

FAMU-FSU VR Museum DR4

02/14/2025, Team 314

Team Members



Jaewan Mcpherson -
Team Leader



Evan Rundlett - AI
Implementor



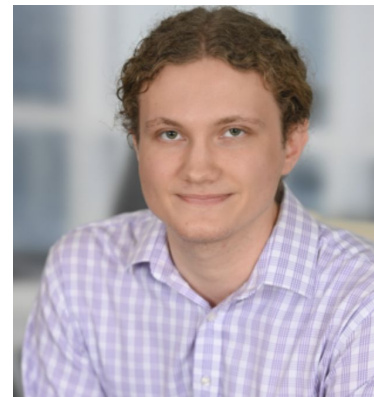
Christian Higgs -
Primary Developer



Devin Nobles -
Secondary Developer



Jason Muse -
Blender Expert



Ethan Myers -
Creative Lead

Sponsor and Advisors

Sponsor:

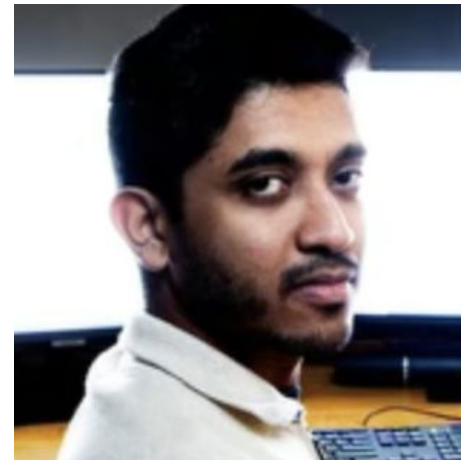


Advisors:

Dr. Shonda Bernadin



Dr. Migara Amarasinghe



Introduction

- Museum of the arts & sciences observable in VR
 - i. Interaction between arts and sciences
 - ii. Utilize AI in generation of exhibits; highlight future of AI in artistic endeavors
- Motivation/Problem
 - i. Designed to educate on a variety of topics
 - ii. Inspire prospective students/engineers



Introduction cont.

- Artistic/creative museum in Virtual Reality
 - Users will be able to explore and interact with numerous exhibits
 - Immersive environment
- Use open source modeling and game engine for development
- Users should be able to interact with the museum via headset controls
 - Microphone included in headset
- Certain aspects should use Artificial Intelligence
 - Some art and images will be AI-generated
 - Sounds and voices can be AI-generated



Introduction cont.

Currently established exhibits:

- Game
- Fashion
- Sculpture
- Star Wars/Marvel
- African Culture
- FAMU-FSU COE History
- New Space Room (WIP)
- Maze Room
- Upside Down Room
- Animal Room
- Classical Music Room

Improvements:

- Maze Exhibit/First-person Pacman
- Additional exhibit features - more interactivity, more blender objects, playable games
- General features - NPCs, spatial audio, animations, gamification



Needs/Requirements Recap



No.	NEED/ STATEMENT	SOURCE
1	Need to involve Artificial Intelligence.	Customer
2	Needs to be displayed in Virtual Reality.	Customer
3	Needs to be interactive.	Customer
4	Needs to display historical and artistic exhibits.	Customer



	NEED	REQUIREMENT/ INTERPRETATION
1	1	AI shall help create and modify the exhibits.
2	1,3	The exhibits shall be designed for an immersive VR experience.
3	2,3	Shall have exhibits that change or play audio when users interact with them; shall implement voiced characters to interact with.
4	3,4	Visitors shall explore rooms dedicated to classical music, paintings, and sculptures, bringing the museum to life in an interactive 3D space.

Final Concept Recap

Choice 1:

VR
AI
3D Modeling
Interactivity
Artistic/ Historical Expression
Game Engine



Midjourney

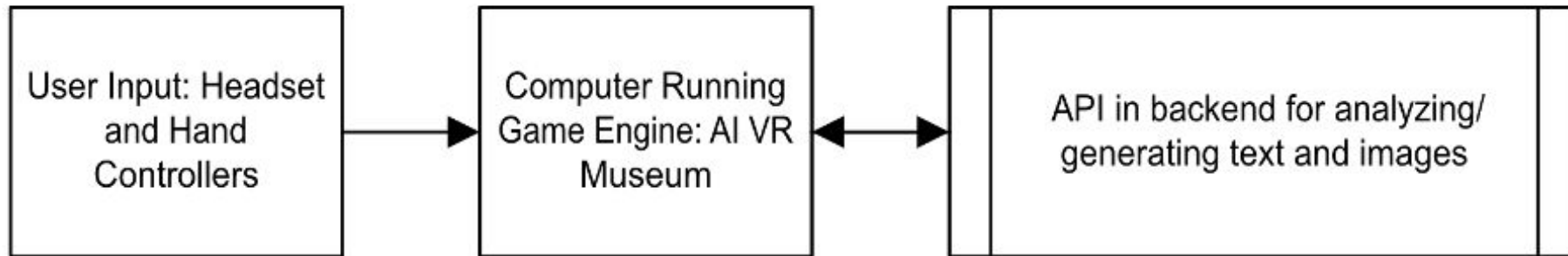
SUNO



blender



Preliminary Design

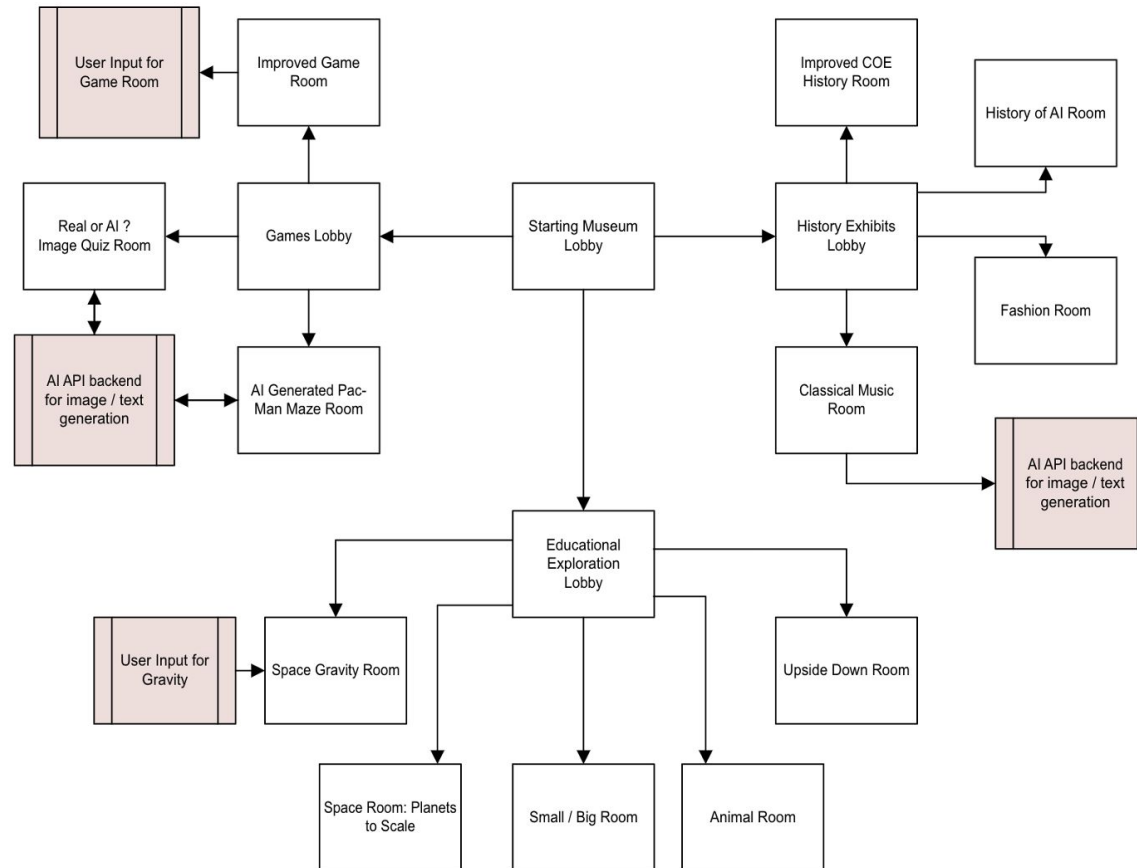


High-Level Block Diagram:

- Our design has 3 components:
 - VR headset
 - Computer running the game
 - AI API backend for generative features

Preliminary Design

We plan to have the Museum begin in the lobby, and then split into 3 different sections:

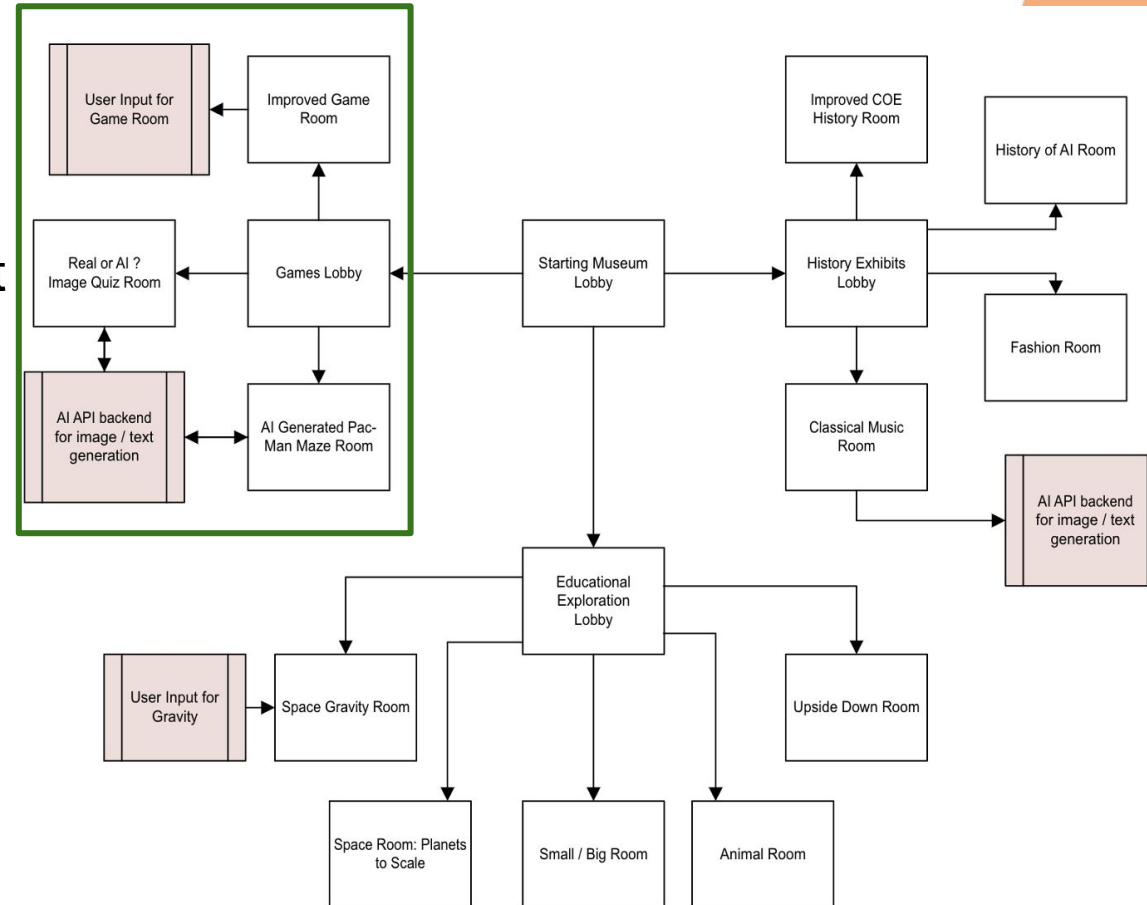


Museum Layout - Red boxes indicate room subprocesses.

