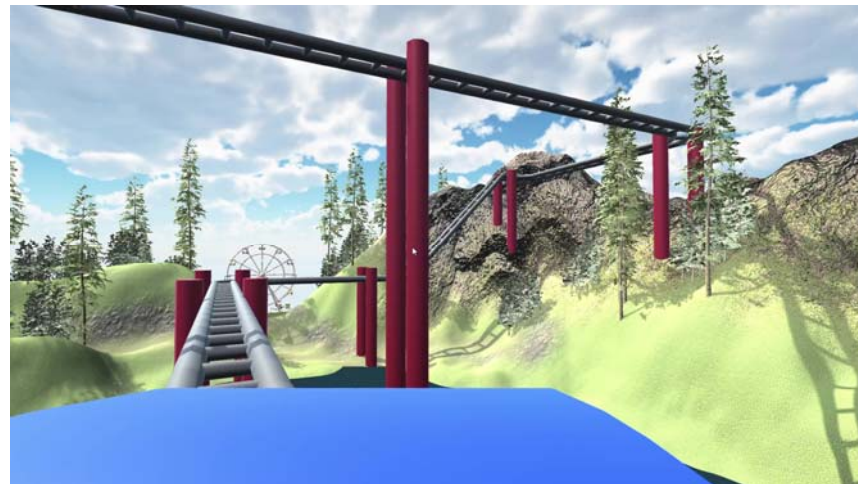


Roller Coaster Simulator

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Goal and Objectives

- Our goal is to offer users an exhilarating and immersive experience that not only entertains them but also allows people with anxieties such as Acrophobia and Coaster Phobia
- The aim is to allow users to have the flexibility to change the speed and direction to their liking.

Modelling

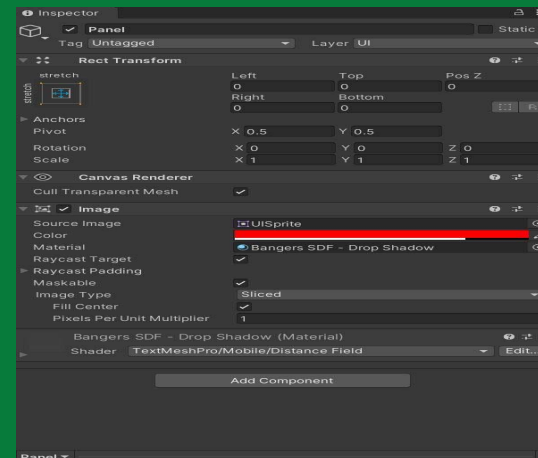
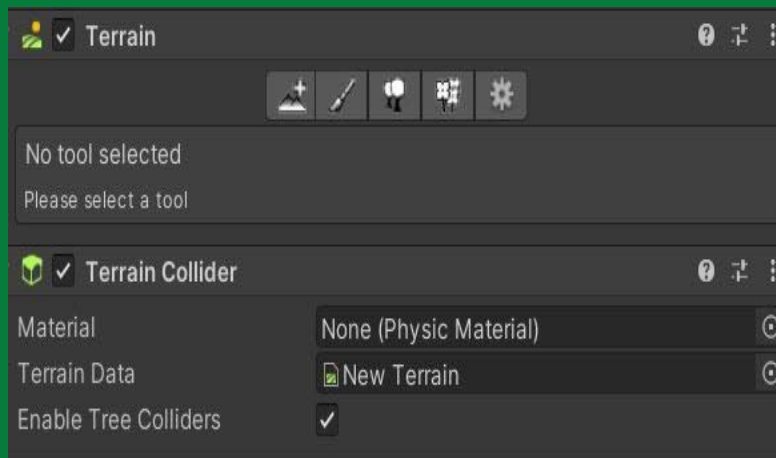
We needed to focus creating the terrain and roller coaster. This process involves scaling, sculpting, and texturing.

In particular, terrain packages in Unity to design the terrain to my liking. These packages offer a wide range of tools and features that make it easier to create complex and detailed terrains.



