

Collaborative Virtual Environments

Presentation

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Introduction

- ▶ Aims of the Project:
 - ▶ Research and utilise collaborative virtual environments to produce a project as a team.
 - ▶ Learn to manage a project via online collaboration rather than having face to face meetings
- ▶ Objectives of the Project:
 - ▶ Choose a solution to create and build a virtual multiplayer software development studio
 - ▶ Ensure there is enough functionality in the experience to make it as interactive as possible
 - ▶ Create a video demo of the project

Design and Planning - The Collaborative Environment

- ▶ The world will be built using Unity and Scene Fusion.
- ▶ The project will have a sci-fi/space theme.
 - ▶ Spaceship/Space Station will house the building
- ▶ The design will take the form of a software development station.
 - ▶ Will feature several floors of rooms with varying purposes.
 - ▶ Some rooms may not reflect the image of a normal software development studio although have been added to make the world feel more complete in regards to the theme.
 - ▶ Functionality will be included throughout the world.

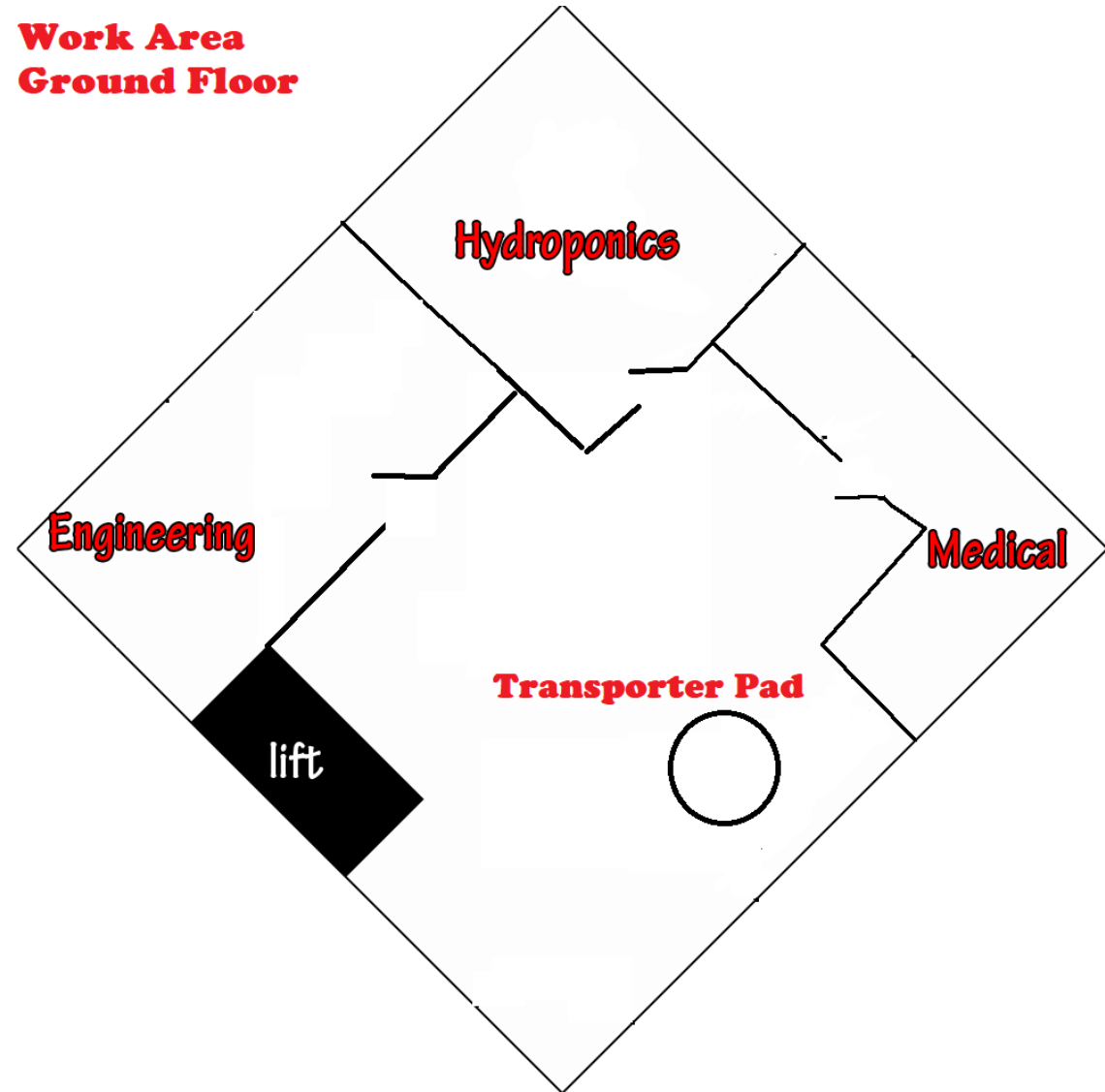
Planning and Design - Functionality

- ▶ User Characters - Player avatar's to navigate and interact with the world.
- ▶ Functional Doors - Regular & Security
- ▶ Lighting Sources - Allows lighting to be enabled or disabled.
- ▶ Interactive Windows - Security glass to block view.
- ▶ Interactive Chairs - Allows players to appear in a sitting position.
- ▶ Terminals & Screens - Allows interaction with a screen to do an action/task.
- ▶ Elevator - Interactable buttons to either ascend or descend.
- ▶ Transporter Pad - Teleports players to a set location.

Planning and Design - Floor Plans

Ground Floor - Work Area

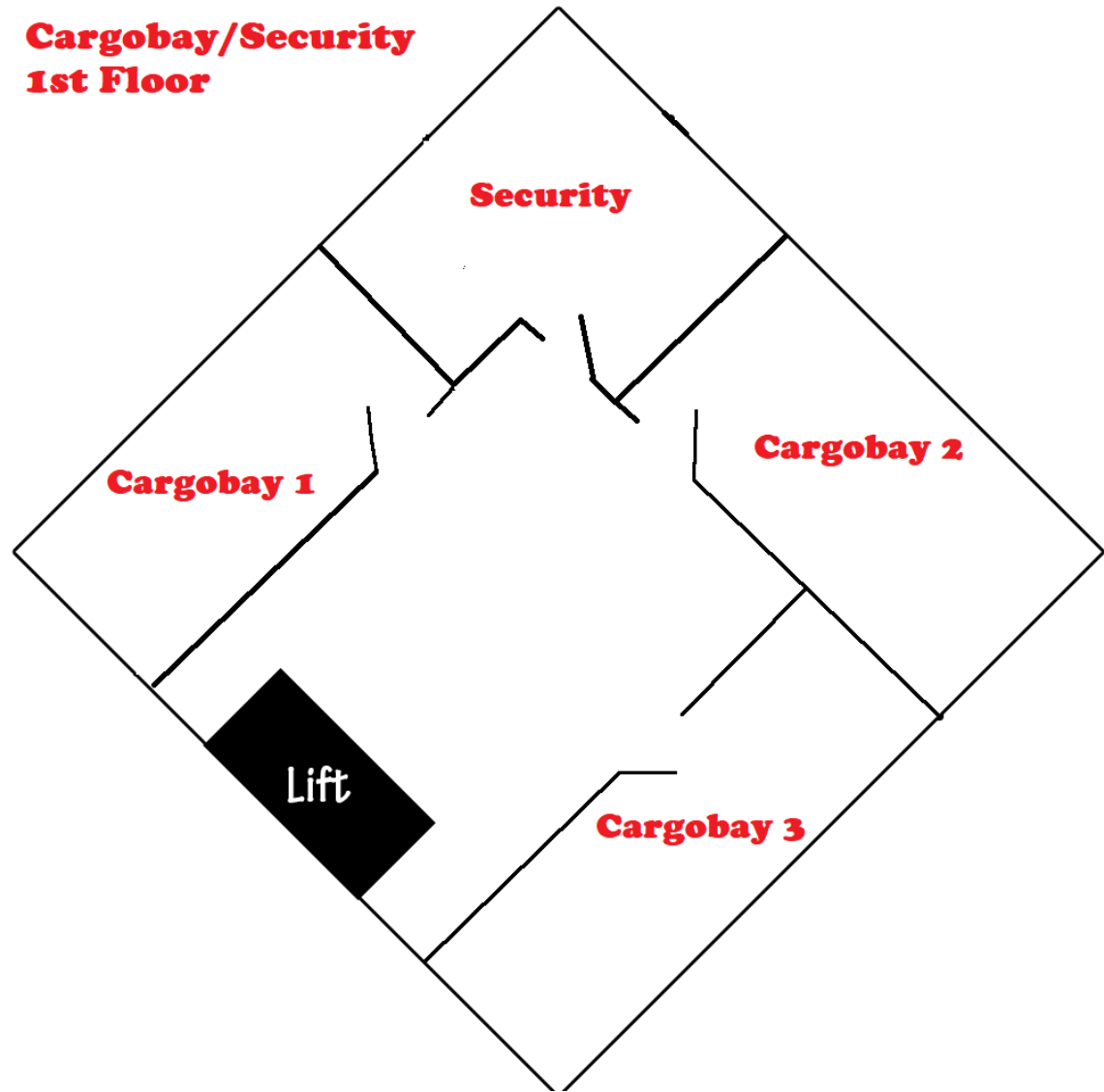
- ▶ Engineering (Software Development)
 - ▶ Will contain computers, chairs and tables
- ▶ Hydroponics (Plants)
 - ▶ Tables and plants/vegetation
- ▶ Medical
 - ▶ Beds, tables and screens
- ▶ Transporter Pad
 - ▶ Pad teleports players to a set location