Preliminary Design

We plan to have the Museum begin in the lobby, and then split into 3 different sections:

- Games Wing
 - 3 games

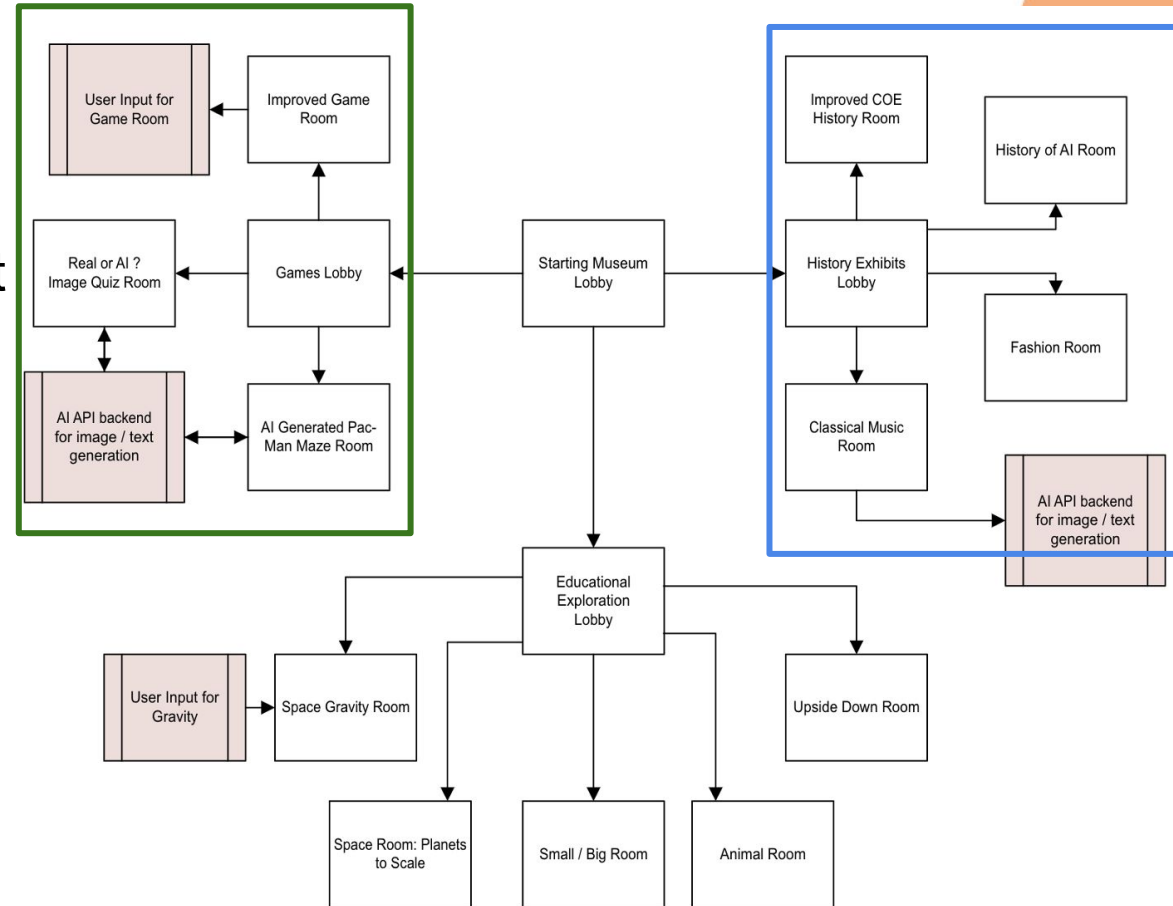


Museum Layout - Red boxes indicate room subprocesses.

Preliminary Design

We plan to have the Museum begin in the lobby, and then split into 3 different sections:

- Games Wing
 - 3 exhibits
- History Wing
 - 4 exhibits

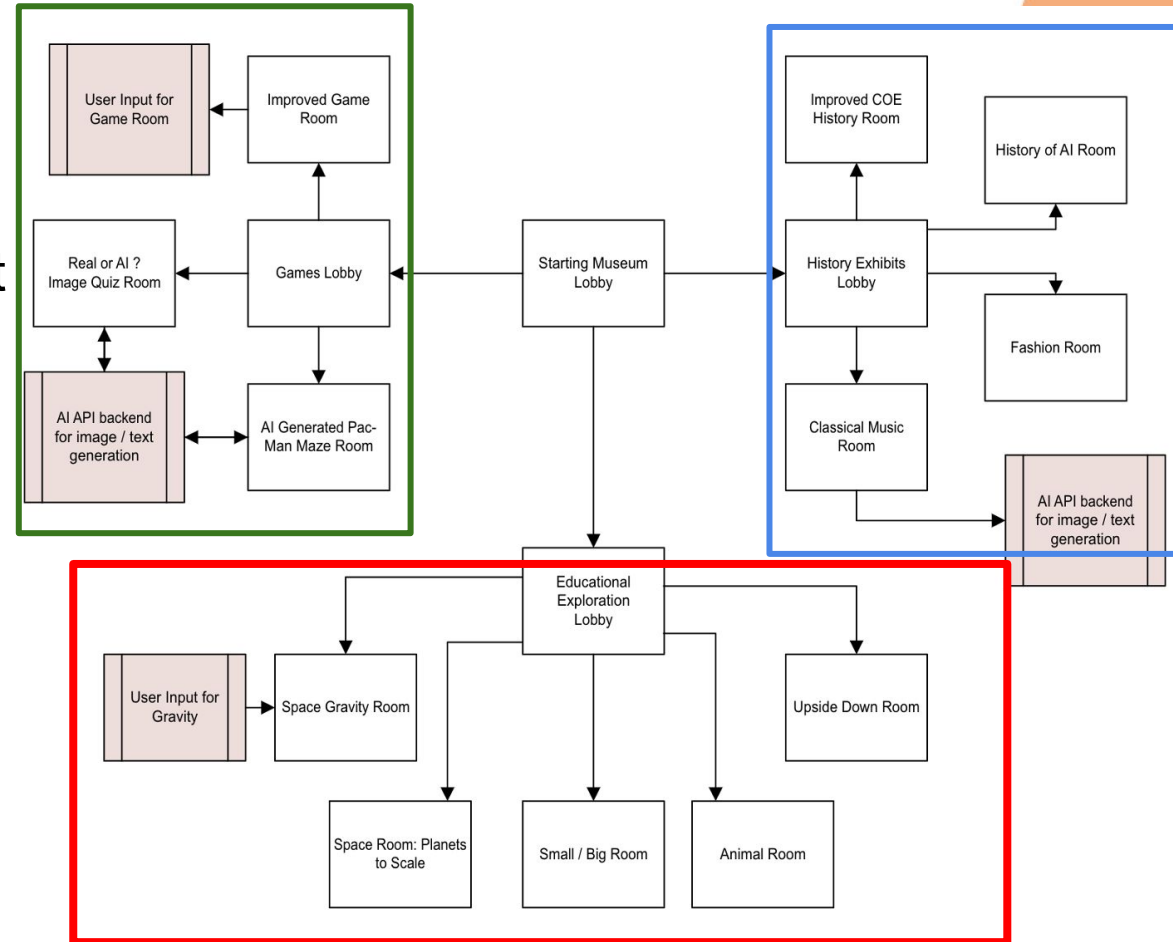


Museum Layout - Red boxes indicate room subprocesses.

Preliminary Design

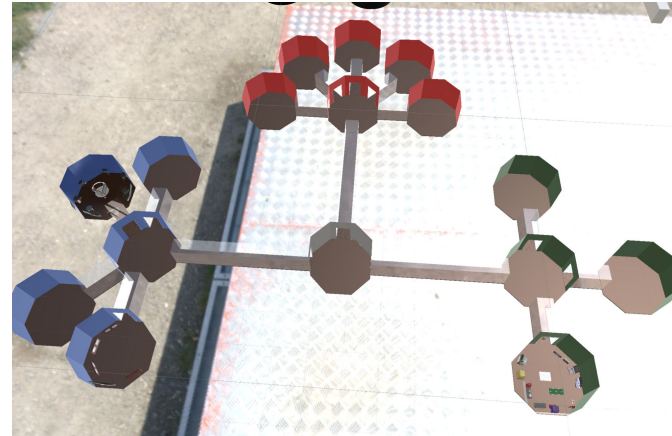
We plan to have the Museum begin in the lobby, and then split into 3 different sections:

- Games Wing
 - 3 exhibits
- History Wing
 - 4 exhibits
- Educational Exploration Wing
 - 5 exhibits



Museum Layout - Red boxes indicate room subprocesses.

