

1. Introduction

1.1. PROBLEM STATEMENT

The vast majority of video games in mainstream focus are primarily revolved around conventionally generated worlds, using geometry similar to our world. In terms of Non-Euclidean geometry, the majority of games that revolve around this sort of geometry are primarily used for research purposes, not general entertainment. Additionally, many of these worlds use computer tricks to pretend like they're using Non-Euclidean rendering, even though they're just using a conventional game development engine. Our goal is to create an engaging and interesting game and a custom rendering engine to support actual implementation of Non-Euclidean worlds.

Some of the largest issues in creating Non-Euclidean games involve performance due to the number of computations required for conversions between spaces. Non-Euclidean spaces do not translate directly, resulting in the need for many calculations and resource cost. Many current projects involving these unconventional spaces have poor performance, and proper management of computational resources is essential.


1.2. INTENDED USERS

The people who will use our final product can come from many different backgrounds, these users are people who enjoy playing video games. For example, one user's name is Max. Max is a 17 year old student. What makes a game enjoyable for him is having ways to grind and optimize his own gameplay as much as possible, Max needs a challenge. Our product is a perfect example of something he would enjoy, our plans for our product will allow users to have a goal to grind for through farming and resource gathering with the added challenges of the world being non-euclidean. Another user's name is Sally who is 20 years old. She needs to have an enjoyable game that has an artistic touch because she loves art in all different forms ranging from music to the artistic style of the in game sprites. The goal with our game is to make the artistic experience as best as possible as we try to mesh it with the non-euclidean space, this will create interesting distortion on all of our game assets adding to the horror experience of our game. Lastly we have the user, Jordan, he is a 25 year old ESports Professional. What Jordan wants from a game is a way to have a challenging and engaging gaming experience because he enjoys challenges and becoming the best gamer he can. Through our non-conventional combat that we plan on adding into our game it will add a new challenging twist on combating the enemies throughout. Through the use of different traps and using yourself as bait this will add an innovative combat system that someone like Jordan would enjoy. All of these will be amplified by the non-euclidean geometry creating a fresh experience for all gamers.

Appendix

Persona 1:

Basic information



Max

"Analyst"

- Age: 17
- Occupation: Unemployed Student
- Location: California
- Enjoys quick walks on the beach, no steps wasted
- Won't engaging in small talk no matter the circumstances

Bio

I like getting to the point as fast as possible. I'll even read the summary of books or TV shows so that I don't have to waste time waiting for them to reveal the plot. I play games as a way of proving I can be the strongest, its not a casual practice for me. I am fairly studious and have a fair understanding of math and statistics. My PC doesn't have RGB because it is a waste of money.


[Link 1](#) [Link 2](#) [Link 3](#)

Personality

Introvert	Extrovert
Analytical	Creative
Busy	Time rich
Messy	Organized
Independent	Team player
Passive	Active
Safe	Risky

Persona 2:

Basic information



Sally

"Artist"

- Age: 20
- Occupation: Photographer
- Location: New York
- Loves to go to art galleries
- Takes time to smell the roses

