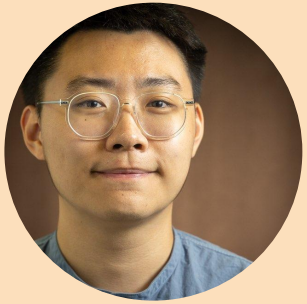
TrailblazAR

Applying Mixed Reality to a Ropes Course

Team



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Programmer, Designer

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Faculty Advisor

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Environment Artist

Shuqin Huang
Character Artist

Giulia Lozza Petrucci
Client, Dragon's Den

Dragon’s Den

We are making inspirational MR prototypes for underprivileged youth ages 10-13 to experience faraway environments in an adventure therapy space.

Our client needs...

MR + Ropes Course

For Afterschool & Visitors

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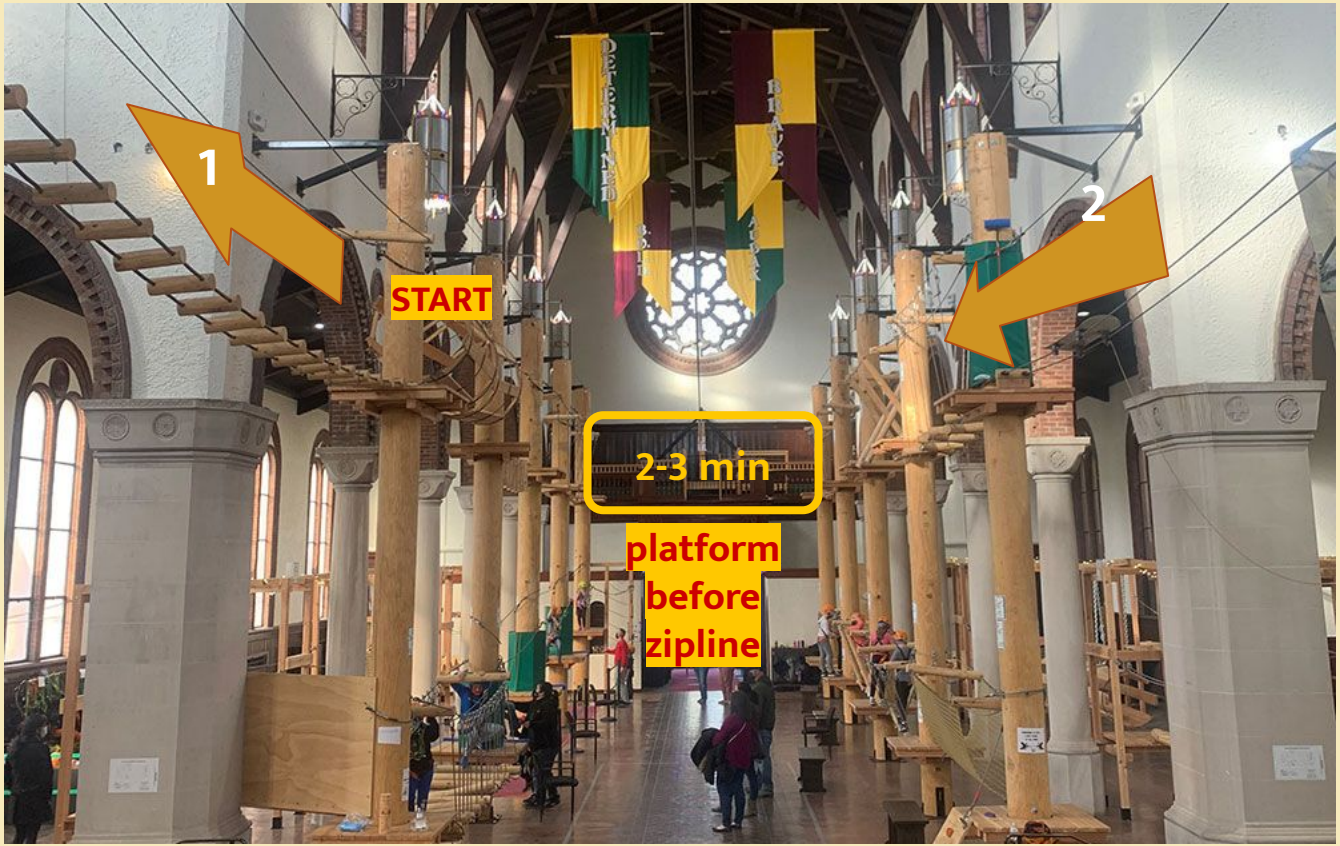
wants...

