Deliverable D - Conceptual Design

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1 Introduction

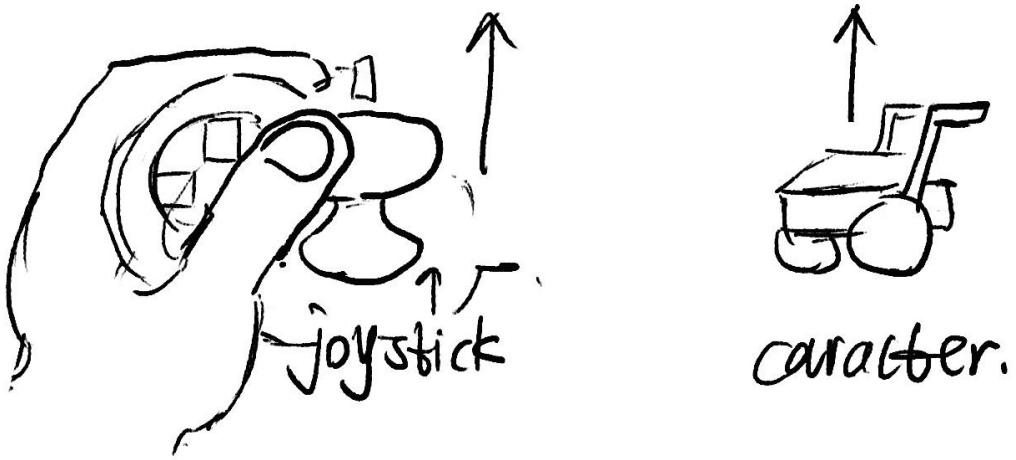
We intend to create a game in which the main character is a physically disabled person. His legs were unable to walk, which left him in a wheelchair. Because he is different from others, he is discriminated against in school and society. This game is made through the player's experience of life in a wheelchair, the purpose is to make others feel sympathetic, so as to avoid hurting them in life. For this project, our team has defined 4 mains subsystems. These are the mechanics and features that we believe are the main building blocks of our design.

2. Subsystems

2.1 Moving

Defines how the user would move around in the game world

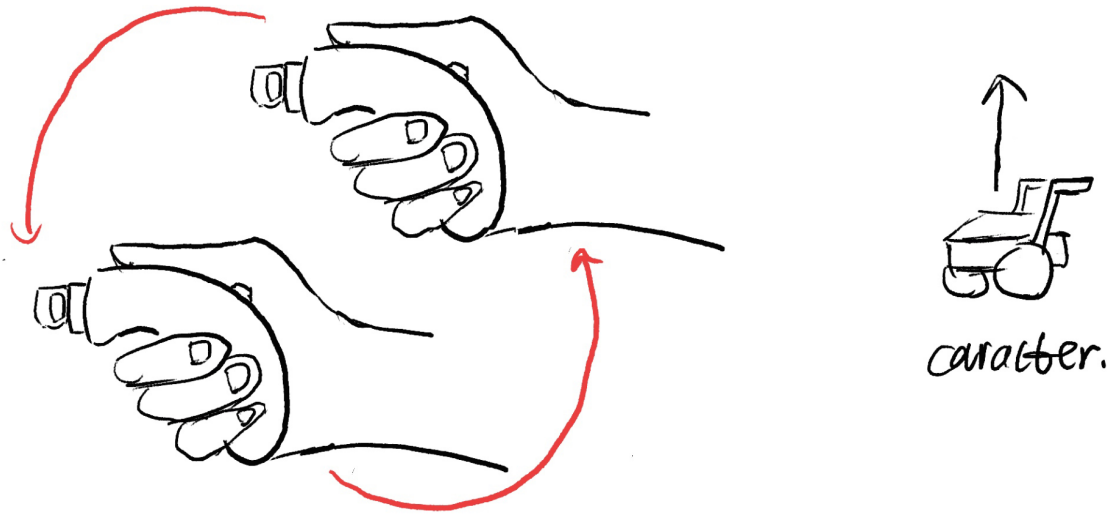
Joystick: The movement of the player character is defined by pressing a joystick on the controller, similar to how many VR games, such as VR chat move a player character.



