Project Deliverable D: Conceptual Design

Group E1

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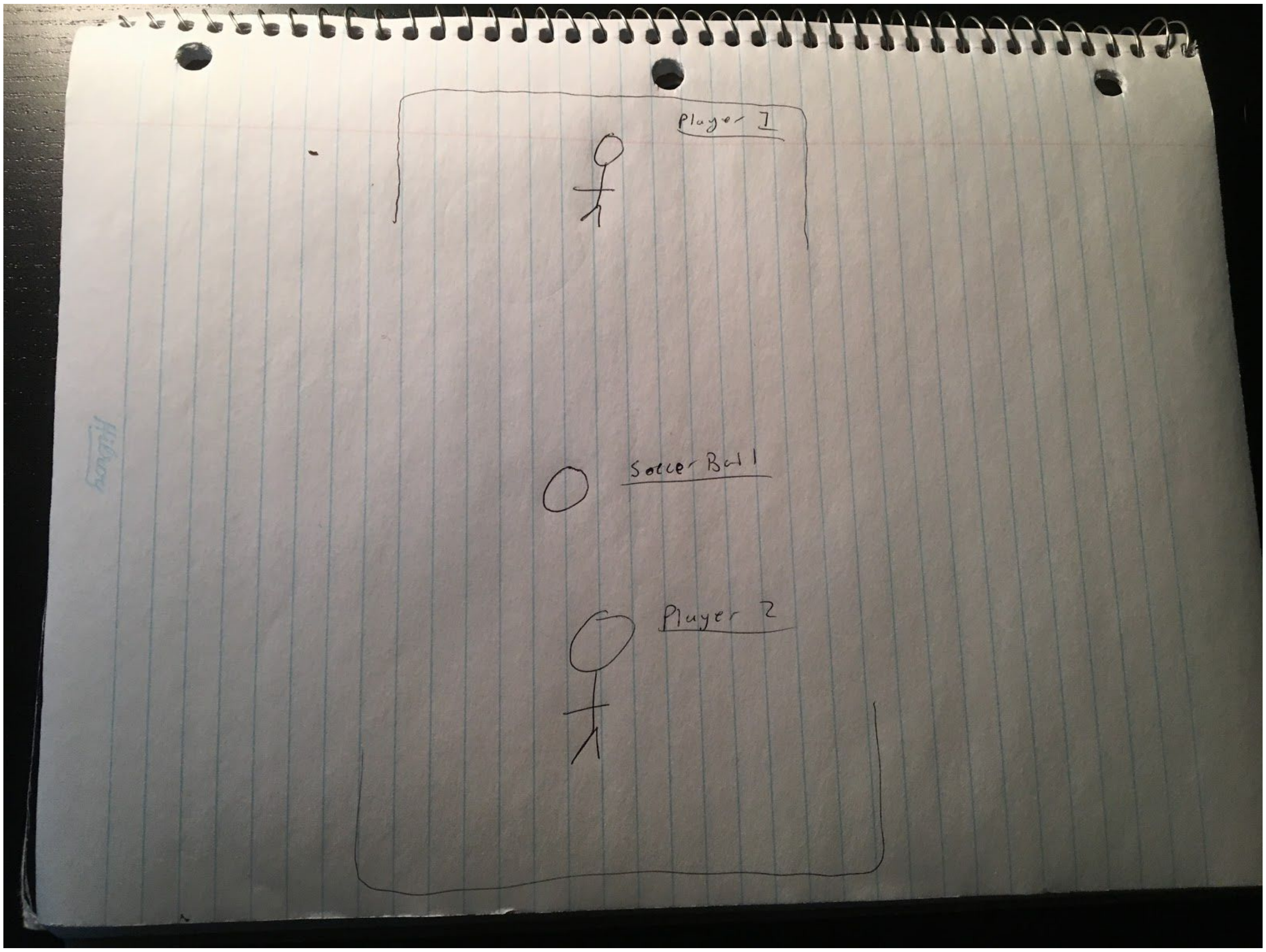
Introduction:

The group has previously identified all the needs stated by the client and made interpreted needs and with those interpreted needs the group came up with design criteria and then used that information to benchmark. The group also determined a problem statement from the client interpreted needs. With all this information the group will now come up with conceptual designs and then determine which is the best to use in the project.

Multiplayer Game (interactive between multiple people):