Bio

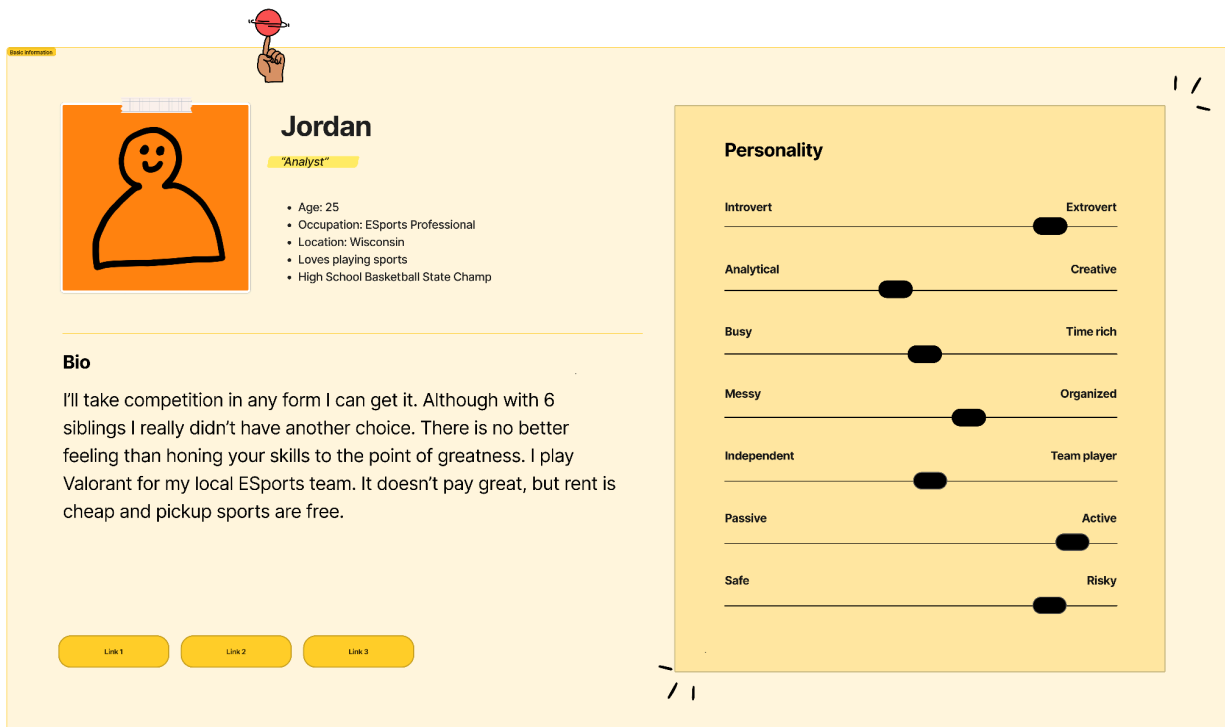
I love art in all forms: movies, paintings, music, games, and more! I don't worry too much about deadlines and getting everything exactly right, mistakes are their own form of art. I spend my weekends either visiting art museums and taking glass blowing lessons.

[Link 1](#) [Link 2](#) [Link 3](#)

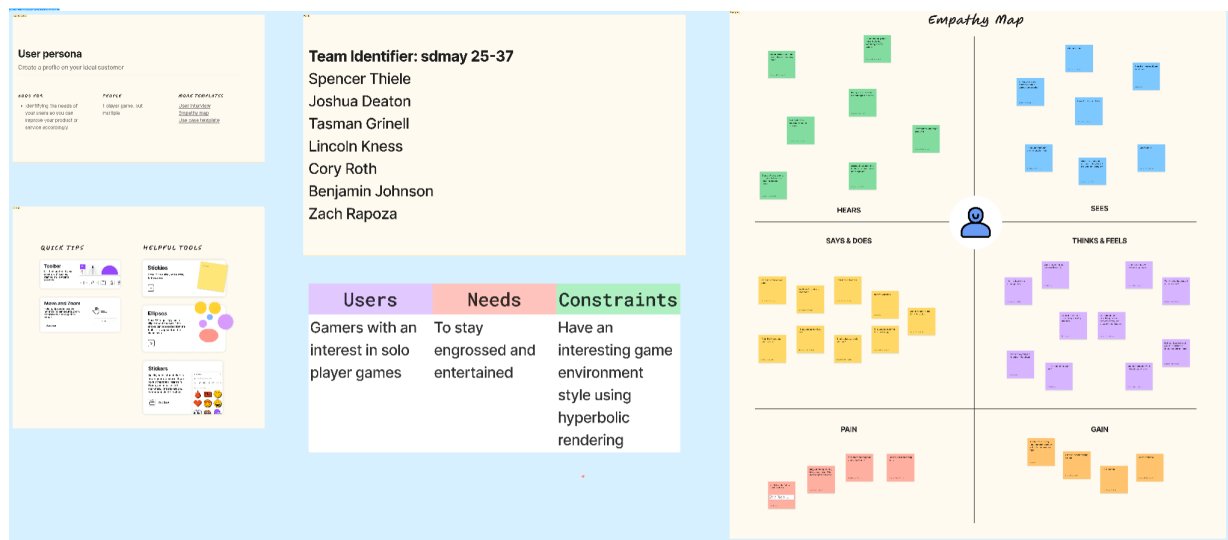
Personality

Introvert	Extrovert
Analytical	Creative
Busy	Time rich
Messy	Organized
Independent	Team player
Passive	Active
Safe	Risky

Persona 3:



Empathy Map:



Figma Link: <https://shorturl.at/eJr3l>