

Game-Related:

1. Read and run it as a normal unity project, there is not any external dependencies.
2. Control: use **mouse** to control the direction of the cannon, hit the **spacebar** to fire cannon ball.

Problems Encountered and Progress Summary:

The hardest problem I encountered during the development of this assignment is to create Perlin noise for the Stonehenge since the Stonehenge is not a simple horizontal line that Perlin noise usually applies to. I solve this by create a long horizontal Perlin noise and then kind of “flip” it around to create a rectangular shape with Perlin noise. When I draw 4 vertical lines with Perlin noise from the bottom of the top stone to represent the bottom stone, this solves the issue of connecting three stones together.

The next problem I encountered is to set up a “good” collider for the Stonehenge. I overcome this by sample a small subset of points from each stone and connect them to create an “approximator” for each stone.

For collision detection, I use tried both Point-Line distance and Line-Line intersection detection, both works well. This probably because none of the game objects is as fast as the Flashman ;)

Verlet constraints are solved 1 iteration per frame with only 0.05 as the coefficient (compared with the actual difference from the constrained distance. If you think it is too floppy, you can just go to the Ghost prefab and find the Ghost script and then change the constraint factor to whatever you want.

The Design of the constraints is included as a separate file.