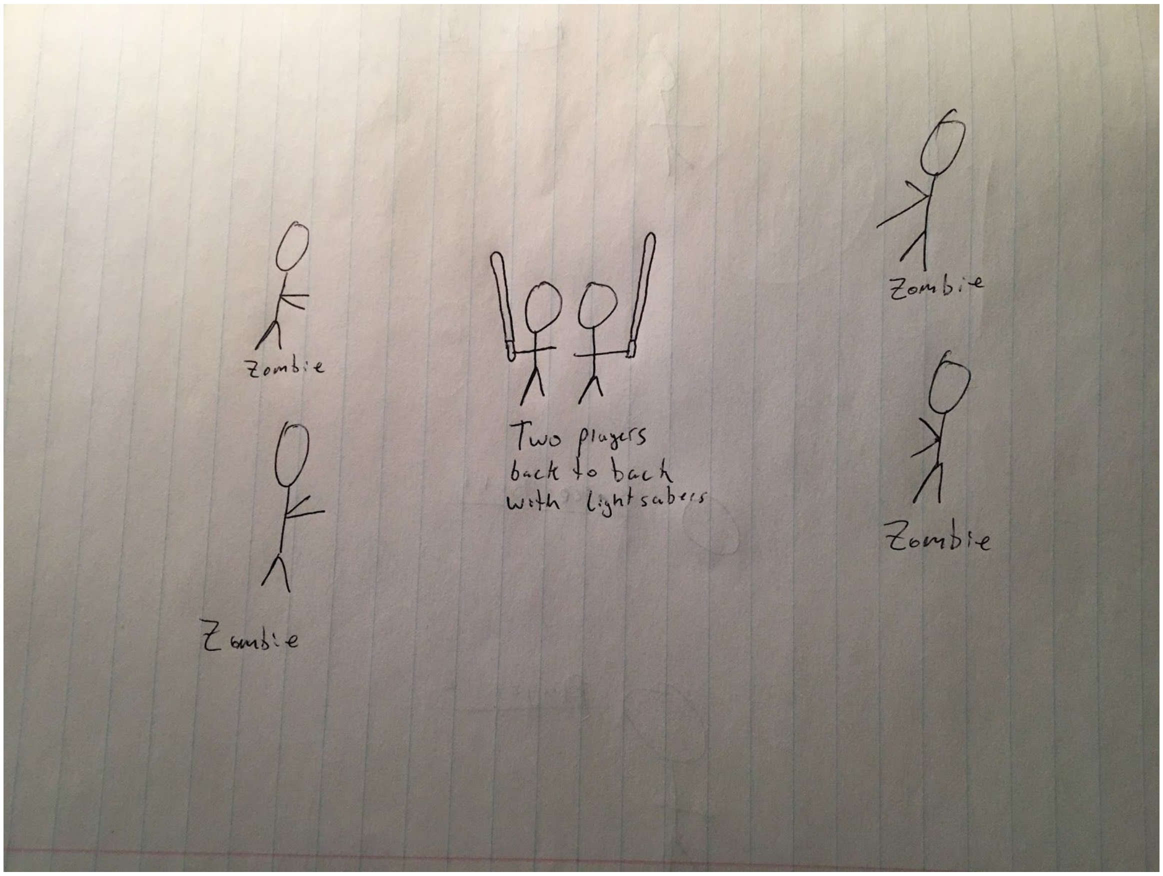
Design 1 Ben Hogan:



Description:

In this game, two patients will play in a 1 on 1 soccer game. Due to their limited mobility, the game is tailored to be played by people that only have access to one arm. The ball will move slowly and gradually increase in speed until it reaches a maximum speed. The ball will collide with the posts as well as the other player's hand. Once the collision occurs, the ball will bounce towards the opposite end. If the ball goes into the net, the shooter gets a point and the game restarts.

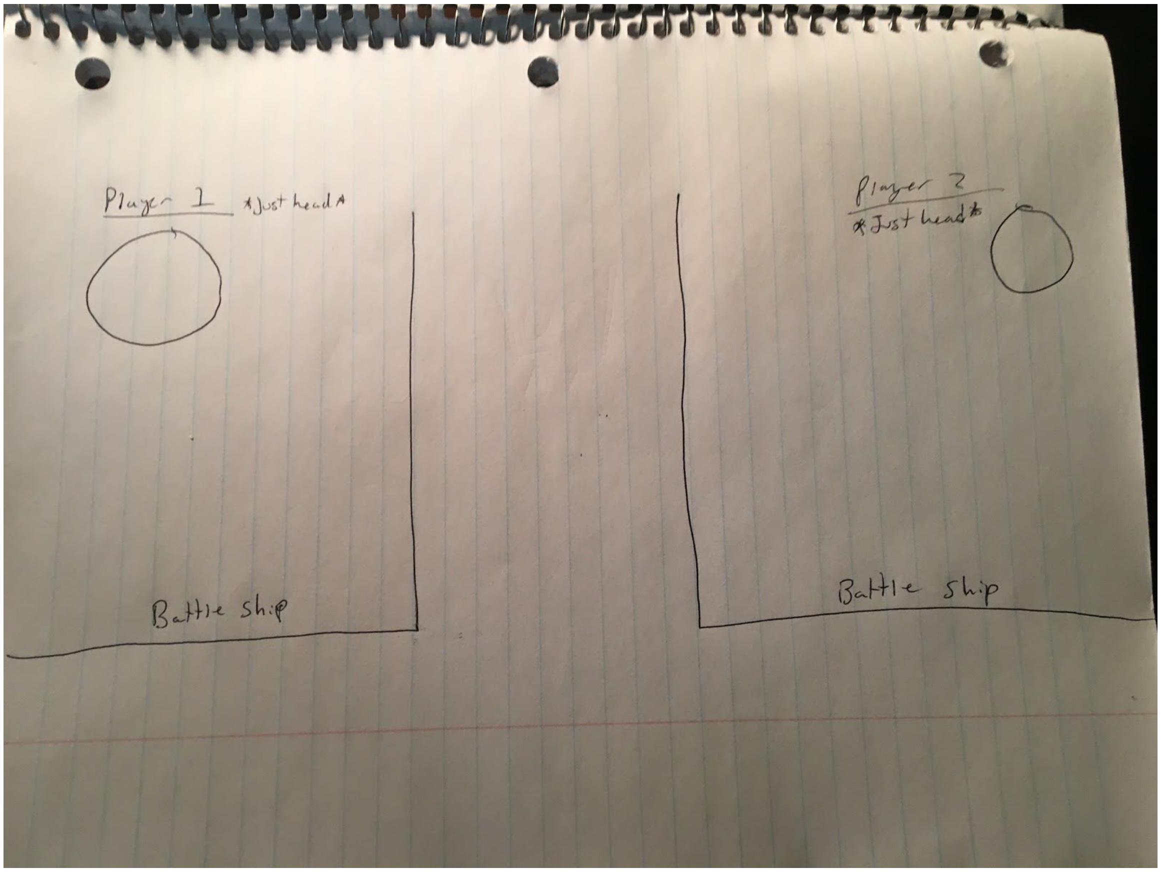
Design 2 Ben Hogan:



Description:

In this multiplayer game, two patients will be standing back to back and they will have lightsabers. Their objective is to survive waves of zombies using both teamwork and their lightsabers. Due to their limited mobility, they will move slow and the lightsabers will be long so no unneeded stretching will occur.