Highlight Architecture

New Environments

Prototype 1

- Choir loft platform
- Quest 3 MR



Spatial Challenges

Challenges we face when trying to find a playspace inside dragon's den

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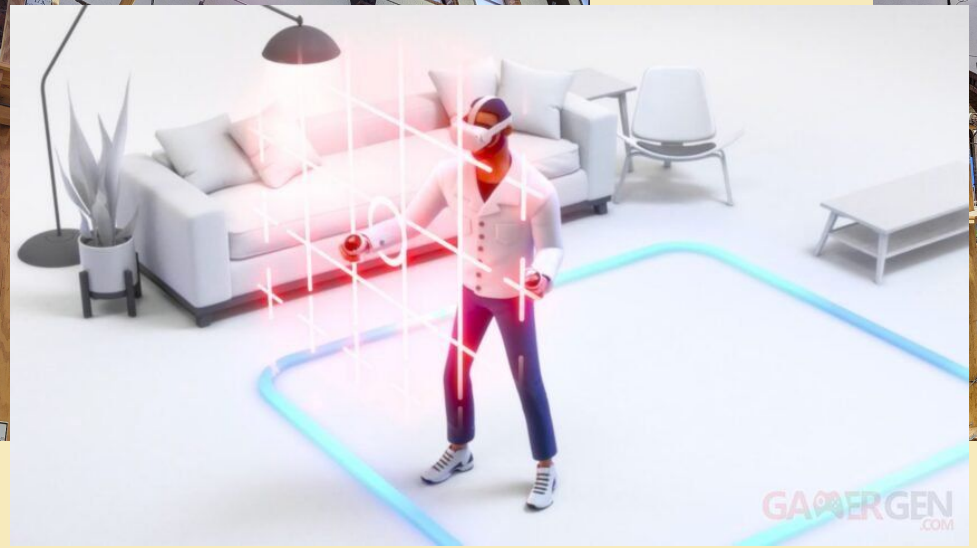


No flat area
Obstacles within boundary
Scale too big

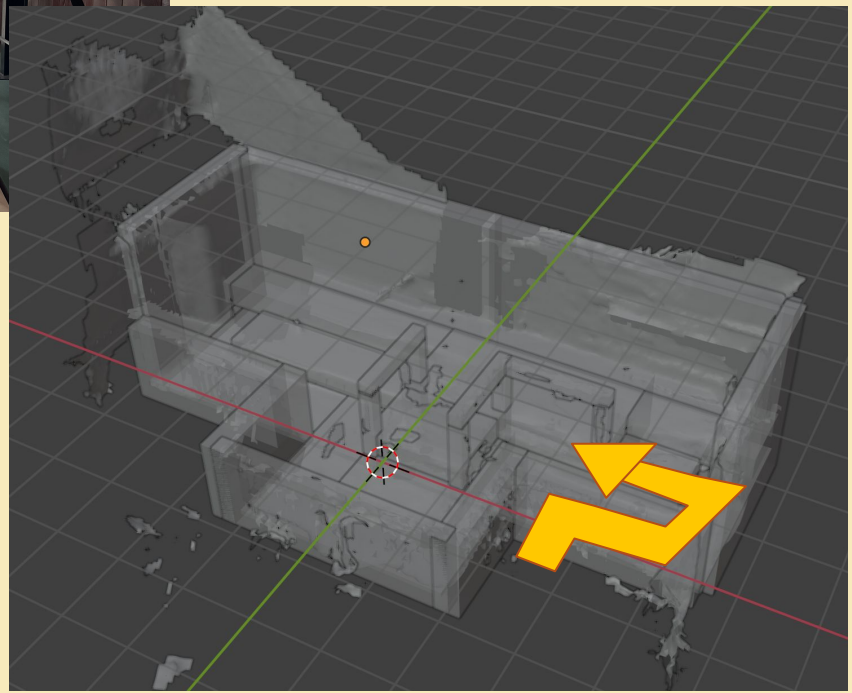
Malfunction or dead Battery = Blindfolded