Museum Map - Main Lobby



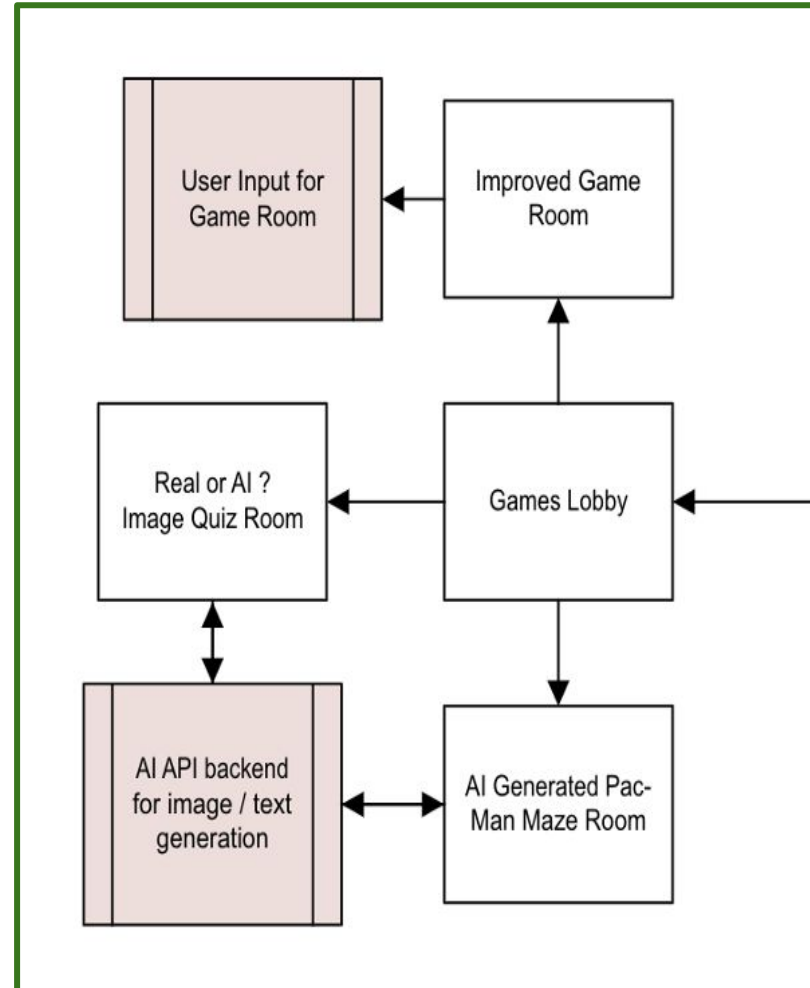
Preliminary Design - Games Wing

Current State

- Game Room
- *Real or AI?* Quiz Room

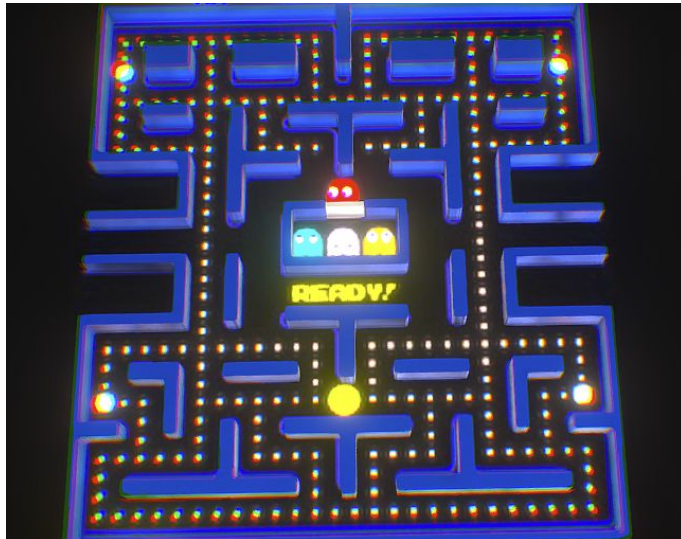
To Be Added

- Improved Game Room
 - User-interactivity Options
- AI-generated Maze Room



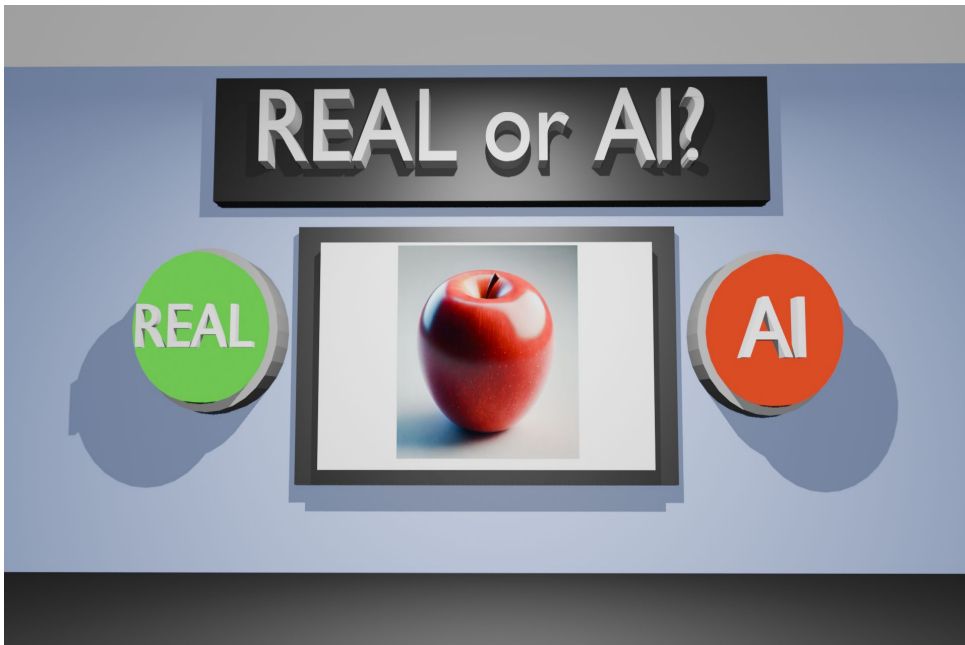
Generative Maze Room

- Generative AI might take too long to develop
- Prototype maze already created
- Worst case scenario, animations can be added to the prototype



REAL or AI Quiz Room

- Interactive Screens for quiz
- Tips to help users play game
- Scoreboard (WIP)



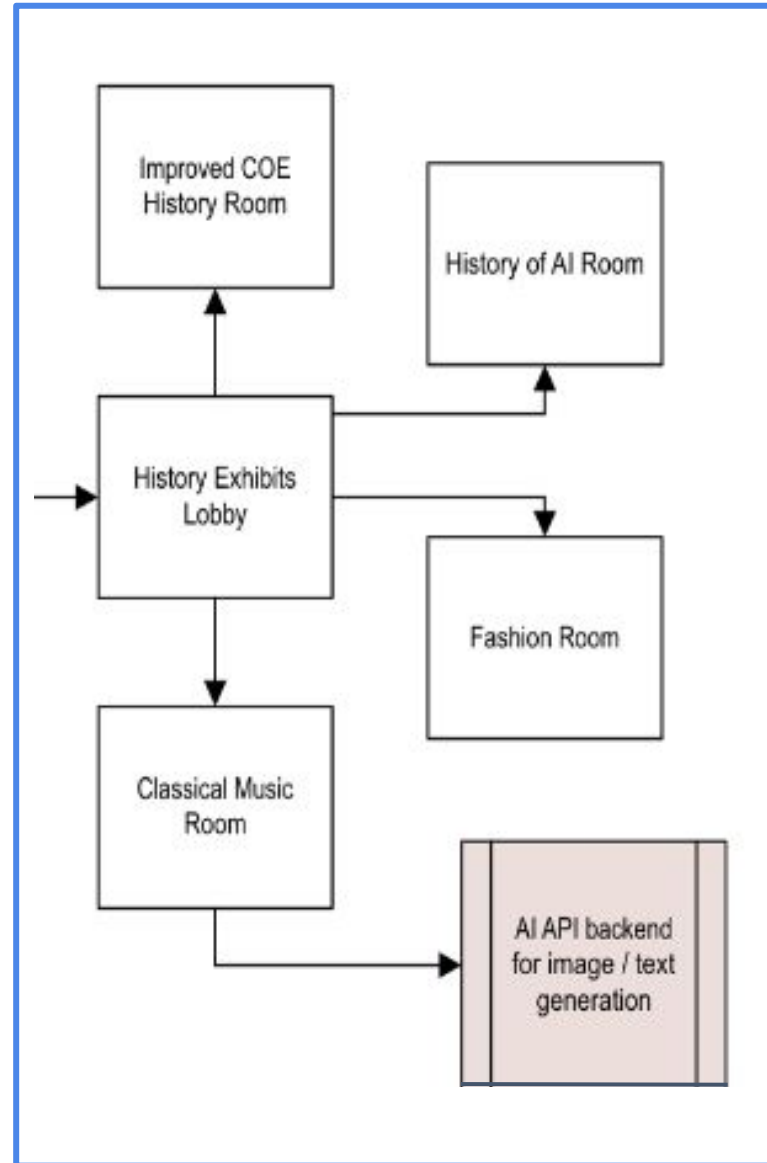
Preliminary Design - History Wing

Current State

- Fashion Room
- COE History Room
- Classical Music Room
 - AI API Backend

To Be Added

- History of AI Room
- Improvements for existing rooms



Classical Music Room (In Progress)