Design 3 Ben Hogan:

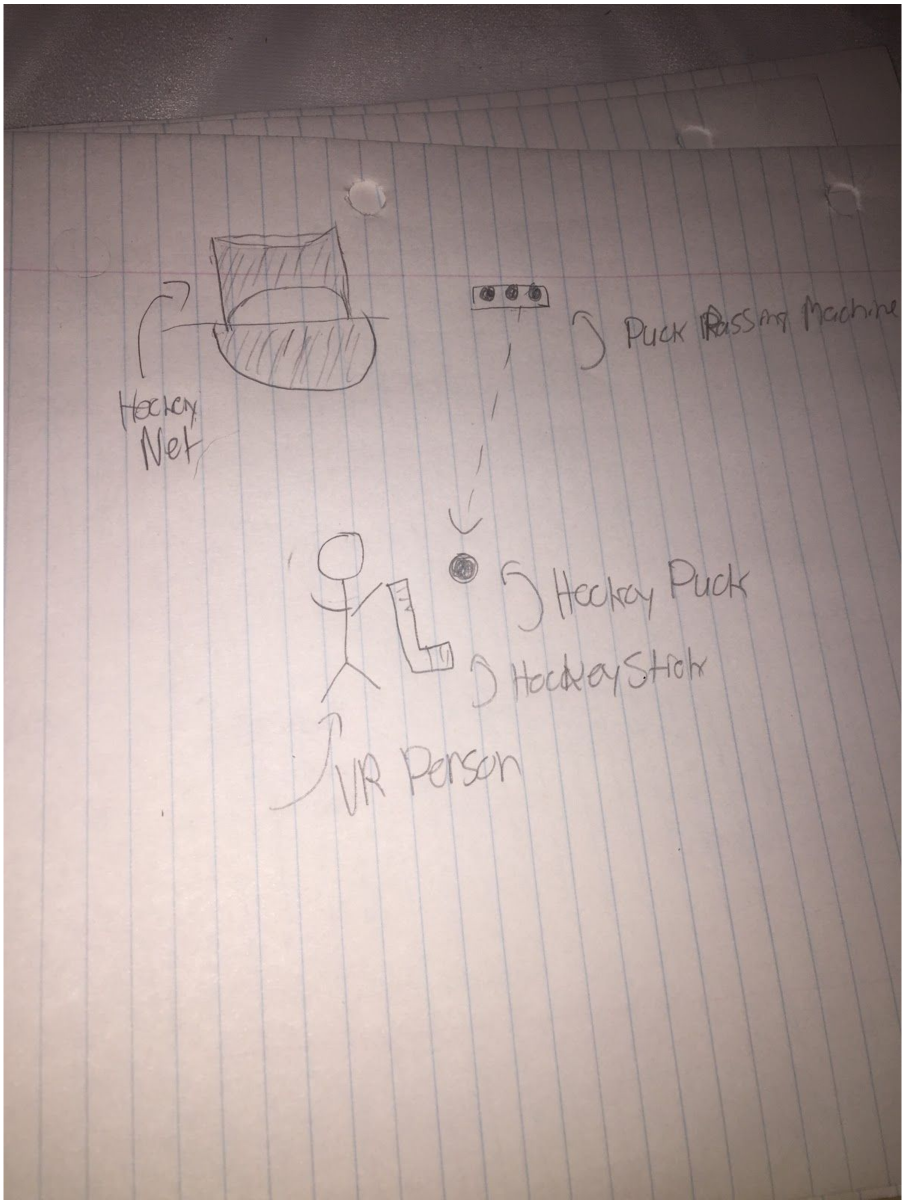


Description:

This last game is a battleship style game. Each player will be a floating head above their fleet of ships and they follow the rules of the well-known game, battleship.

Sports Game:

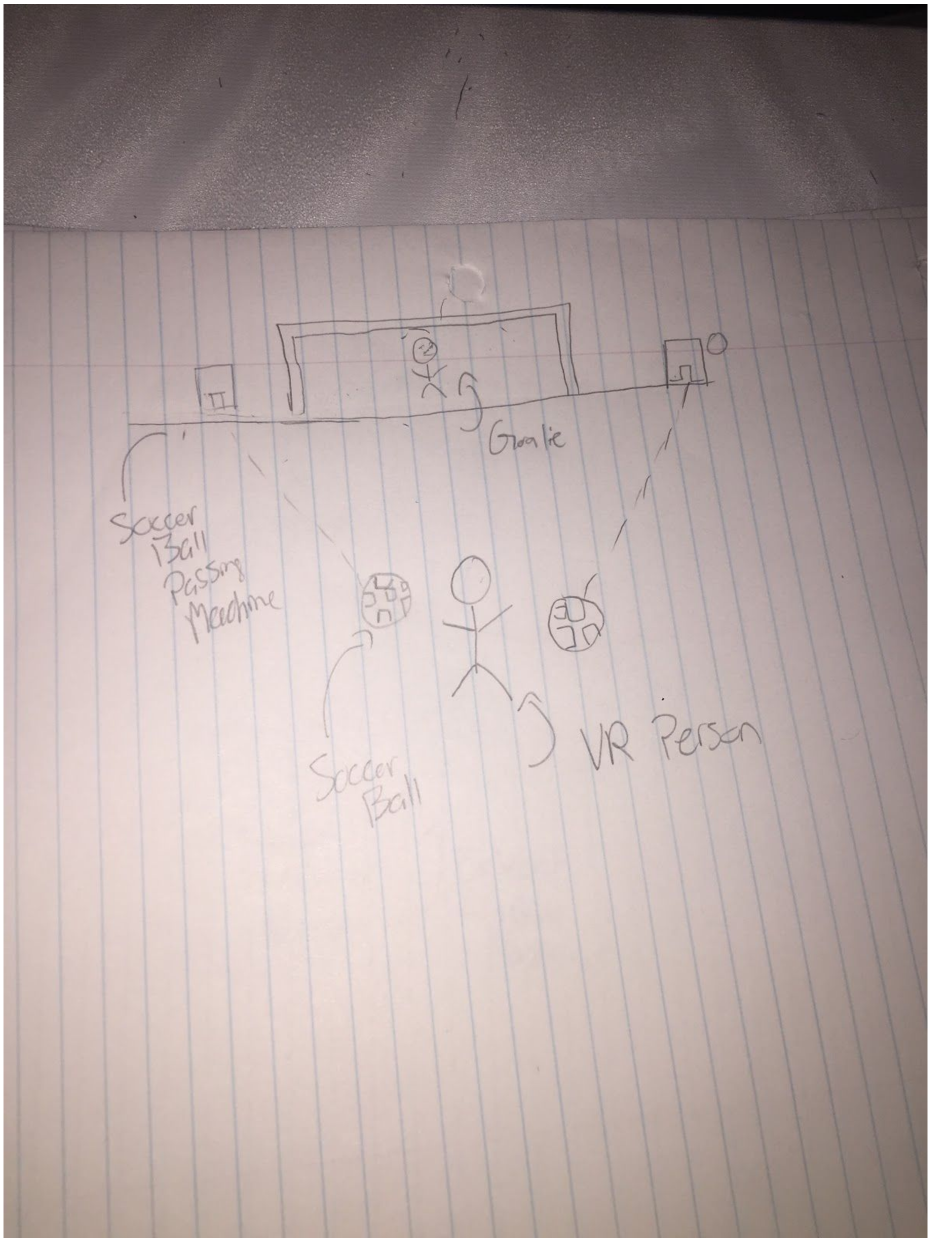
Design 1: Nathan Villar



Description:

The game above is an interactive sports game including the use of the user's range of motion with one of their hands. The user will press a button in which will activate the passing machine to pass the puck and then the user will swing their arm when the puck is in proximity to them. The puck will then go toward the net. If they score they get a point and if not they get no points. The reason for this design is because it incorporates many design criteria such as bringing joy, bringing diversity and bringing user interactions.The following design may cause some limitations such as diversity to users as well as the speed and use of the controls. The controls may be hard to use as it requires energy and good timing.