Design

The choir loft Platform

Waiting queue that bores the experience

Only part on the ropes course that works with Quest 3



Design

Experience:

After ropes-course, before zipline

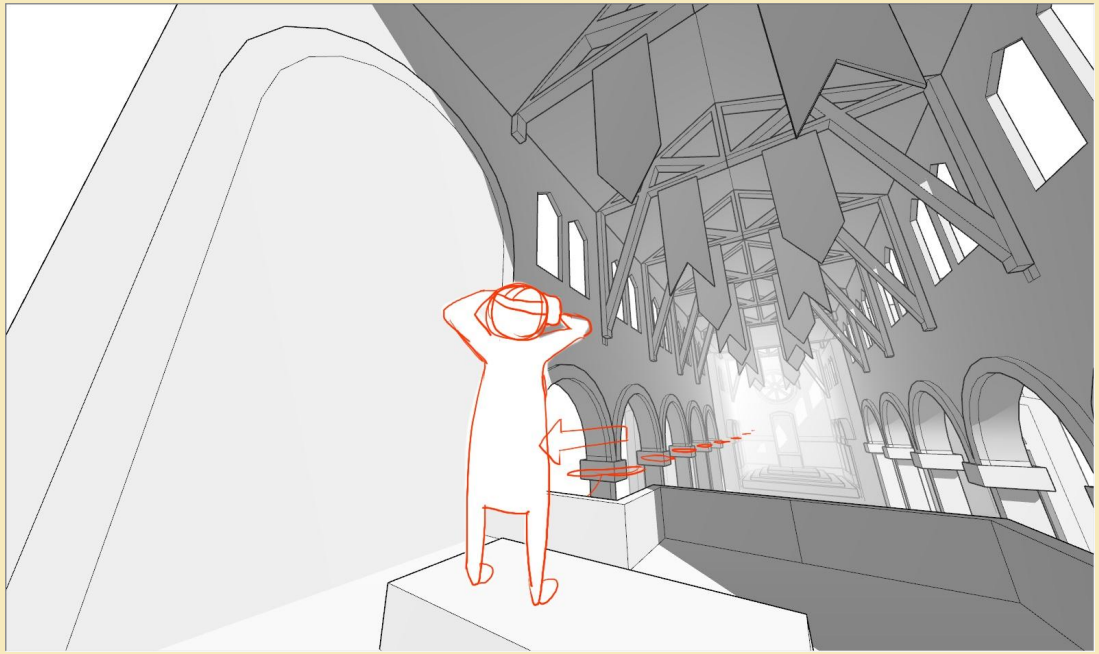
Feed dragon

Story:

Flying church

Adventure around fantasyland
-replayability

progress as we discuss more with our Client



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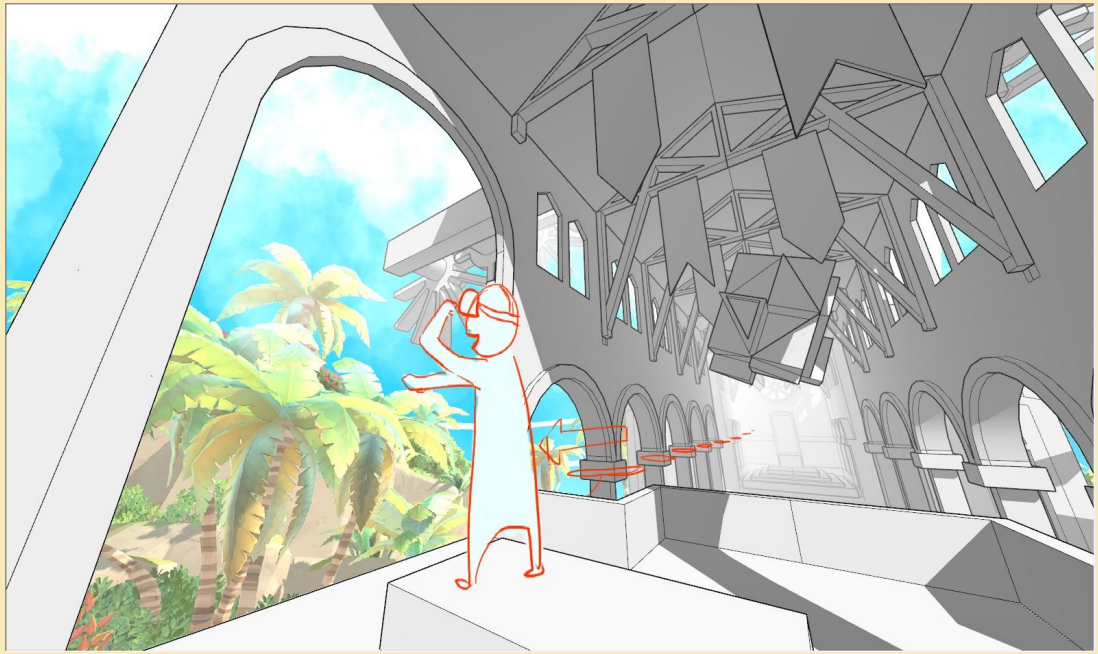