Planning and Design - Floor Plans

First Floor - Cargo bay/Security

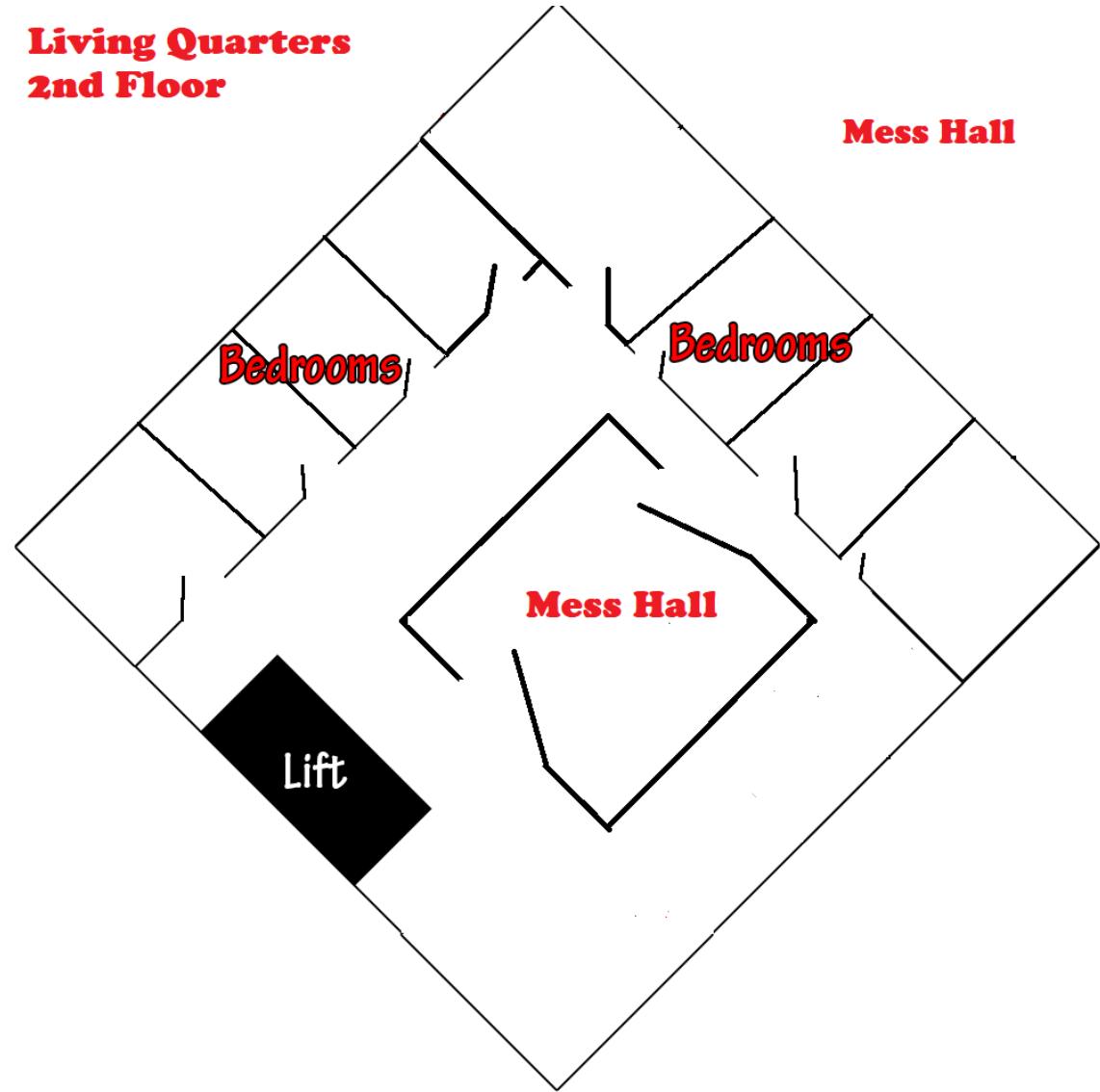
- ▶ Cargo Bays
 - ▶ Will have numerous containers.
- ▶ Security Room
 - ▶ Will have security glass and controls to lock or unlock doors.