- Classical Music Exhibit
 - Various classical instruments
 - AI generated Classical Music
 - AI generated photos of Beethoven, Mozart and Bach
 - AI generated exhibit text



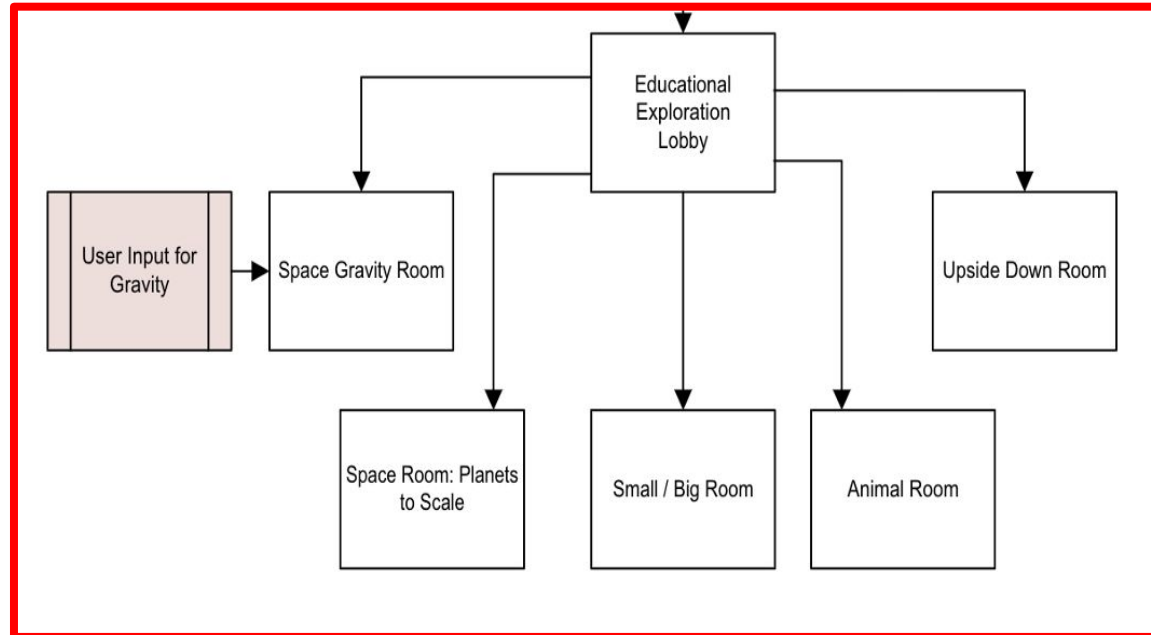
Preliminary Design - NEW Educational Exploration Wing

Current State

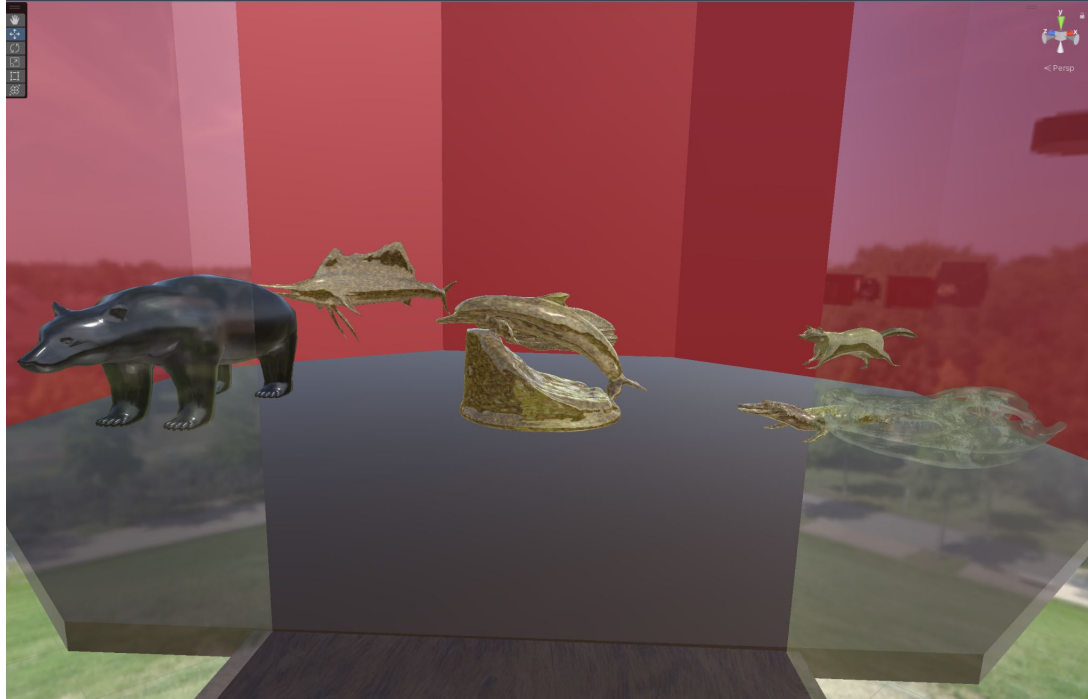
- Animal Room
- Space Room: Planets to Scale
- Upside Down Room: Inverted Gravity

To Be Added

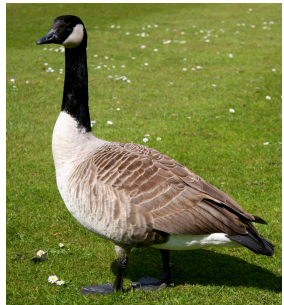
- Space Gravity Room
- Small/Big Room: Shifting Perspective



Animal Room (In Progress)



- Animal Room
 - room featuring animals that live in Florida
 - planned to include, statues, “live” exhibits, and animal descriptions