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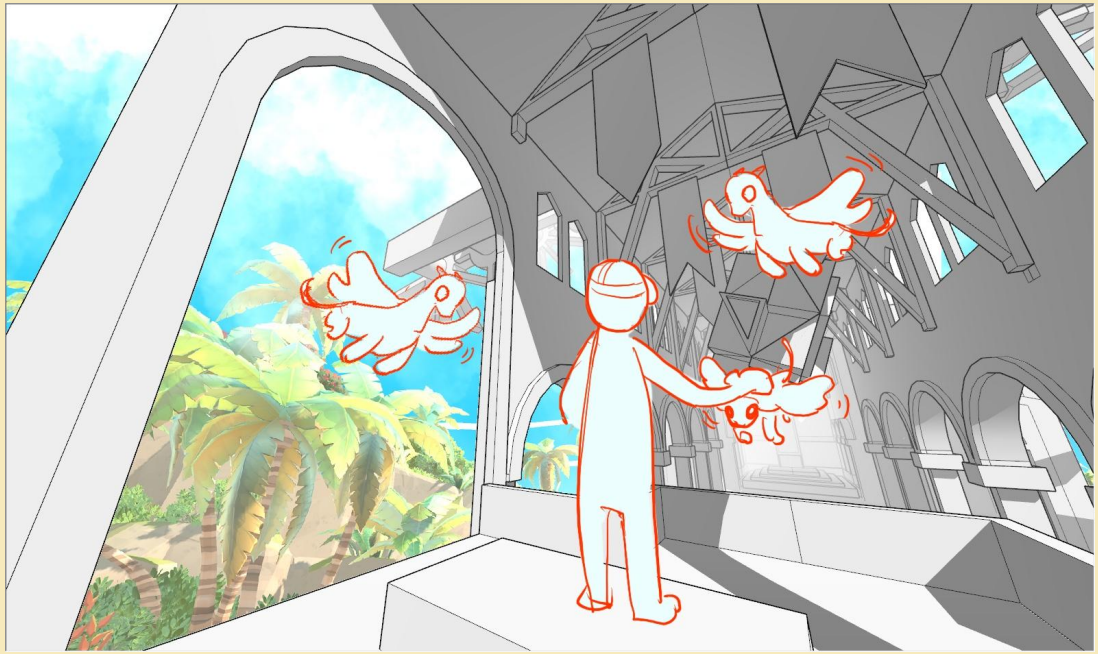
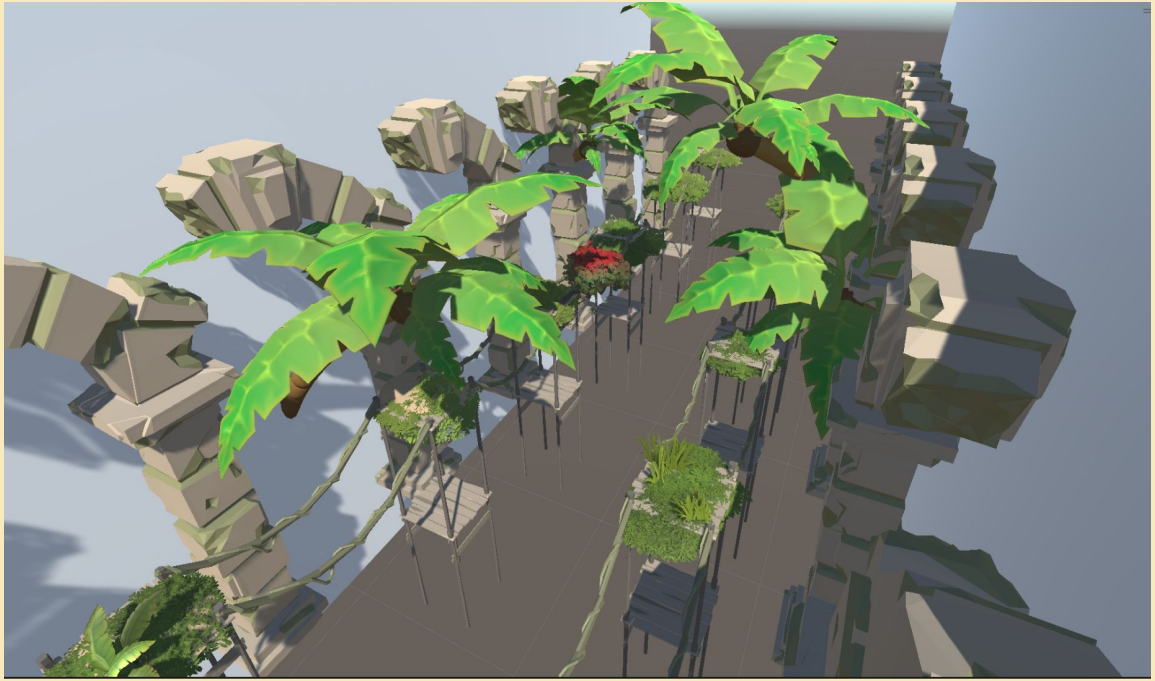