- Pros:
    - Simple to implement.
    - Accessible and easily usable mechanic.
- Cons:

    - not as immersive
    - Loses the ability to communicate the struggles of using a wheelchair through VR gameplay mechanics.

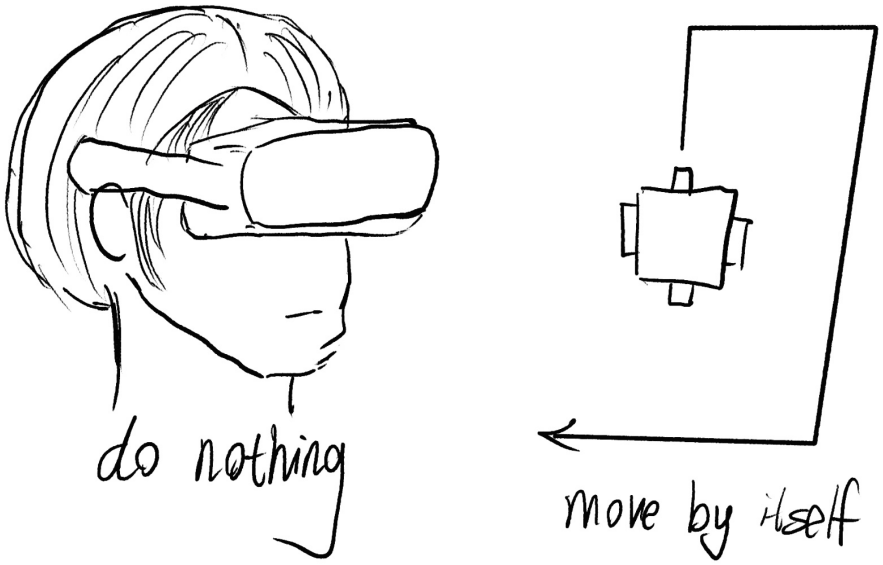
Using controllers to grip wheels and move around: The movement of the player character is defined by the player using the VR controller to interact with a simulated wheelchair wheel. The input of the player moving the wheel moves the player character around the gameworld.



- Pros:
    - More immersive
    - The struggles of using a wheelchair are experienced through game mechanics.
    - More interesting gameplay opportunities, such as moving onto a wheelchair lift.

- Cons:
    - More complex to implement, requires a lot more mathematical analysis as well as more complex programming.

Automove: The movement of the player character will be guided in a path around the game world without the interference of the user.



- Pros:
    - More linear (easier to focus on the story rather than gameplay)
    - Simple to implement
- Cons:
    - Not as immersive
    - Linear(there is a loss of agency which diminishes the interactive experience

2.2 Interactivity

How objects behave when interacted with in game; whether you can move it by picking it up, making it fall over, or initiating a button prompt.

Full interactivity: Every object in the gameworld is interactable.

- Pros
    - Very immersive
    - Improve the empathize
- Cons
    - More complex
    - Greater bug potential

More interactivity: You can only interact with specific objects. For example, you can interact with the handle of the refrigerator, but you can't grab anything out of it.

- Pros
    - Easier to implement
    - Less complicated for the user
- Cons
    - Less interactive as full interactivity

Less interactivity: The user will either have limited interaction with the game world.