Planning and Design - Floor Plans

Second Floor - Living Quarters

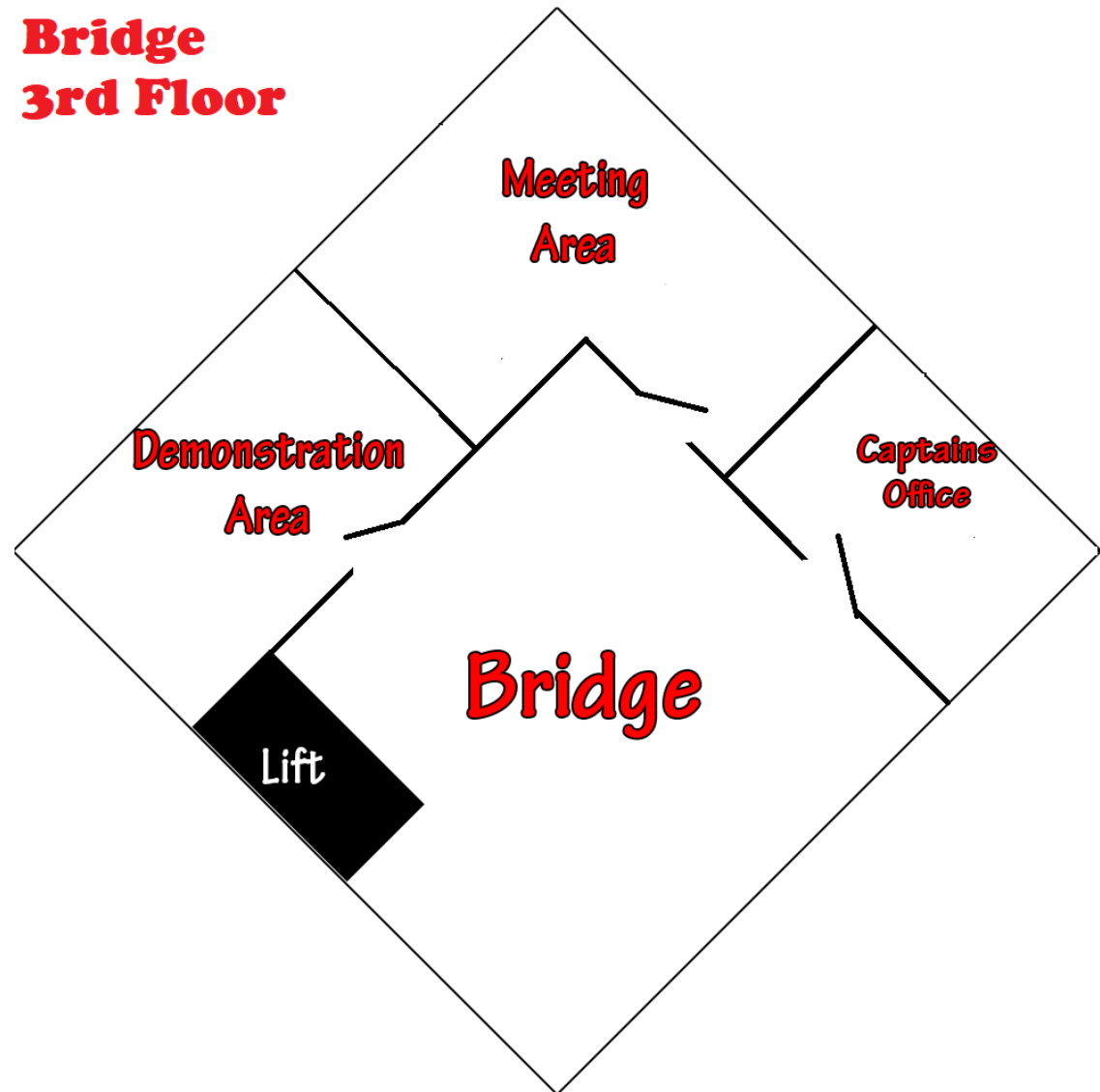
- ▶ Bedrooms
 - ▶ Beds, tables, chairs
- ▶ Mess Hall
 - ▶ Tables, benches and chairs with dining objects