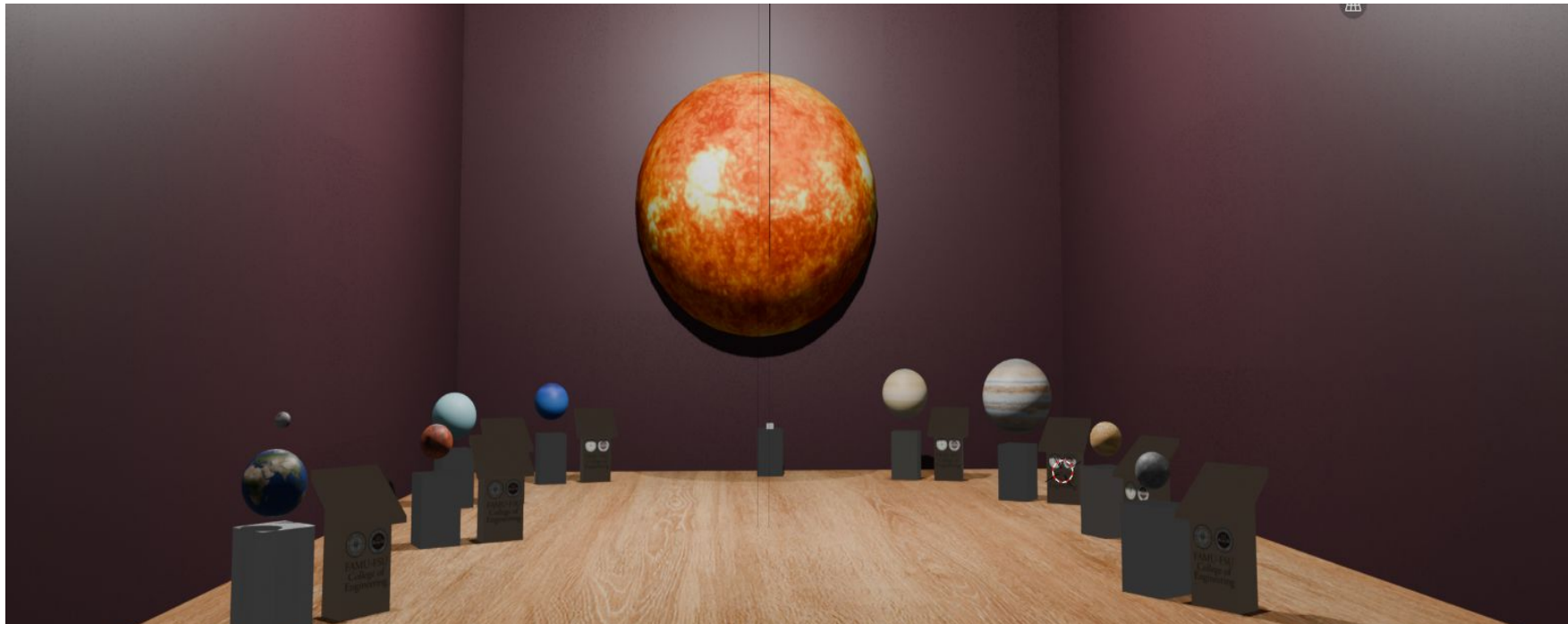
Upside Down Room

- Upside Down Exhibit
 - Bedroom from an upside down perspective



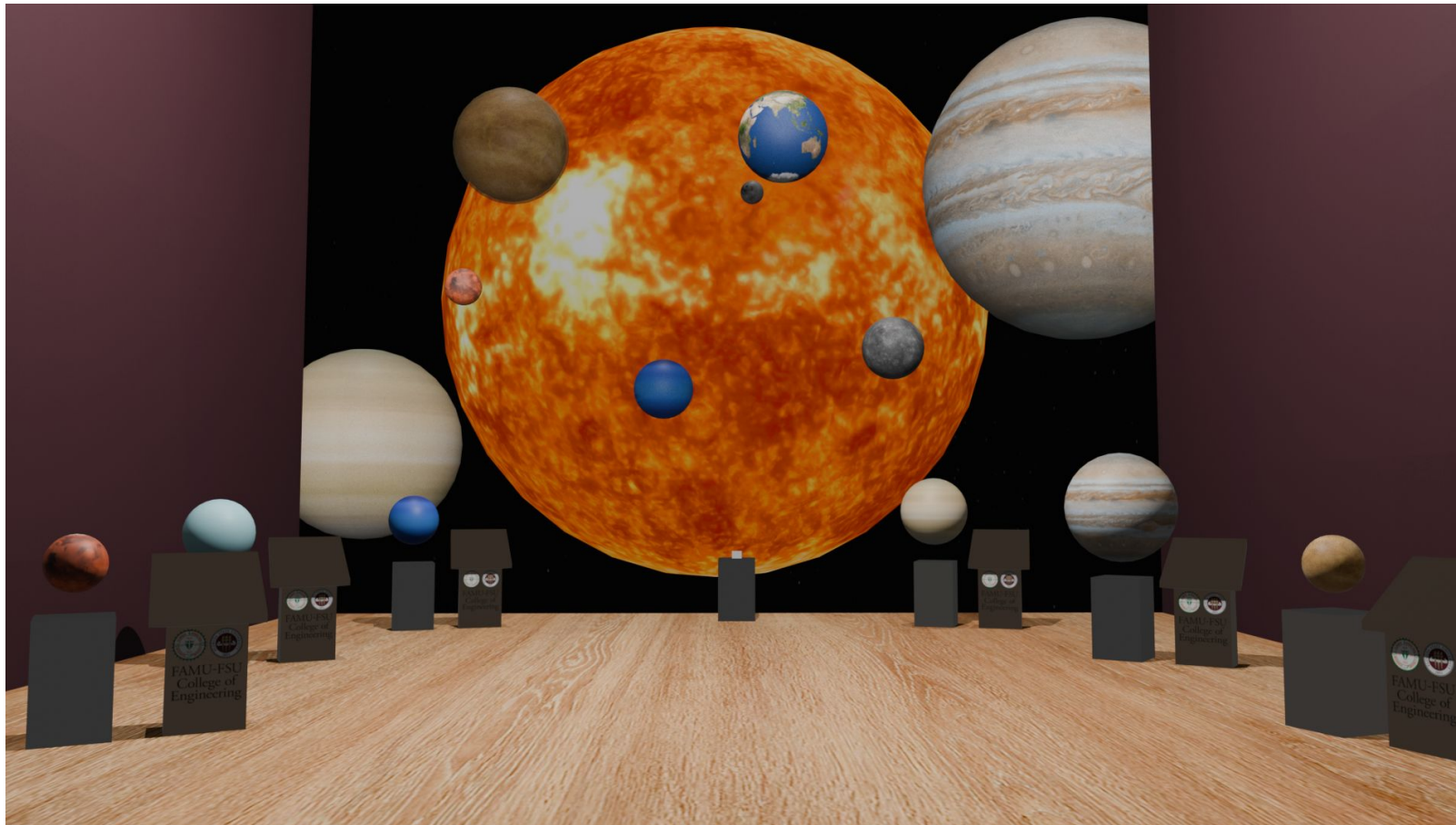
Planetarium Room

- Solar System Exhibit
 - Info Plaques for each planet
 - Interactive Animations



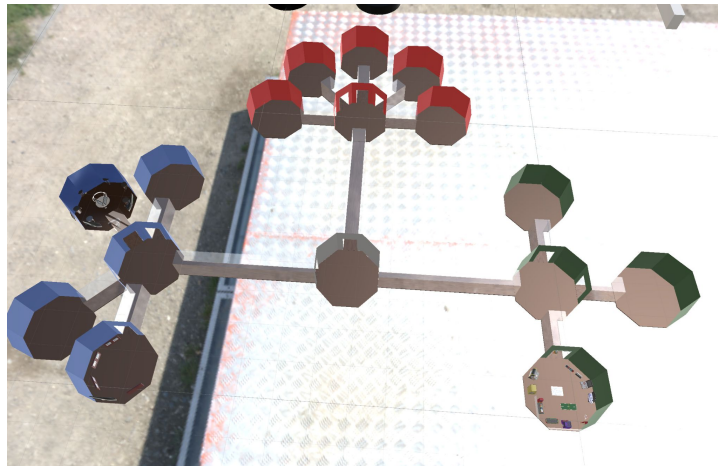
Planetarium- Planets to Scale

- Animated Planets Show
 - (scaled accurately)



Finished Work

- Complete layout of final museum
 - Fixed issues from previous project
- Exhibits from previous project
 - Team just needs to import to new museum
- Models for almost all exhibits
 - ex. planetarium, game room, upside down room
- AI-generated images/text



Results

- So far no issues
- Initial preliminary design still kept
 - Some additions are planned
- Inevitable issues during development could change our design
 - Interactivity and AI implementation will be difficult

Future Works

- Fast travel for easy navigation (more research needed)
- Animations in Blender
- Continue creating and Importing rooms
 - Code implementation of interactive elements
- AI Implementation
 - AI-generated voice lines
 - Speech-to-image generation
 - Already completed, just need to import
 - Tour Guide with AI speech
- Engineering Design Day - April 4

Museum Progress Checklist

	A	B	C	D	E	F	G	
1	Completed?	Started?	Task / Model	Notes	Room	Wing	Started By:	
2	☐	☐	Map / Guide		Lobby	Lobby		
3	☐	☐	Benches					
4	☐	☐	Guide NPC	AI backend for NPC				
5	☒	☒	Planet Models / Moon	*to scale	Planets to Scale Room	Educational Exploration Wing	Jason	
6	☒	☒	Museum Plaques / Info Stands				Jason	
7	☐	☐	Info Slides for Each planet	Slides could be made on powerpoint				
8	☐	☐	Planet Animations	prob done in unity	Animal Room			