- Pros
    - Easy to implement
    - Small bug potential
- Cons
    - Less immersive than a more interactive option

No interactivity: The player will have no interaction with the game world

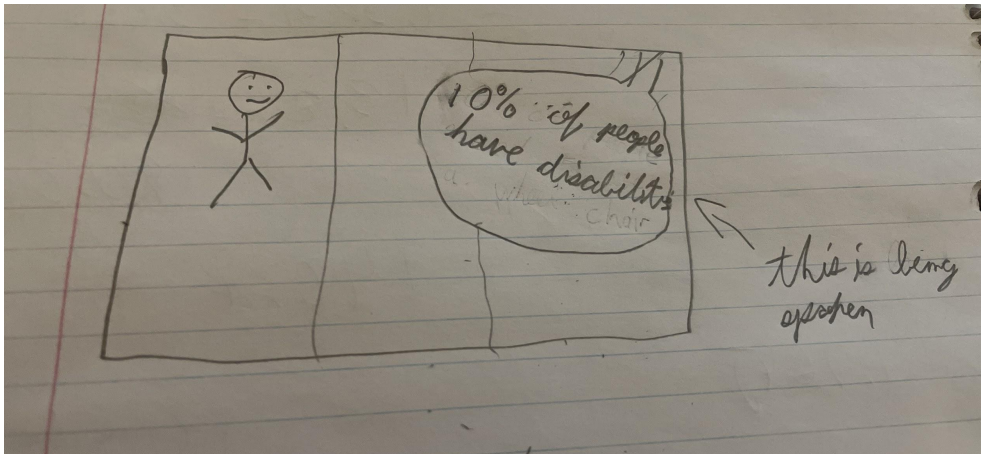
- Pros
    - Easy to implement.
    - Gives designers more control over any potential narrative.
- Cons
    - Boring.
    - Strips agency, reducing immersion and emotional involvement.
    - Hard to generating sympathy,

2.3 Information

Defines how information or facts will be conveyed to the user.

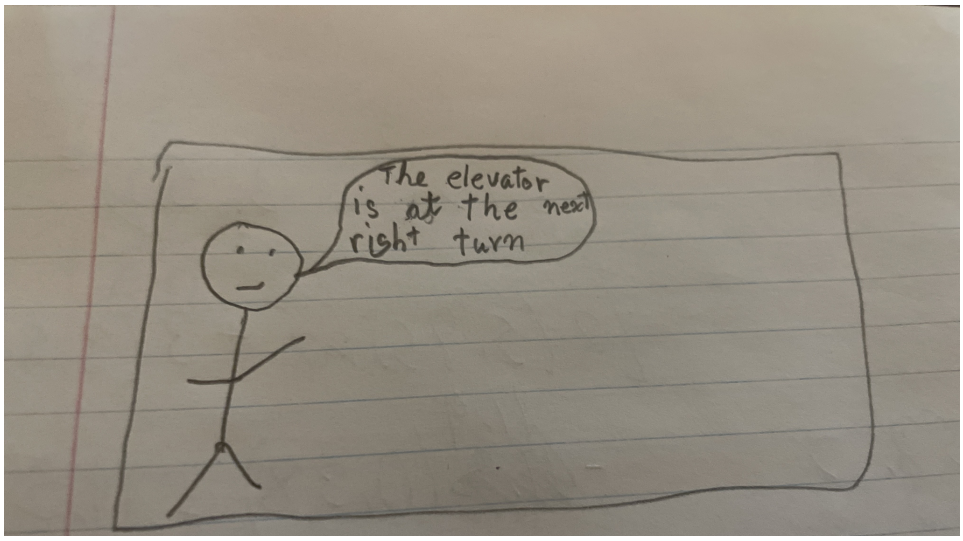
Convey facts through a voice narrator: Facts will be conveyed to the user through a voice narrator during certain interactions within the game.

- Pros
    - User will not have to find these facts around them
    - Users will learn about this minority
- Cons
    - Facts might seem boring
    - Not very interactive



Convey Facts through pop ups: Having a speech bubble from talking to a NPC at certain points in the game that informs the user about important information.