Planning and Design - Floor Plans

Third Floor - Bridge

- ▶ Bridge
 - ▶ Will contain screens, chairs and terminals
- ▶ Demonstration Area
 - ▶ Screen, chairs and tables
- ▶ Meeting Area
 - ▶ Screen, chairs and tables
- ▶ Captain's Office
 - ▶ Chair and table



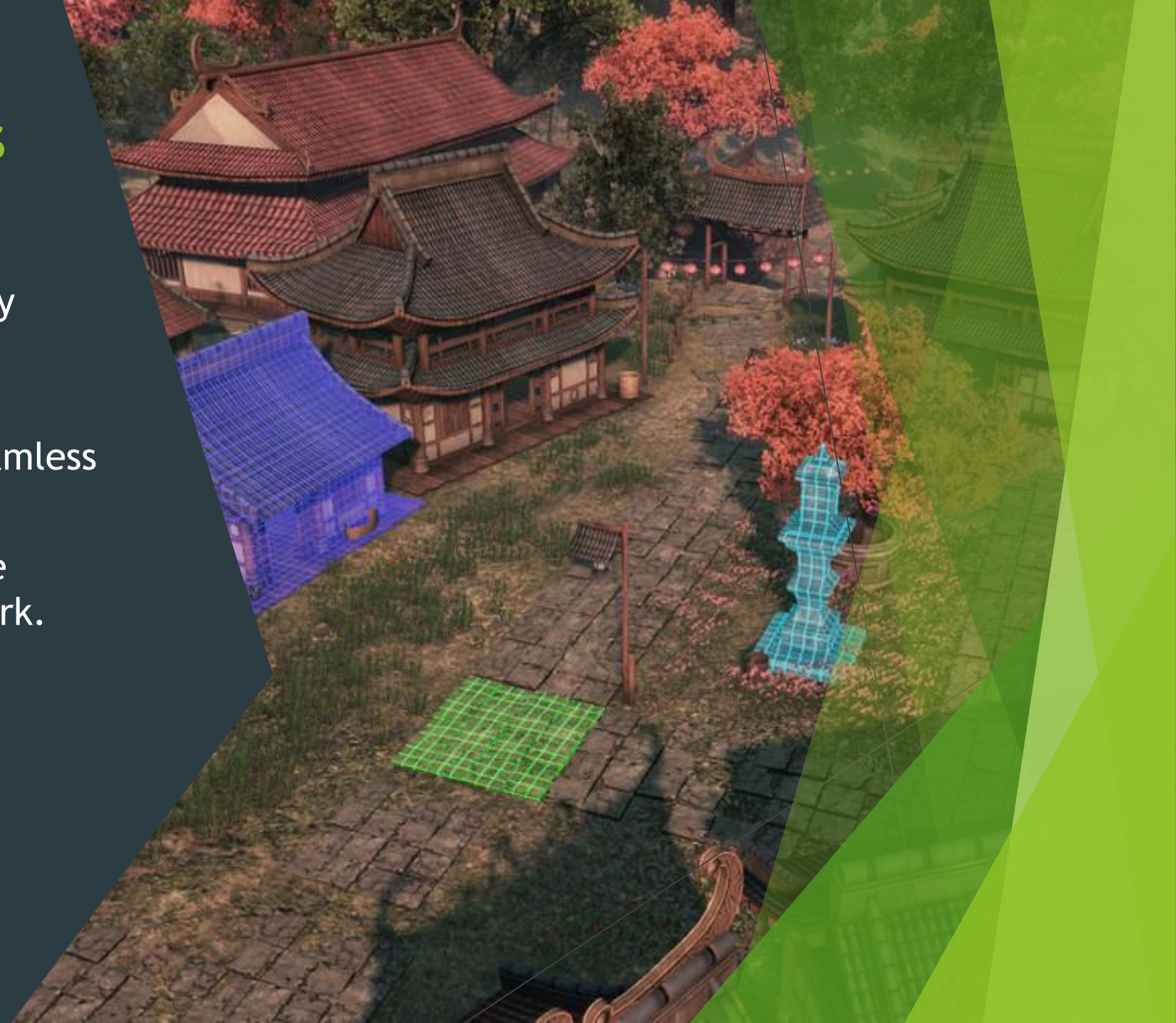
Collaboration Tools

- Scene Fusion

- ▶ Multi-user extension to Unity which allows collaborative building.
- ▶ Real-time changes allow seamless work.
- ▶ Allows users to travel to one another to monitor their work.
- ▶ Chat tool allows for all participants to type and communicate.



SCENE FUSION
By KinematicSoup



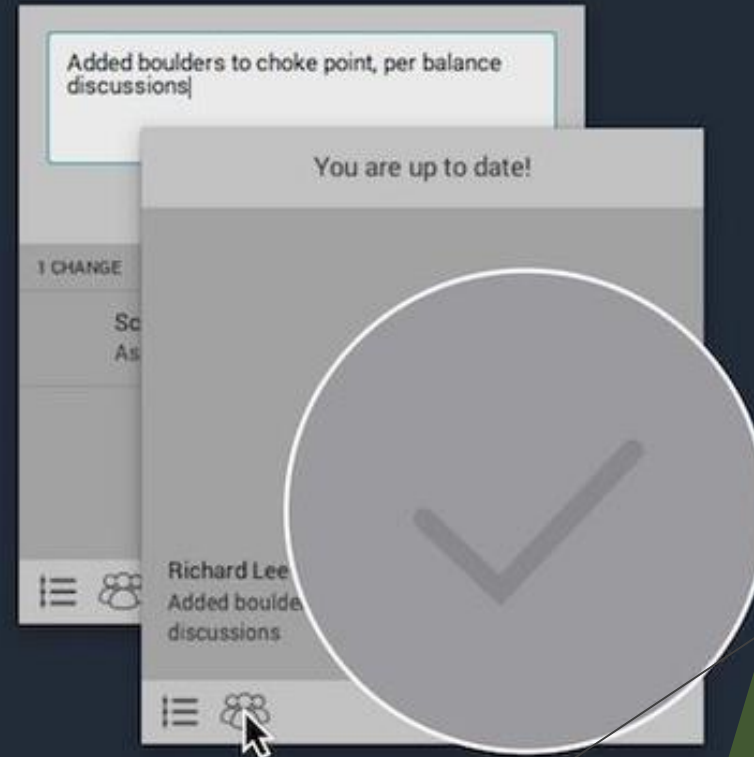
Collaboration Tools

- Unity Collaborate

- ▶ Built-in Unity tool which allows collaborative project changes to sync correctly.
- ▶ Changes can be pushed easily and prompts other participants that new modifications have been made.
- ▶ Change log shows who made changes and what was changed.
- ▶ Allows assets to be shared with the participants.



Save



Collaborative Tools

- Communication

► WhatsApp

- Communication application for mobile devices.
- Allows text, documents, images, video and voice communication.
- Can link to desktop version providing accessibility on multiple devices



WhatsApp

Collaborative Tools

- Communication

► Discord

- Communication application more focused for text and voice.
- Allows group voice calls while we work on the project.
- Text channels can split up work topics for better organisation.



Collaborative Tools - Documentation & Sharing

- ▶ Google Drive
 - ▶ Free service which allows documentation to be shared.
 - ▶ Groups can be created allowing only permitted access.
 - ▶ Documents can be created, edited and stored easily (Design Document/Meetings).
 - ▶ Older versions of work can also be recovered in the event of a problem.



Final Project Demo Video

- ▶ Here is a video of the finished project:
- ▶ <https://www.youtube.com/watch?v=2gLxKNgQVcA&feature=youtu.be>