

# 1 HP Wizard

## CS 498 Project Proposal

CHRISTIAAN HAZLETT  
hazlett3

SCOTT LIU  
sliu125

JUSTIN RUAN  
justinr3

GARY RUDOLPH  
grudolp2

WENXUAN SHI  
wshi16

### I. MOTIVATION AND BACKGROUND

IN fantasy movies and stories such as *Harry Potter*, wizards and their ilk often use extravagant gestures to cast spells of various kinds on their opponents. Our team envisions a game where we bring these imaginary worlds to life, and let the player experience the wonders of invoking arcane arts from the tip of their wand. Similar to most first person VR games where players are fully immersed in the virtual world, we aim to let the user experience the magic and the thrill of fending off waves of enemies just like they would imagine in their fantasies.

This game itself will mainly leverage existing SDKs that recognize user gestures via the Oculus controllers. We will evaluate the choices for different SDKs, and then build our game around that choice. While we are not presently aware of this being done in VR games before, places like the *Wizarding World of Harry Potter* at Universal Studios sell wands to visitors which they can then use to cause “magical” spells to take place in their custom park. Our game will attempt to recreate the experience of casting your own spells while also putting the player into a *more* immersive version of the movie scenes than the physical parks can allow.

### II. DESCRIPTION

*1 HP Wizard* will be a multi-level gesture-based game where the user, standing in a stationary position, fends off waves of enemies homing in on their position. The player will have to react quickly and strategically since they only have one life. The player will control the game through hand gestures, and will need to develop both the skills to gesture correctly and the strategy to utilize the available magic in the best way against the enemies.

In developing this game, we will need to create a compelling gesture recognition system. Some of this work has already been done for us in the form of the SDKs that we plan to utilize, but significant work has to be done to integrate this with our magical spells game. Additionally, we’ll need develop all of our own game mechanics and spells, build an enemy AI, and model our virtual world.

### III. DELIVERABLES

Delivered via a live demo through Oculus VR as a Unity executable in lab

#### IV. HUMAN FACTORS

We will do our best to build a comfortable VR experience for the user that complies with Oculus guidelines when achievable. For our movement system, we stick with the player's real-world movement only instead of virtual, controller-based movements. This will prevent VR sickness, etc. In terms of depth cues, we'll provide shadows and natural reference objects (trees, bridges) for scale. We will use a skybox as our independent visual background in order to reduce simulator sickness. In designing our user interface, we will avoid using a HUD as per Oculus guidelines and instead integrate information within the environment. For example, to indicate the magic level of our wand, we can dim/strengthen the light emanating from the wand.

#### V. MILESTONES

- Plan out the entire project and draft the Project Proposal
- Create a point-and-shoot system with a wand
- Get gesturing assets imported (creating/designing our own gestures)
- Create a tutorial that lets the player understand the basic controls and mechanisms
- Create spell effects, visual and physical, with haptic feedback
- Get enemy AI working - Navigation, Combat
- Get the first basic level working
- Get all levels designed and working