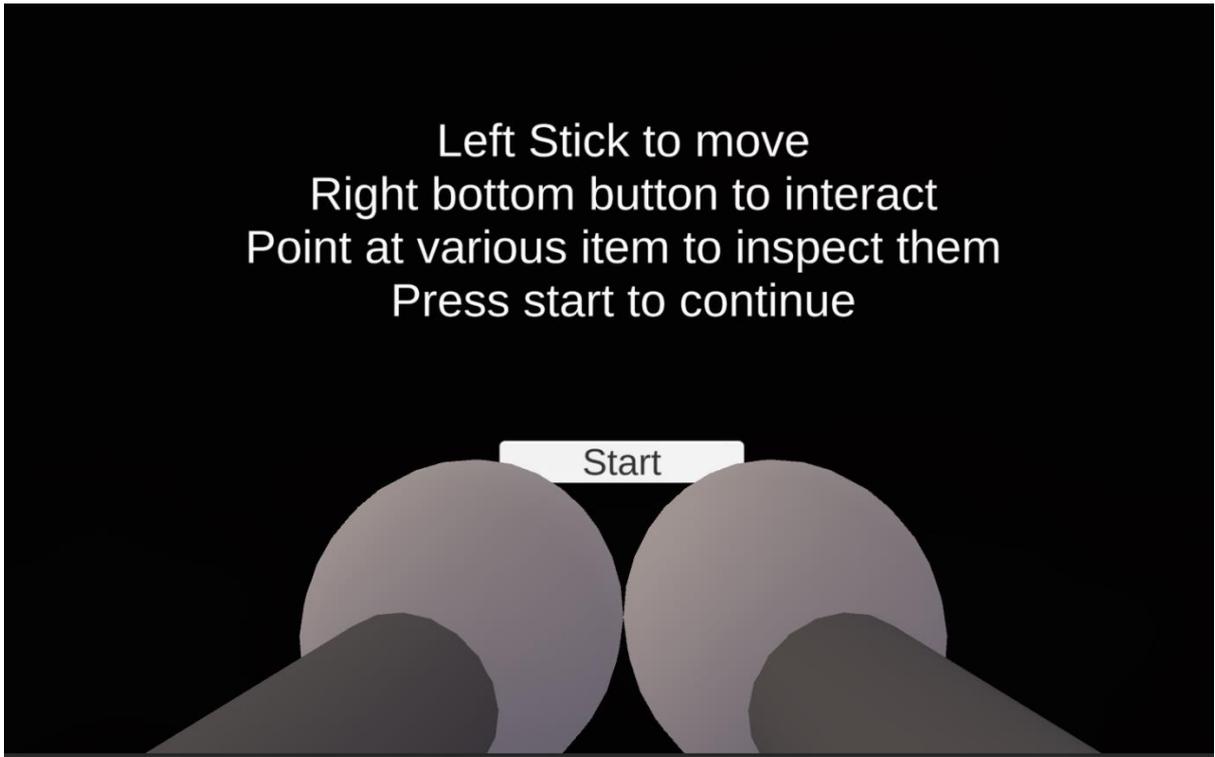
2.3 Prototype III Images

Bullet holes and ceiling plaster

TV news flash

UI at beginning of game

Glass with updated hitbox for shattering

Feedback

The aim of this section is to incorporate feedback and opinions from individuals, including potential users beyond our current clients, to enhance the project we're currently working on.

Source	Feedback Received	Reflection
Salim	• There are too many sandbags inside the room, which does not reflect reality! In real life, sandbags surround the room from the outside. Adding a garden outside the room and surround it with sandbags would convey a better realistic environment. • A closet with an open broken door and instead of a normal cloth inside it, add tactical vests to show that people are using those vests inside the house to protect themselves. • Consider adding a Kid's drawing sketch showing that he is afraid from what is going on.	We focused on having one scene; therefore, we added the sandbags from the inside to show methods of protection. The closet idea is awesome! We should consider implementing it to enhance the environment of being under attack.
Elias	• Add a vent or a small exit on the floor as an emergency exit in case of extreme danger (an exit to a tunnel underneath the house). • Consider adding a gas mask in the scene, so people can use them in case AW targeted gas pumps\ tubes.	This is a great idea; it could be done by adding a small door on the floor or a vent without showing the actual tunnel, and we can add posters or a description box saying an emergent exit in case of an extreme danger.
Elie	• The scene looks great! Consider adding some furniture made of sandbags, for example, a table made of a sandbag to show that people can't have a normal life with normal furniture. • Also, if you add more windows would be better than only having one in the scene.	Our room still looks too organized for a danger environment. Hence, adding a table made of sandbags would be a good idea.

| Andre | • Showing a lot of sandbags in the room is a bit overwhelming! Try to add more details instead, for example, having a key rack beside the door and add keys as well as helmet. To show that people can't go outside without putting helmets on their head for protection!
• Add a monitor inside the room to show the outside environment if it's safe or not go outside. | Adding helmets is an effective protective method, which shows that people couldn't go outside without protecting themselves since they might lose their lives. |

3   Updated Target Specifications

No updates were made to the target specifications.

4   Updated Target Detailed Design

No updates were made to the detailed Design plan.

