

EE 267 Spring 2017 Final Project Proposal

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Idea: Teapot hunt game

We plan to create a game similar to duck hunt, but here we will shoot flying teapots with lasers coming out of our eyes. The game will allow the user of the VR headset to view the scene, watch teapots being randomly thrown in the air, and the objective is to shoot them out of the sky before they hit the ground.

Project goal and new addition:

Our goal is to implement and practice the concepts we learned in class on a new fun idea. To the best of our knowledge, we do not know of a game that already exists using a similar implementation (i.e. using head tracking for aiming at a target). In addition, no game currently uses our scene setup, in particular using teapots as targets.

Concepts implemented:

Based on the class material, we will be using the following concepts in our implementation:

- Translation and rotation
- Spatial sound
- Orientation tracking
- Lighting and shading
- Headmounted display optics
- Unity scene setup
- Unity physics engine

We are not using positional tracking in order to not complicate the project further and because we believe that our games setup would be best enjoyed from a stationary viewpoint.

Potential extensions:

If we have more time, we would like to include the following additional features:

- Using a handheld button/clicker to shoot the laser
- Having the teapot trajectory in 3D
- Implementing multiple scenes for different levels in the game

- Create interactions between the laser and other elements in the scene other than the teapots. For example, if you hit a tree in the background, it burns.

Previous work:

Based on our research, we have found the following resources that we can leverage for our development:

- A replica of the game duck hunt in Unity3D ([Click here](#))
- A tutorial to implement a game like duck hunt for VR in Unity3D ([Click here](#))
- A tutorial to use the Unity3D physics engine ([Click here](#))

In addition to the lecture slides, we will use the following paper as reference:

- "Head Tracking for the Oculus Rift" by S. LaValle ([Click here](#))

Project milestones & timeline:

- Build a base Unity scene by Wed, May 31
- Implement teapot projectiles by Fri, Jun 2
- Implement laser beam with headtracking by Fri, Jun 2
- Implement hitting a teapot with the laser by Sun, Jun 4
- Implement sound of laser beam and breaking teapots by Wed, Jun 7