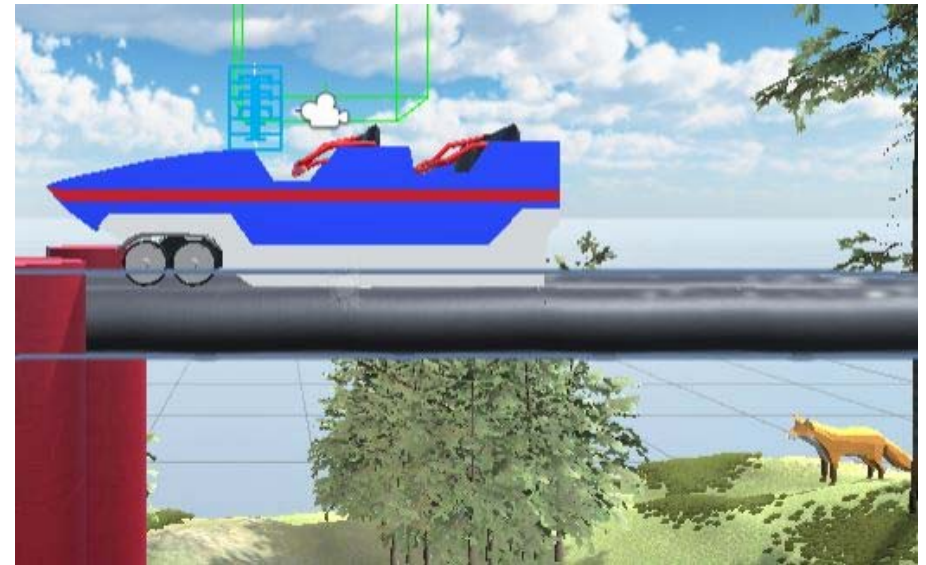
Modelling

- We utilized Unity's design tools to create pillars that would serve as the foundation of the track. We then used these pillars to shape and manipulate the track, gradually building and refining it until we had a fully functional and engaging roller coaster track.
- Unity UI kit, To create the user interface and its elements for our virtual reality roller coaster simulator.



Sound and Animation

- Incorporate rollercoaster sound effects, and ambient sounds to fully immerse users in the experience. Audio files collected from the asset store.
- Animations include birds, human avatars, animals, and detailed animation of the roller coaster gliding seamlessly along the track.



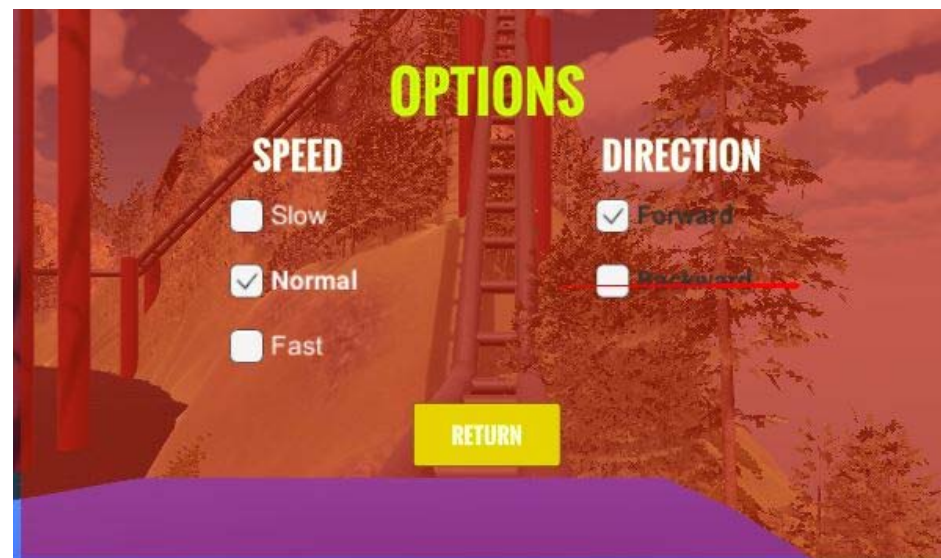
Interactivity and Interface

- An interactive panel is displayed at the start. This is the main menu of the simulation.
- The players are given a choice to begin the simulation with default settings or tune the options before commencing.



Interactivity and Interface

- The users can tune the speed and directions settings in the options menu.
- The default speed is normal. The user can choose to take to ride at a slower or faster pace.
- The direction option allows to users to traverse in forward or backward direction.
- The return option sends the user back to the main menu where they can begin playing the game with the new settings.



Working

- We used waypoints system to allow the coaster to move along the rails. Waypoints are predefined markers that are used to determine the navigation of the cart.
- Together, 42 forward and backward waypoints are set on the terrain. The forward and backward waypoints are imported as GameObjects in Unity, so that they transform the position of the cart at different points.
- At the start, an index variable is set to 0. The variable gives the location of the cart on the rails. The index is incremented along each waypoint allow the cart to move forward and tracking its location.
- A Boolean value is set to allow the forward and backward motion of the cart as set by the user. Also, the speed of the cart can be set by the user from the panel.

Conclusion

- In this project we designed a simple and easy way for users to overcome their anxieties and enjoy the rides at any amusement park.
- We believe a VR technology like this will help people, especially children to not miss out on the fun. More interactive and animated elements pertaining to theme parks will give an enriching experience to the users.
- Finally, we also believe that giving users the control of the simulation will make them feel safe.



Thank you!