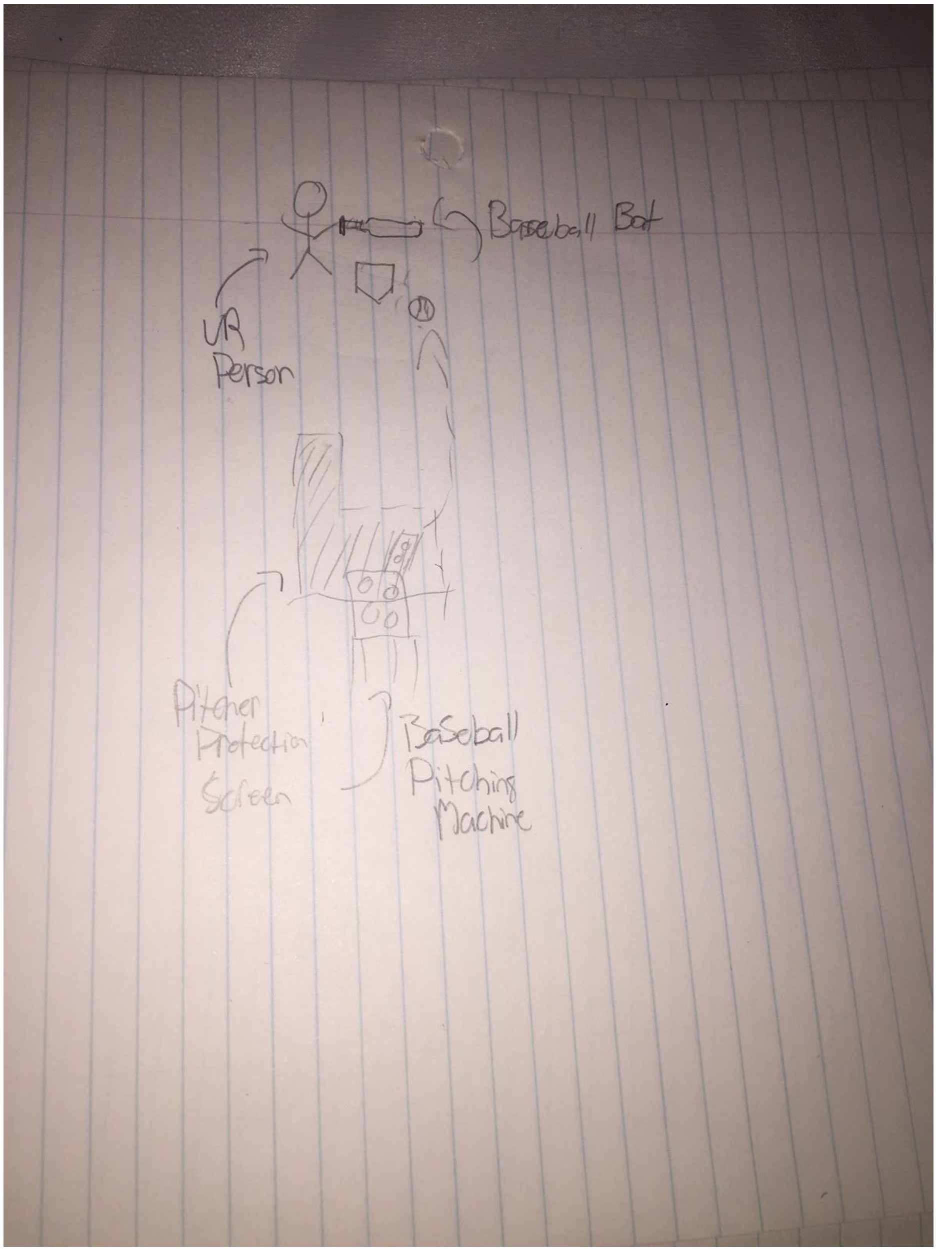
Design 2: Nathan Villar



Description:

The game above is an interactive sports game including the use of the user's range of motion with one of their hands. The user will press a button in which will activate the passing machine to pass the soccer ball toward their feet and then the user will swing their arm when the ball is in proximity to them. The ball will then go toward the net where there will be a goalie. If they score on the goalie they get a point and if not they get no points. The reason for this design is because it incorporates many design criteria such as bringing joy, bringing diversity and bringing user interactions. The controls may be hard to use as it requires energy and good timing. This may cause frustration among users.

Design 3: Nathan Villar

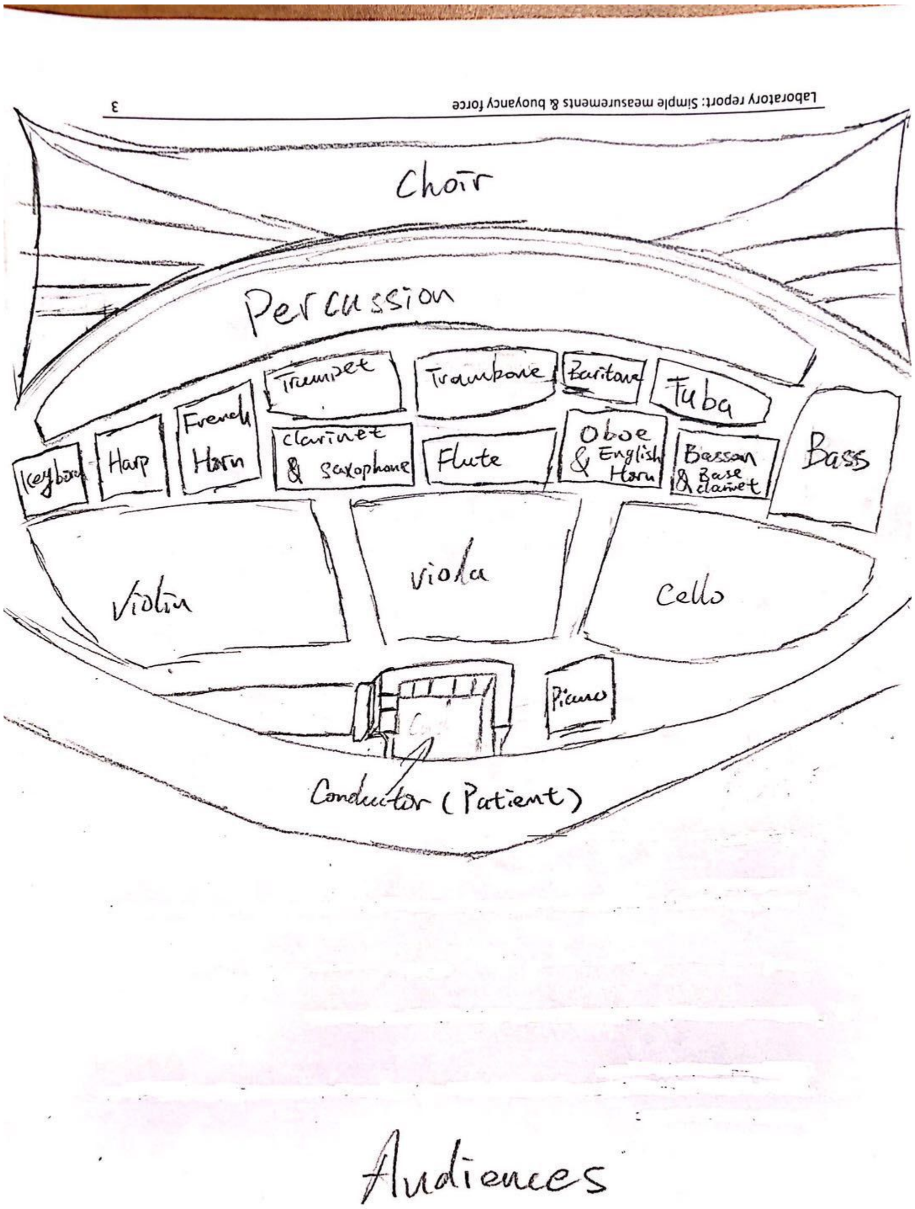


Description:

The game above is an interactive sports game including the use of the user's range of motion with one of their hands. The user will press a button in which will activate the pitching machine to throw the baseball toward them and then the user will swing their arm when they see fit. If the user makes contact with the ball, it will go towards the outfield. If the user makes enough contact the ball will go out for a home run which will result in the user getting three points. If the user makes contact and the ball stays in play it will result in one point and if the user misses the ball it will result in zero points. The reason for this design is because it incorporates many design criteria such as bringing joy, bringing diversity and bringing user interactions. The controls may be hard to use as it requires energy and good timing may cause motion sickness due to the speed of the ball coming towards the user.