9	☐	☒	Statues of Animals	Animals native to FL / Tallahassee?			Christian	
10	☐	☐	Plaques for each Animal	Slides could be made on powerpoint	Small / Big Room			
11	☐	☐	Props to make you look Big				Devin	
12	☐	☐	Props to make you look Small				Devin	
13	☐	☐	Optical Illusion Perspective switch	nel or Room that shrinks / enlarges	Upside Down Room			Jaewan
14	☐	☒	Props stuck upside Down	handelier hanging upside down, Bal	Gravity Room		Evan	
15	☐	☐	Props that react to gravity	d this room also be Upside Down Rc				
16	☐	☐	Button to switch gravity	ch between different planet's gravit	Maybe New Exhibit - Moon Room			
17	☐	☐	Moon Surface	rt to the moon, experience moon gr				
18	☐	☐	games		games room			
19	☐	☒	Big TV screen for REAL/AI pictures	n on wall looping a quiz of multiple /	Real or AI quiz room		Jason	
20	☐	☒	Buttons to guess REAL/AI				Jason	
21	☐	☐	Scoreboard	mming required (Record Winning St	Pac-man Maze Room			
22	☐	☐	AI generated Pac-Man Maze				Ethan	
23	☐	☐	Reset/Regenerate Maze Button		History of AI room		Evan	
24	☐	☐	Evolution of AI stands / info	line of AI usage and popularity anal				
25	☐	☐	Slides for					
26	☐	☐	Timeline of COE achievements		Improved COE History Room			
27	☐	☐	Plaques of Faculty / Advisors / Project	Current and Historic?				
28	☐	☐	Slides for COE past events		Fashion Room			
29	☐	☒	AI generated fashion pictures					
30	☐	☒	Historical stands / facts of fashion		Classical Music Room			
31	☐	☐	AI generated music	s an AI that can be used to generate				
32	☐	☐	Interactive Piano for players ?	think there is a premade asset for th			Jaewan	

- Used to track tasks for the museum
- Organized by “wing”
- Contains fields for notes and task delegation

End of Presentation

Any Questions?