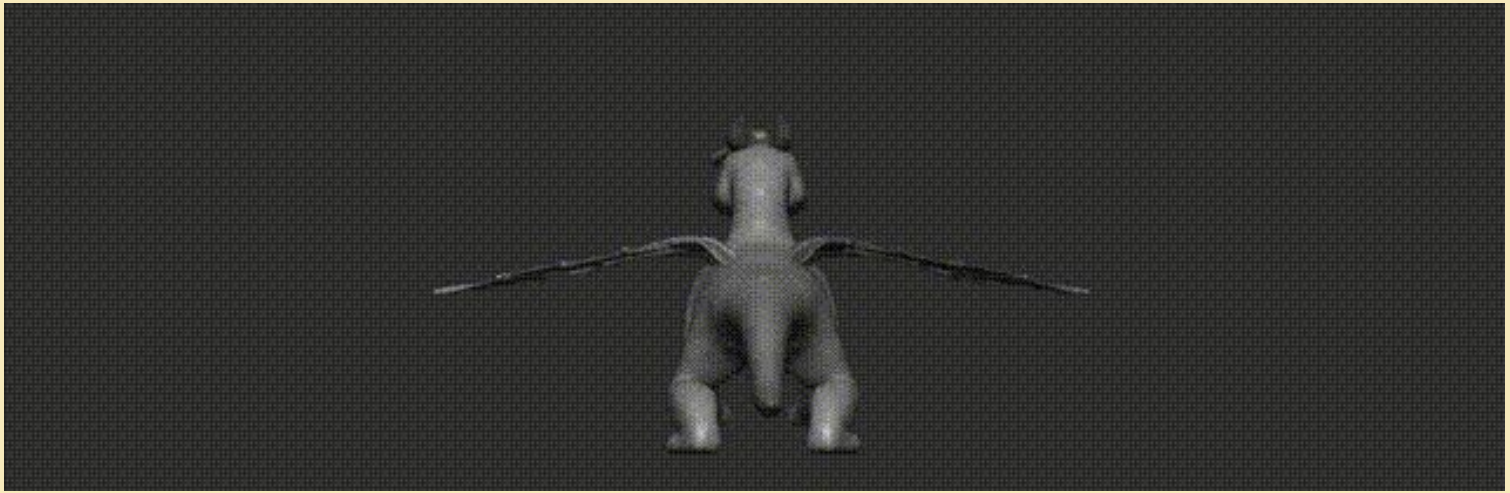
Virtual Windows

Environmental Art



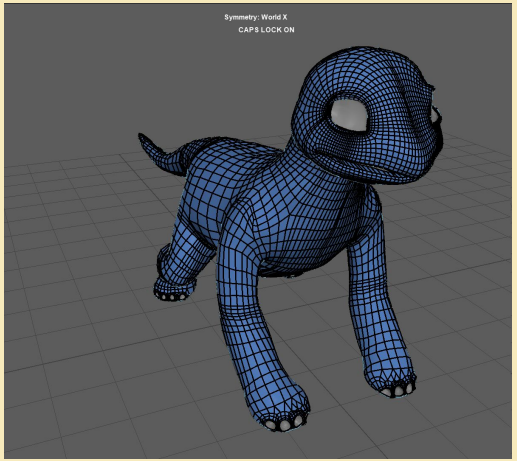
Character Design

Character Modelling



Character Modelling

Test rig before topology

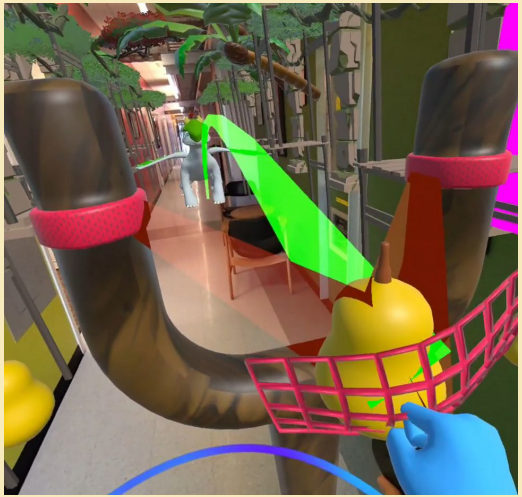


Dragon topology
(parts)

Slingshot Mechanic

Harvest tropical fruit

Snap to slingshot, shoot



Receive feedback

Playtests

- Showed demos at Dragon's Den
- Playtested with Hampton Middle School students ages 12-13

FEEDBACK

- Real and virtual spaces blend well
- Cute dragon