Relaxing/empowering Game:

Design 1: Orchestra Conductor (Ricardo Chan)



Description:

Place the patient at the front of a orchestra band and lead the band performed the audiences in a large hall. The remote controller is able to help the player to do the gestures and conduct the band. On the other hand, the player can also twist their head to look around the whole band and as well as the audiences at the back. No matter for chemotherapy patients or radiation therapy patient, they both can use the remote controller to conduct the band by the different meaning of gestures, including speed change, crescendo, diminuendo, tempo and so on. For the VR goggle, it is allowed to zoom in and zoom out to see more details of the musicians and listen more carefully of the instruments in the band by the buttons on the controller. The patients also have different option for type of music to choose.

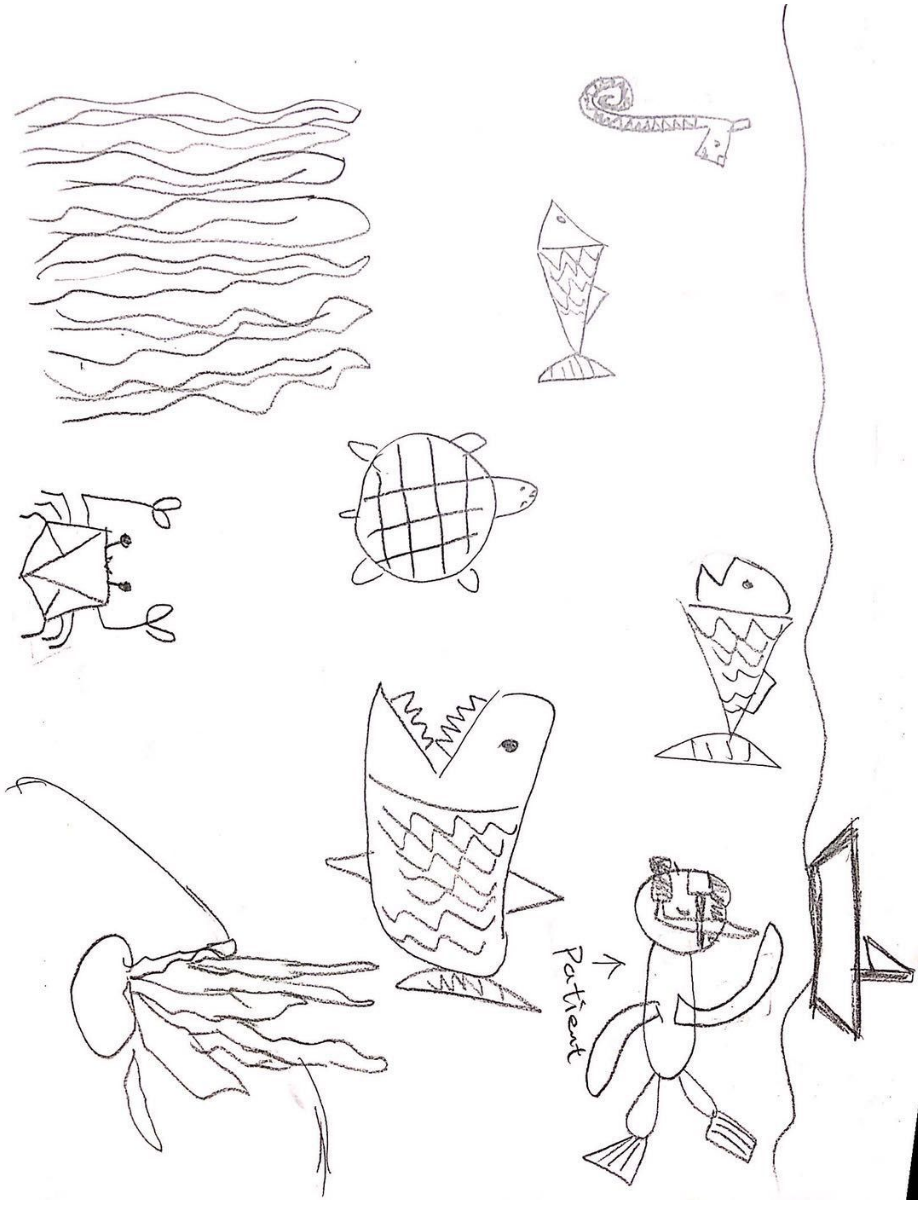
Design 2: Mountain climbing (Ricardo Chan)

Mountain
Path
Sun

Description:

In this game, there will have a bunch of different mountains model from the entire Earth. The patients are able to choose the mountain they want. The mountains contain different routes to climb by using a remote controller, besides there are different landscape when looking around by using VR goggle. After that, the programme will also provide different climbing tool including cable car, bike, on foot and so on. Finally, the patients are able to have different weather and route situation to choose as well. Moreover, the mountains will not only have trees, flowers etc for the landscape, but there will also have different animals show up. The programme can produce different sounds including animals tweets, footsteps, sounds of wind and stream water etc.

