Technical Specification

Architecture

Front-end

C# in Visual Studio
Unity - A physics game engine
Blender - 3d objects non code

Back-end

None anticipated for MVP

Source Repository

Github

Project Management

Millanote

Database Hosting

Unity has a built in database and back up source control system through Unity ID

Special Considerations

App will be optimized for the Oculus Quest 2

Architectural Justification

Front-end

Development through a physics engine such as that of Unity 3D or Unreal Engine 4 or 5. Or of use through direct Android development.

Technology	Pros	Cons
Unity 3D	Already built for VR will ease of access settings.	Difficulty of exportation through app/exe process

Unreal Engine	Strong use of software with high end graphics capabilities and lots of functionality with C++	Ease of VR Settings are almost non existent
Android DEV	Potentially easer code and able stretch to further access beyond just apps through store	Lack of variety, difficulty of graphical use.

I will be choosing A-Frame because:

1. App will be more widely available
2. Build time will be reduced
3. App is simple enough that the frameworks limitations should not be relevant

Hosting

As a Proof of Concept project the web and database hosting on repl.it will be sufficient for the audience. Also, it is low cost. And finally, it will speed up deployments. Because source code will be hosted on github, scaling up to a new hosting platform will be trivial. At that point deployments to test and production will be made using github plugins.

Database

If it's discovered that the application truly requires a database, and the repl.it database is not scaling properly, the fact that it is a key/value pair style database means we can fairly easily move it over to another more robust type of key/value pair style database like AWS Dynamodb or MongoDb.

User Experience

- An Oculus Quest 2 user opens the Oculus Quest Store.
- User searches for product
- User download product on Oculus Quest 2.
- User launches app and sees a welcome message and the Unity logo
- User clicks play on the menu
- User clicks on the Room they desire to experience
- Scene changes to that particular room
    - Room is squarish with paintings on walls and a exit door
    - Furniture and objects around the room

    - Text for timer and hints
- Timer Starts and Escape room begins
    - Objects can be grabbed
        - Picked up and thrown
        - Objects could be needed to move to complete part of task
    - Various steps to the puzzle(different per room)
        - At the end of the first task it reveals the second
        - When all tasks are completed the door is opened
    - Completed level unlocks next room
        - Harder than previous room
        - Resets timer and hints
        - Furniture and paintings could be used in puzzles
- Timer ends and level is lost