- Clear goal and visual feedback
- Use hand tracking

Next Steps

- Test Quest 3 on zipline
- More potential spaces for prototypes

Exploring Technology

For ON the ropes course ?

Hololens 2

Magic Leap

Xreal Light

Xreal air

RayNeo

RayNeo X2

Wireless Smart AR Glasses

Ring

Exploring Technology

For ON the ropes course...

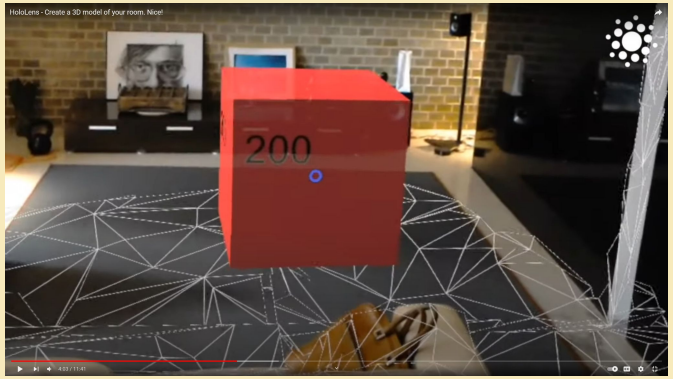
Hololens 2
Xreal Light

No boundary limit

Stable spatial anchoring

Obstacles Tracking

Transparent screen



Exploring Technology

For ON the ropes course...