- Pros
    - User will see facts around and focus on the ones that interest them
    - Users will learn more about this minority
- Cons
    - User would have to read the facts
    - Facts might seem boring for the user



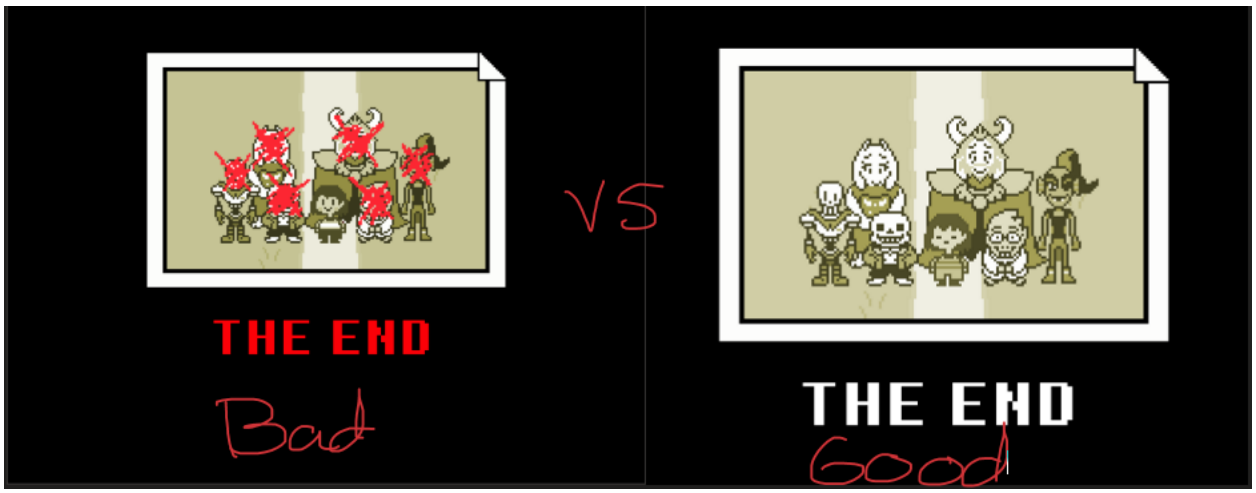
Not convey any facts: Without any voice, the player can only use a wheelchair, without any narration and introduction.

    - Won't bore the user with facts
    - User will learn through interaction rather than through facts
- Cons
    - User won't learn as much
    - Not interactive

2.4 Narrative

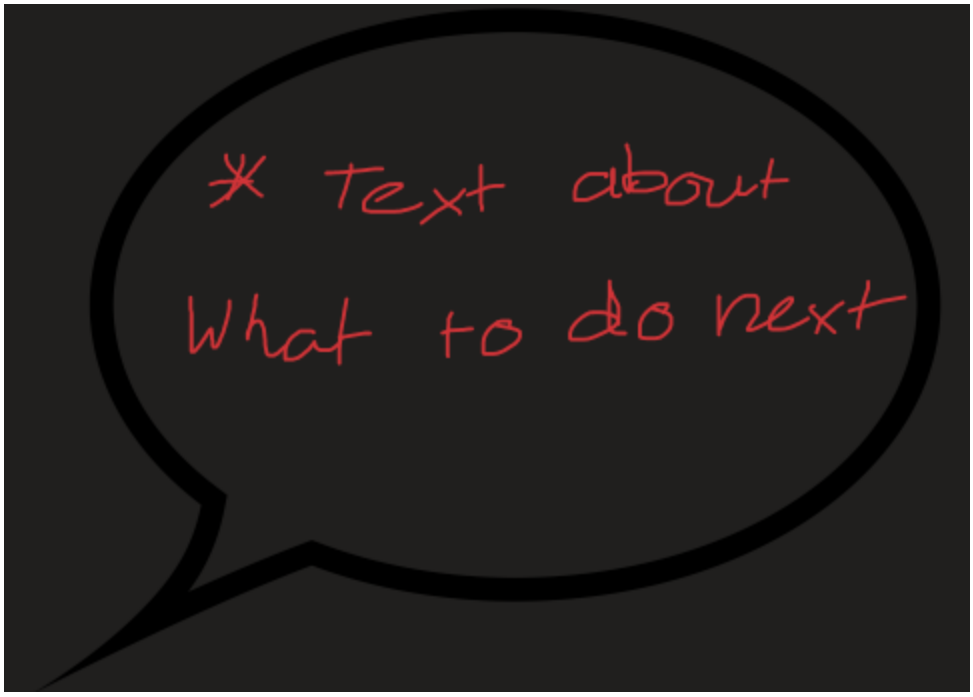
Narrative defines whether the game should have a storyline or a mission.

