

Digital Twin Room Emulator and Asset Manager

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PROBLEM

The product owner wanted to develop a virtual twin in which changes in the virtual environment reflect back in its real world counterpart. The team decided to make the project with Unity.

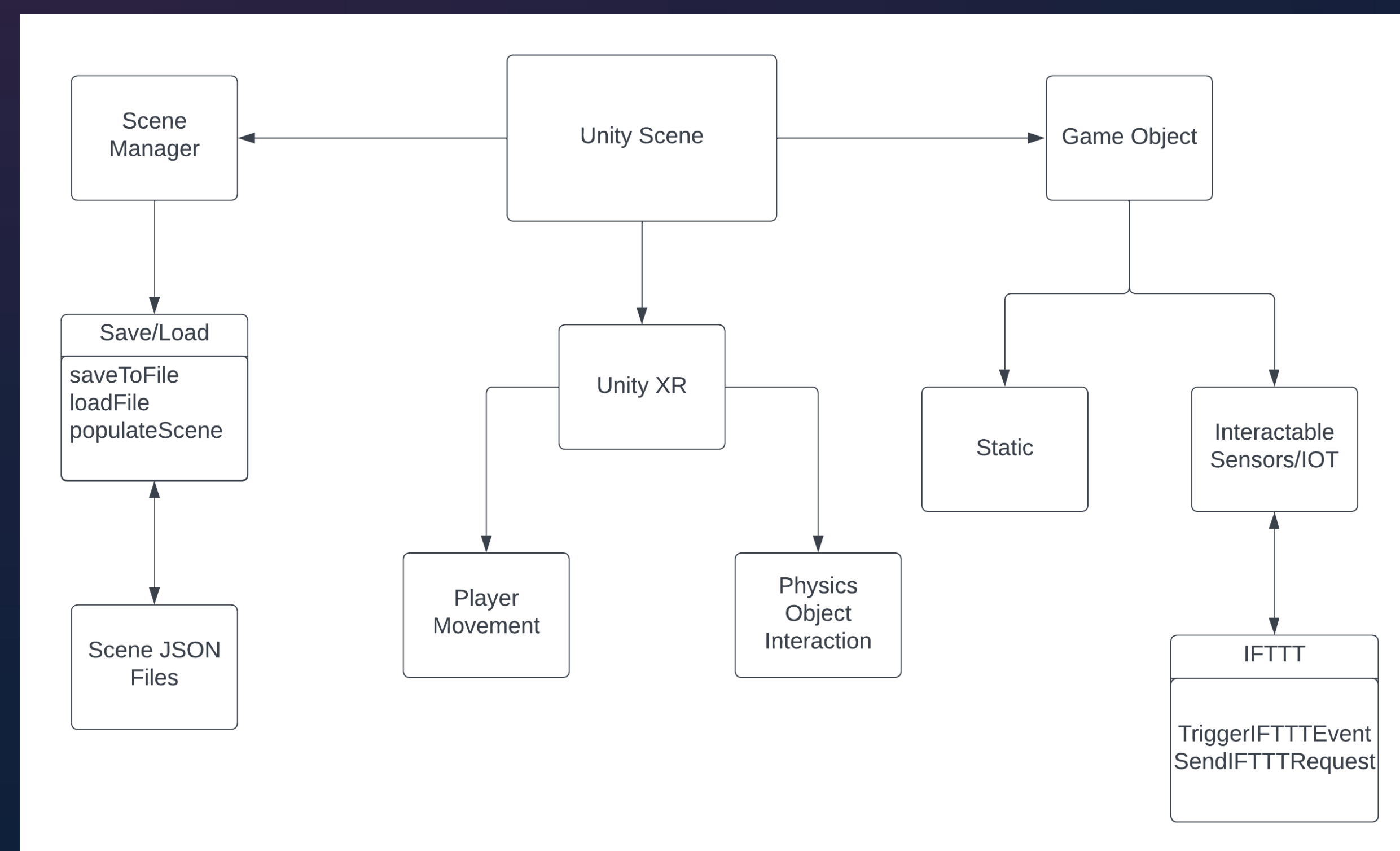
CURRENT SYSTEM

In the current system the player can explore multiple different labs in VR, in which the player can interact with some objects, the changes of these objects are reflected in the real world.