VS

Expensive
Heavy
Not compatible with helmets

Cheap
Lightweight
Compatible with other gears

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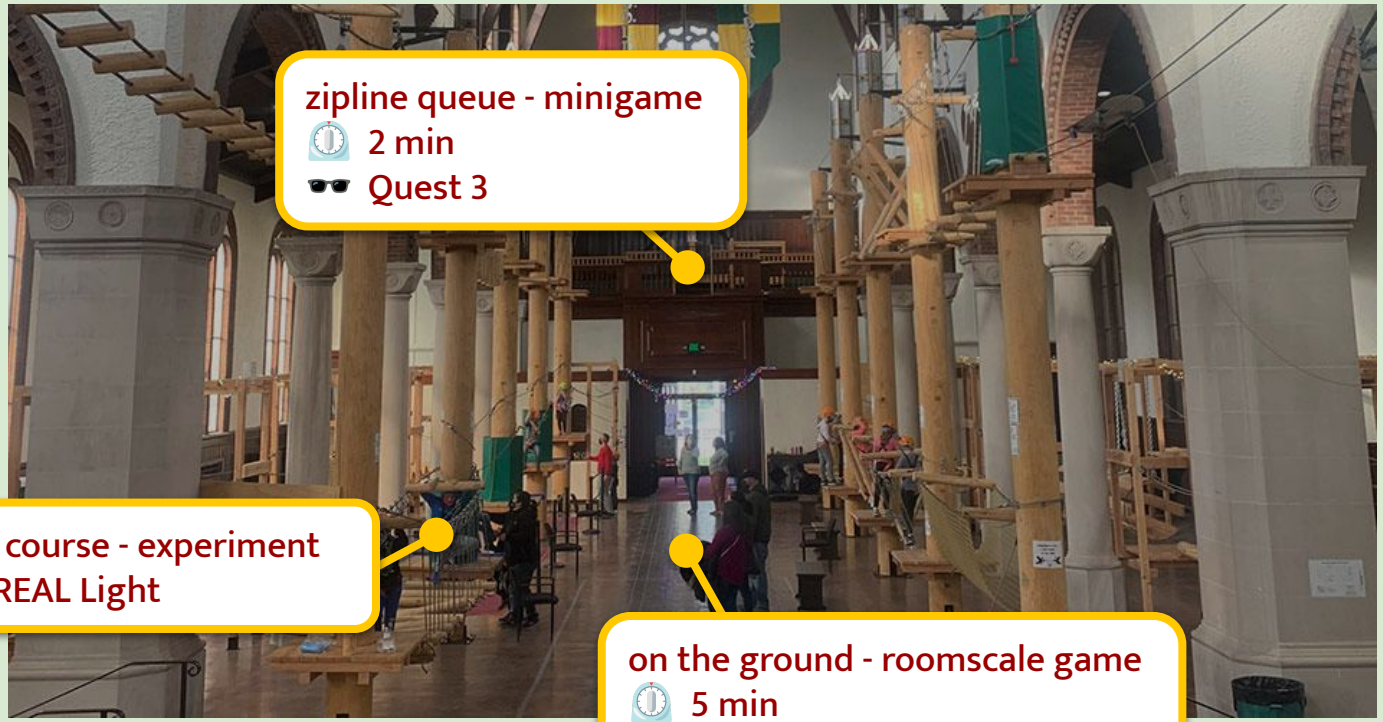
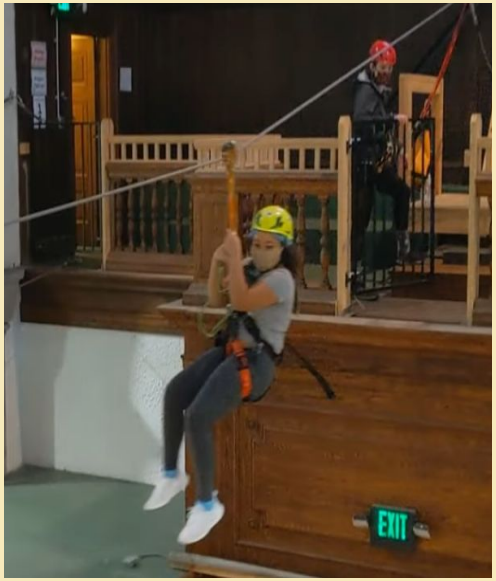


Next Steps



Test Quest 3 on zipline

Design for lower course

Quest 3 & XREAL Light