Have a full story: The game has a complete story and multiple endings (like good ending and bad ending). Moreover, you will receive some mission or choice, which will influence the game trending.



- Pros
    - Good game experiment
    - Enough time to generate the empathize
- Cons
    - The playtime is too long
    - Too many work

Play a game while being guided by a narrator: You will receive the order from the AI, you follow the order to run the game. It might have decision problems and multiple endings, but it is not too much.



- Pros
    - Has basic purpose, story, and adds to the replayability
    - It can limit the playtime (depends on how many missions you provide)
- Cons
    - Harder to make (have to record audio and make a script)

No story, strictly interaction based: No storyline, no missions. It is only a wheelchair simulator game. Players use handles to control the wheelchair to move around. The game experiment feels like:

- Pros
    - Very pure wheelchair experience game
    - Let consumers deeply appreciate the inconvenience caused by wheelchairs
- Cons
    - A player that's not well informed might have trouble grasping the message that's trying to be conveyed
    - A game with no story, purpose reduces playability

3 Final Solution

1st solution:
Moving: Using controllers to grip wheels and move around

Interactivity: less interactivity

Information:Not convey any facts

Narrative: Play a game while being guided by a narrator

This solution provides a balance between the complexity of the core movement mechanics, and the wider interactivity of the game world. The core movement mechanics provide a strong interactive experience around being wheelchair disabled, expressing these struggles through

gameplay. This mechanic would also suit the strengths of VR, making it an ideal choice for a VR empathy promoting experience. Interactivity would be limited to items and objects that would be relevant to gameplay, such as doors, railings, and button prompts. This would cut down on extra complexity, and allow for a greater focus on the main movement mechanics. No additional information would be added to the game, as this could detract from the immersion of the game. Narrative and exposition would be conveyed through a narrator through pop up texts throughout the game. The main drawback of this design is the main complexity of the movement mechanics

2nd solution:
Moving: Auto move

Interactivity: no interactivity

Information:Convey facts through voice narration

Narrative:No story

This solution is the easiest route to take to approach this project. Making the player character move according to a predefined path enables the designers to have more control over the experience and direct the game to their liking. Removing interactivity also helps to cut down on complexity and reduce the potential for bugs. Conveying facts through narration can allow for the user to easily absorb the information regarding people who are wheelchair disabled. The main drawback of this design is that stripping the interactivity takes away a need stated in the design, and taking away interactivity turns a VR game into a VR theme-park ride seminar.

3rd solution:
Moving: Joystick

Interactivity: Full interaction

Information: Not convey facts

Narrative: Guided by narrator

This solution is the inverse of solution 1. Here the movement mechanics and interactivity of the game world are balanced in favor of the game world interactivity. The benefit is that this solution does not require a complicated movement mechanic, while still allowing for the free movement of the player character. The lack of interactivity with the wheelchair can be made up with greater interactivity with the game world, potentially allowing for focussing on different aspects of wheelchair disabled people. The main drawback of this solution is that it loses that focus on the actual action of moving a wheelchair, potentially reducing the impact of that experience.

4 Conclusion

In conclusion, we believe that the first solution is the best way to base the design of our program off of, and we believe that it meets all of our needs and criteria that we previously stated in deliverable C. It implicitly shows the struggle of wheelchair disabled people through the gameplay mechanics, narrative ques leave potential for non-player character (NPC) interactions that could present more explicit bigotry towards these people, the design is well suited to the strengths of VR and fits the interactivity need, and the lack of formal information will not distract from the immersion of the game experience.

5 Wrike

https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=d3xIvCzMBeee7bTBnJod8c2Ci5sGHWYg%7CIE2DSNZVHA2DELSTGIYA