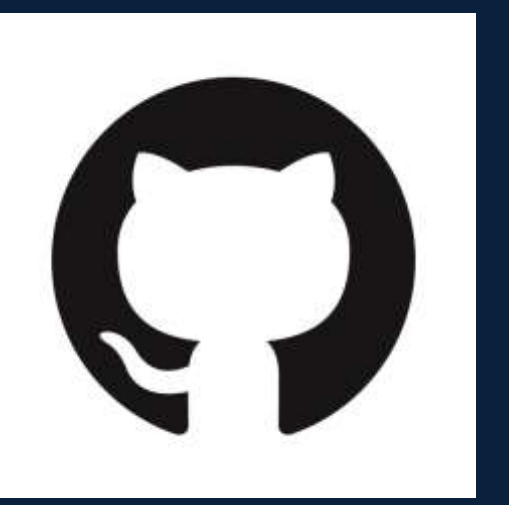


School of Computing & Information Sciences

Spring 2023 Senior Design Project

Digital Twin Room Emulator and Asset Manager



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Mentor: Mr. Steven Luis

Instructor/Faculty: Dr. Masoud Sadjadi, Florida International University

PROBLEM

- Start a virtual digital room with no prior experience using Unity or Virtual Reality.
- Understand how to interact with object in Virtual reality.
- Understand how to control real devices from virtual world.

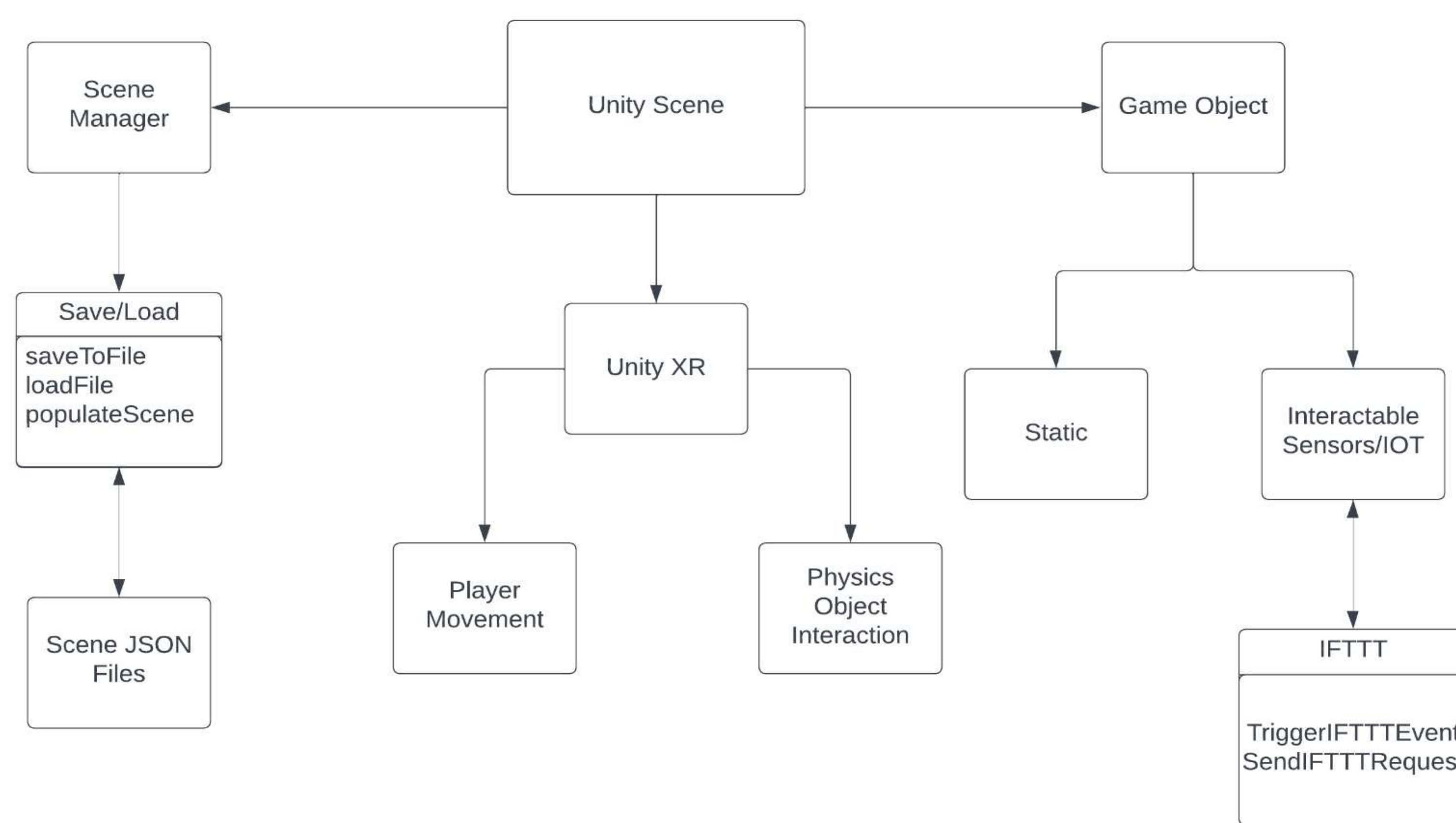
CURRENT SYSTEM

- In the current system the player could move freely and explore 3 different scenes that are already made.
- There are a couple objects that the player could interact with.
- The player could control real devices as a lamp or a temperature sensor from the virtual environment.