Design 3: Diving (Ricardo Chan)

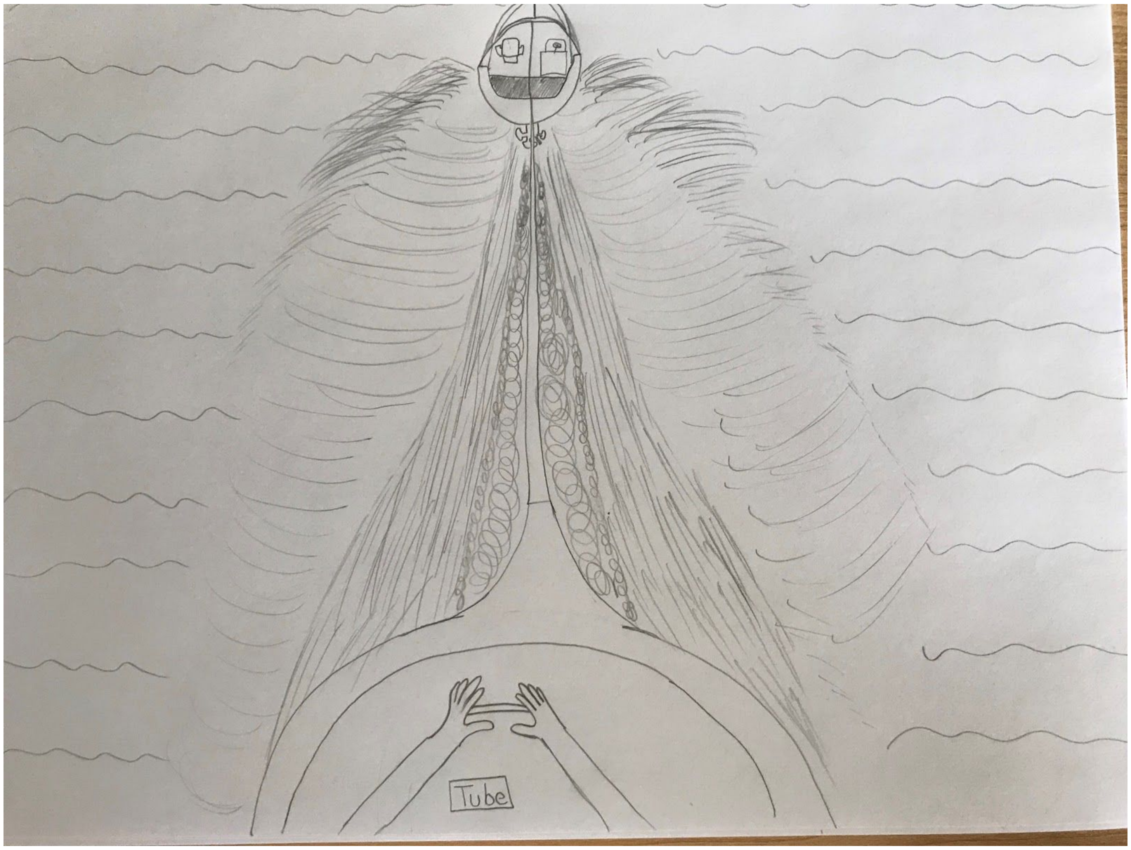


Description:

The patients are able to choose several different regions of the sea that occur in the real world. The patient can see a bunch of a different kind of fish, undersea plants, and sink ships. The remote controller will help the patient to swim in the sea by moving in omnidirectional. The patient can also choose to swim during the day or at night. Besides, patients can use a remote controller to zoom in and zoom out to observe the fish, plants and ships even more carefully.

Exciting Game:

Design 1: Shane Armstrong:



Description:

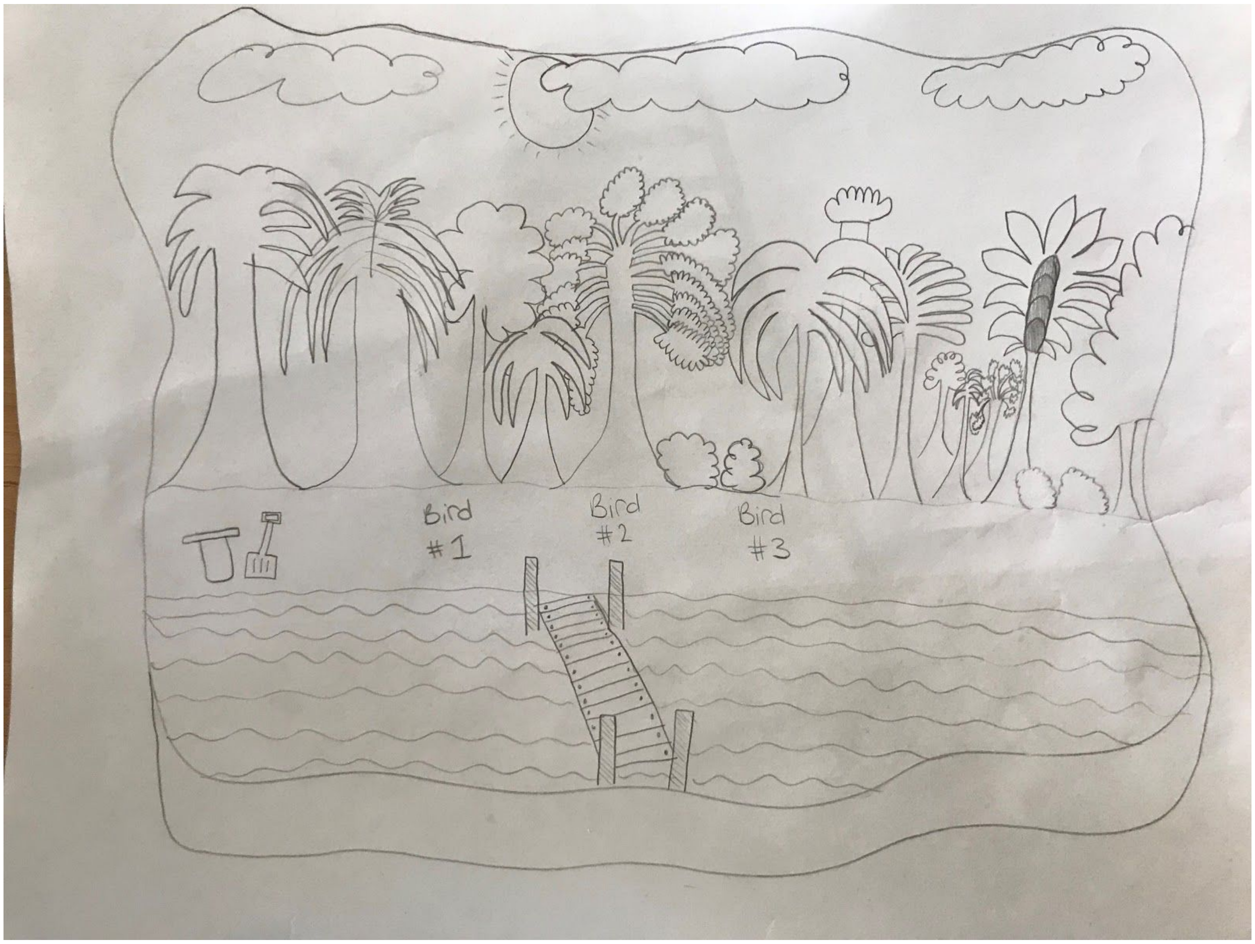
This game is an interactive and exciting experience which has the user riding on a tube behind a water sports boat at high speeds. The user can control the remote in their hand the speed of the boat. The lower the speed, the lower the bumps and movements that may disturb the user. The higher the speed, the higher the bumps and the higher the risk of falling off the tube in the game. To reduce motion sickness, the game ends when the user falls off the tube and closes their eyes to brace for the impact with the water. This game fulfills the design criteria of bringing a distraction from the treatment and it can also provide joy to those who like an adrenaline rush or tubing.

Design 2 Shane Armstrong:

Description:

This game has the user riding a tall and fast roller coaster. The user can look around with the VR headset or with their handheld remote but cannot control the coaster itself. The game has some limitations as the roller coaster ride only lasts about 3 or 4 minutes. This game fits the following design criteria our group interpreted: brings a distraction to the user's treatment and bringing user interaction.

Design 3 Nathan Villar, Shane Armstrong and Ben Hogan:



Description:

This game has the user walk onto a beautiful beach from the dock where they meet a large bird that is going to take them on a tour of the island and a tall mountain in the area. The user is immersed into a bird's-eye view experience flying slowly through the air. The user does not have to fly the bird as the game will have a built-in program of the bird's flight. The user will have the ability to look around the environment with their head moving the same in real life as in the game. If the option to choose from multiple birds at the start of the game is included in the final copy, the user will select their desired bird with the handheld device. This game meets several design criteria such as: being exciting, having user interaction, being distracting, etc.

Comparisons:

When convening, the group decided that the following three games suit each subsection the best and compare them against design criterion/benchmarking data to see which one is best

Specifications	Importance	Red = 1, Yellow =2, Green = 3		
Design		Design 1	Design 2	Design 3

		(Hockey Game)	(Island Bird Flying)	(Zombie Light Saver Game)
Cost	5	**3**	**3**	**3**
Aesthetics	4	**3**	**3**	**2**
Controls	5	**2**	**3**	**1**
Movement	5	**2**	**3**	**2**
Speed	5	**1**	**3**	**2**
Distraction level	4	**3**	**3**	**3**
Diversity	2	**2**	**2**	**3**
User interaction	4	**3**	**3**	**3**
Final Score		80	**100**	78

Final Design:

The group has come to the conclusion that the best design to incorporate into the project is the design in which the user chooses a bird and then they fly around the island and mountain. The reason for this conclusion is because this design relates and fulfills numerous design criterion as well as fulfilling the problem statement defined in deliverable B. The problem statement is: A need exist for cancer patients at the Ottawa hospital to relieve them or distract them from the vast amount of emotions experienced during cancer treatment. The game is to be easy to use, non-nauseating and viable to use in small spaces, with one hand and with the use of little movement.

The game picked is easy to use as the user only needs to use one button, it is also non-nauseating as the bird's flight is simple and moves at a slow pace, and it can be used in small spaces with little movement as the user only needs to move their head if they would like to see the view incorporated into the game.

The game also satisfies many design criterion, including head movement control, calming influence, brings joy and positivity, the movement is minimal, the movement is slow paced and that the user interacts with the game.

Conclusion:

In conclusion, the group has decided on one game which is most suitable for the patients at the Ottawa hospital. The group chose the bird flying game as it meets all the requirements in the design criterion as well as fulfilling the problem statement. The group will now begin to design the game in unity3D.