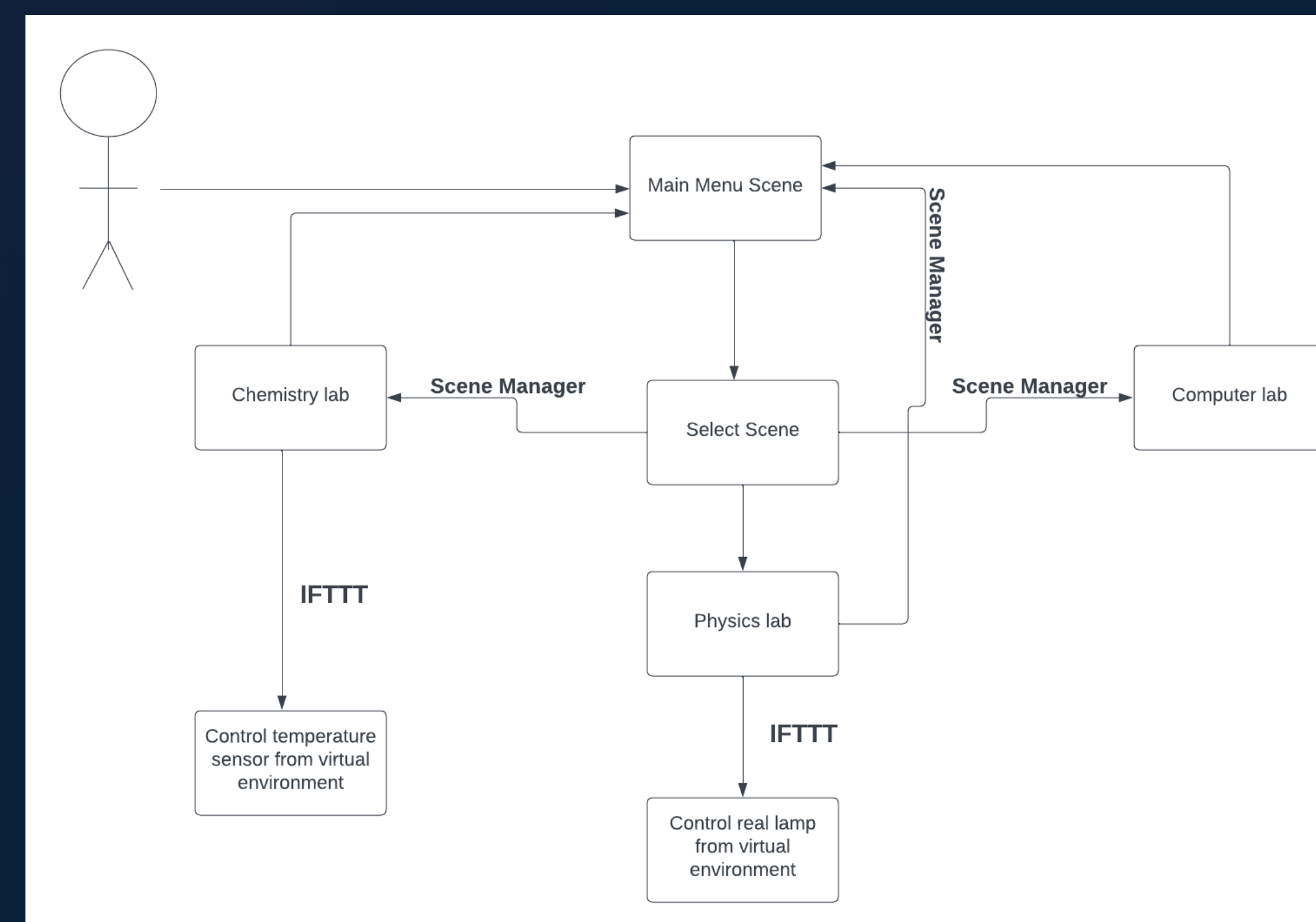
REQUIREMENTS

Unity ver. 2021.3.17f1 or later
Oculus Quest VR headset
GitHub

SYSTEM DESIGN



OBJECT DESIGN



IMPLEMENTATION

Unity ver. 2021.3.17f1
C#
IFTTT
GitHub

VERIFICATION

The scenes were tested by the team in the ICave using the Oculus Quest available there. We tested that the player was able to move and interact with the scenes and the interactable objects found in each scene.

SUMMARY

The team was able to create a demo of the project with multiple scenes and multiple sensors that can be interacted with in the virtual twin and have an effect reflected in the real world.

Future work on this project should aim to add more sensors and create a scene that accurately reflects a lab found in FIU

SCREENSHOTS



ACKNOWLEDGEMENT

The material presented in this poster is based upon the work supported by Steve Luis. We thank Steve Luis for his assistance and mentorship that we received throughout the senior design project.