REQUIREMENTS

- Unity version 2021.3.17f1 or later
- Oculus Quest VR Headset
- GitHub

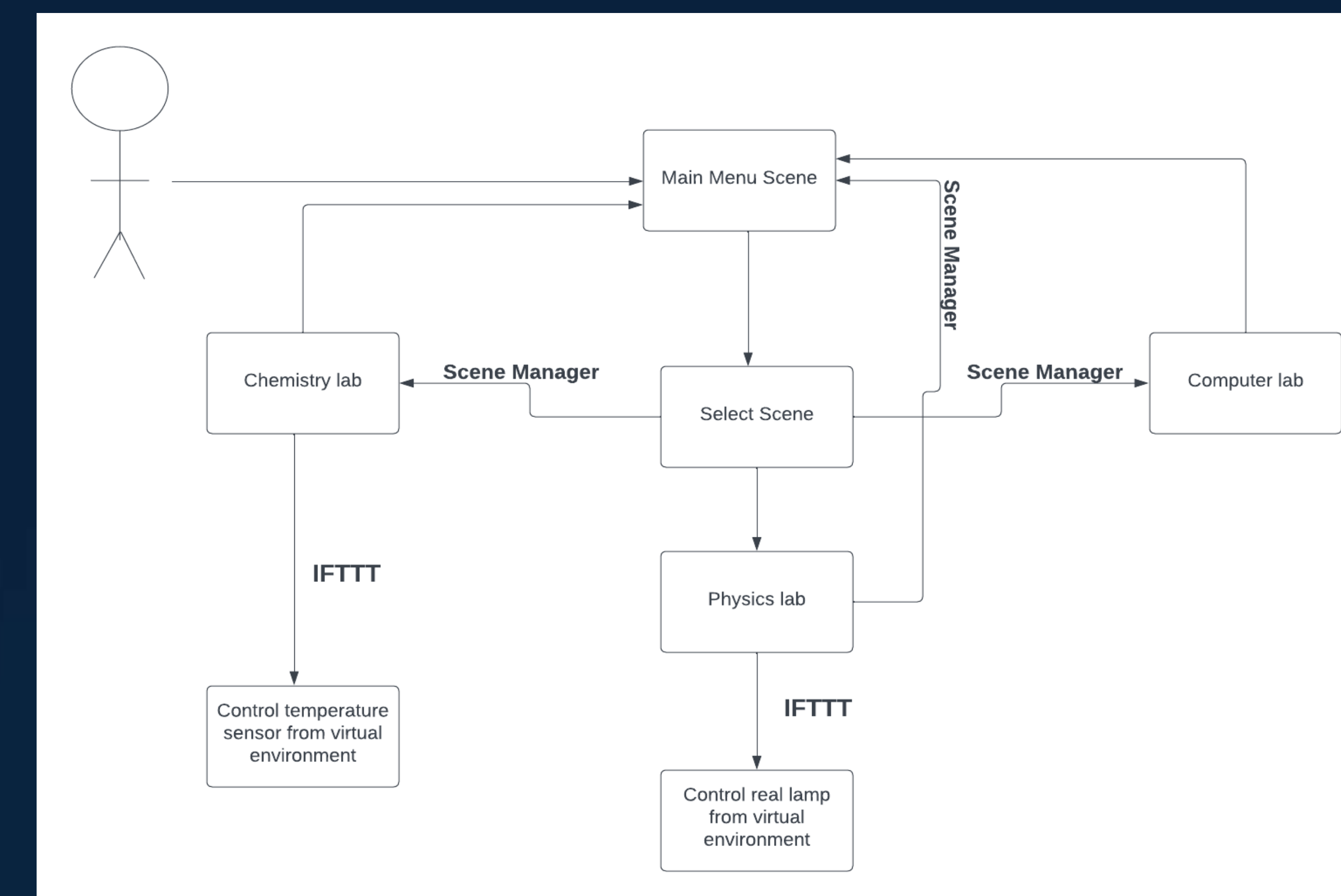
SYSTEM DESIGN



IMPLEMENTATION

- Unity version 2021.3.17f1
- C#
- IFTTT
- GitHub

OBJECT DESIGN

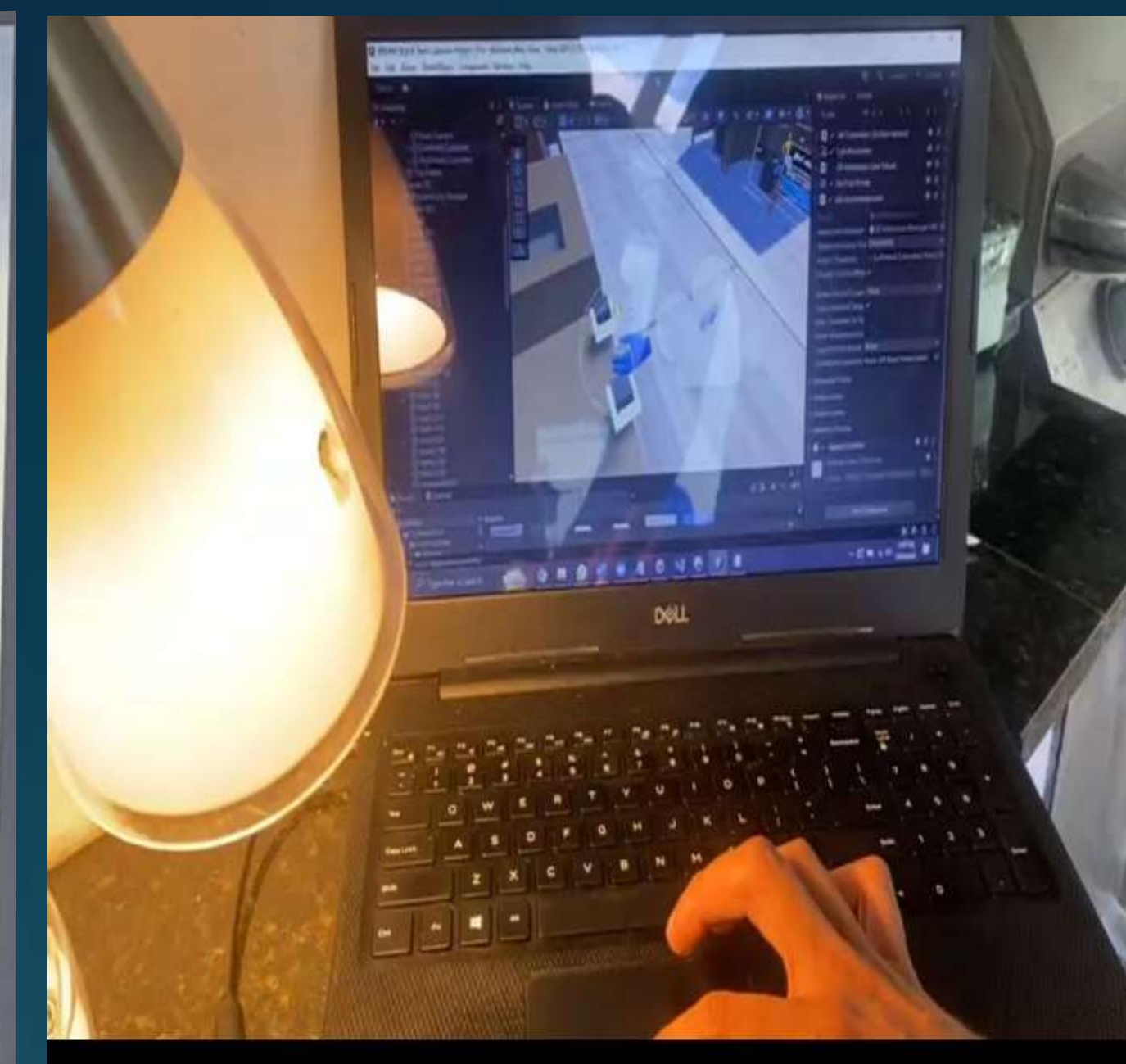


VERIFICATION

SUMMARY

SCREENSHOTS

The existing system offers a unique user experience by providing a virtual world with distinct scenes that users can explore while taking control of a player character. In addition to this, the system offers the ability to operate real-world devices from within the virtual environment, creating a seamless integration between the physical and digital worlds. In addition to this, the system enables users to interact with various objects within the virtual environment.



System Test Case: Turning on/off a real lamp from virtual world	
User Story: Implementing IoT Devices	
Purpose: To control a real lamp from a virtual environment.	
Pre-Conditions:	User must press a button.
Expected results:	Turn on/off a real lamp just pressing a button in the virtual environment
Actual result:	Turn on/off a real lamp just pressing a button in the virtual environment
Status:	Pass

ACKNOWLEDGEMENT

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