5   Updated Target BOM

Item	Links	Price
Digital unity textures		
18 high resolution wall textures	https://assetstore.unity.com/packages/2d/textures-materials/brick/18-high-resolution-wall-textures-12567	$ -
Wooden Floor Materials	https://assetstore.unity.com/packages/2d/textures-materials/wood/wooden-floor-materials-150564	$ -
Digital unity assets		
5 animated voxel animals*	https://assetstore.unity.com/packages/3d/characters/animals/5-animated-voxel-animals-145754	$ -
Apartment Kit	https://assetstore.unity.com/packages/3d/environments/apartment-kit-124055	$ -
Ceiling Fan	https://assetstore.unity.com/packages/3d/props/tim-s-assets-old-ceiling-fan-103789	$ -
Free Rug Pack	https://assetstore.unity.com/packages/3d/props/interior/free-rug-pack-118178	$ -
Husky dog	https://assetstore.unity.com/packages/3d/characters/animals/husky-dog-160906	$ 9.99
Realistic Sandbags	https://assetstore.unity.com/packages/3d/props/exterior/realistic-sandbags-95964	$ -
Steel Window	https://assetstore.unity.com/packages/3d/props/industrial/steel-window-650	$ -
TV set	https://assetstore.unity.com/packages/3d/props/electronics/tv-set-26193	$ -
Fire extinguisher	https://assetstore.unity.com/packages/3d/props/fire-extinguisher-21147	$ -
Wooden boards	https://assetstore.unity.com/packages/3d/props/exterior/boards-set-173161	$ 6.99
HDR sky	https://assetstore.unity.com/packages/2d/textures-materials/sky/free-hdr-sky-61217	$ -
Cracked Plaster	https://assetstore.unity.com/packages/2d/textures-materials/decal-pack-1-94347	$ -
FROOD Free food items	https://assetstore.unity.com/packages/3d/props/food/frood-free-food-and-drinks-pack-152103	$ -
Scripts		
Quick outline	https://assetstore.unity.com/packages/tools/particles-effects/quick-outline-115488	$ -
Packages		
Character Controls	com.unity.charactercontroller	$ -
Applications		
Audacity		$ -
Canva		$ -
GitHub		$ -
Musescore		$ -

Unity		$	-
Free sounds		$	-
Visual Studio		$	-
Total		**$**	**16.98**
Maximum		$	50.00
Budget available		$	33.02

Improvements of prototypes

From our Prototype I to our Prototype II and lastly to our Prototype III, regular testing has been helpful in distinguishing ow functional and coherent our Prototype is, leading to careful amendments to be made as demonstrated in the table shown below.

Subsystems	PROTOTYPE		
	1	2	3
Living room	For Prototype I, we focused on the size of our environment and the quantity of assets to be added.	We added furniture and improved the design of our living room and sandbags as a means of adaptability keeping the residents safe. Our living room was unscathed, no impact of autonomous s weapons was visible.	We added cracks to the roof and bullet holes to the walls.
Sandbags	Sandbags were added around the room but there were not enough to demonstrate the severity of the situation.	More sandbags were added but the height remained at hip levels, hence ineffective during firing.	We added more sandbags at a reasonable height, enabling people to hide behind them in case of firing.
Dog	The addition of a dog is to appeal to user's emotion. We used a free asset dog in Prototype I.	We made the dog whine adding tension to the room, but it was too overwhelming to have continuous whining. We used a free asset dog in Prototype II, but the dog seems out of place compared to the other features present which are more realistic, we planned to buy a more realistic dog.	We improved the dog whines; the dog will start or stop whining when the user clicks on it. Addition of our realistic of, a husky is to be implemented soon.
Children's presence	To show that there are children living in this house, we added a toy.	One toy signify that the children were visitors and not residents of the house, to amend tis, we added more toys and decided to add a baby bottle and a pram for Prototype III.	No further improvements were made.
Wine glass	To show the need to stay silent because of the autonomous weapons, we added a wine glass that will break on impact, when	We worked on making the glass break.	We added sound to the glass breaking.

	the user interacts with the environment.		
Posters	Poster on the walls were added to serve as informing our users about the dangers and to adapt to the environment.	Our posters on the walls could be destroyed by autonomous weapons if the walls are blasted, hence we moved them on the sandbags.	We need to enhance the information on our posters, add text in English and French and ensure that they match with the surroundings.
TV	In Prototype I, the TV was only a piece of furniture in the living room.	We decided to use the TV set to explain our users about autonomous weapons through news. The making of the video took place, with subtitles in both languages; English and French.	We added our news video in Prototype III.
Furniture	Elements usually present in a living room were added.	Some of our furniture seemed out of place, we addressed this in Prototype II by changing the table and enhancing the resolution of the other features to make them seem realistic.	No further improvements were made.
Light	We worked on our light switch making it interactive.	We added a light but removed it noting that our fan served as a light source as well.	No further improvements were made.
Additional	-	We added a fire extinguisher.	We added a barricaded window, and wooden boards.

Apart from these significant changes, we also implemented some adjustments in respect to the size of objects in the room, the loudness of the different sounds, the cohesion of the walls and enhanced our environment to meet our design criteria, that is demonstrating how civilians have been impacted by autonomous weapons(Bullet holes, Cracked walls), elements depicting adaptation of civilians to protect themselves(Sandbags, Posters, Barricaded windows and Wooden boards on walls), the ethical concerns about autonomous weapons (Dog whining, Children living in this condition), educating people(News channel on TV and Posters).

Conclusion

In conclusion, Prototype III marks a significant step forward in our VR project. Through careful analysis and repetitious improvements, we have enhanced critical subsystems to evoke emotions, provoke thoughts, and engage users effectively. Our commitment to inclusivity and continuous refinement ensures that we deliver a compelling experience that raises awareness about the ethical implications of autonomous weapons. Moving forward, we remain dedicated to innovation and excellence, striving to create a meaningful VR experience that resonates with users and contributes to broader societal conversations.

6 References

- Previous Team Deliverables
- Asset store Unity
- GNG 1103 Lectures