MICHIGAN STATE UNIVERSITY

Project Plan

Danger Diner

The Capstone Experience

Team Auto-Owners

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From Students…
…to Professionals

Functional Specifications

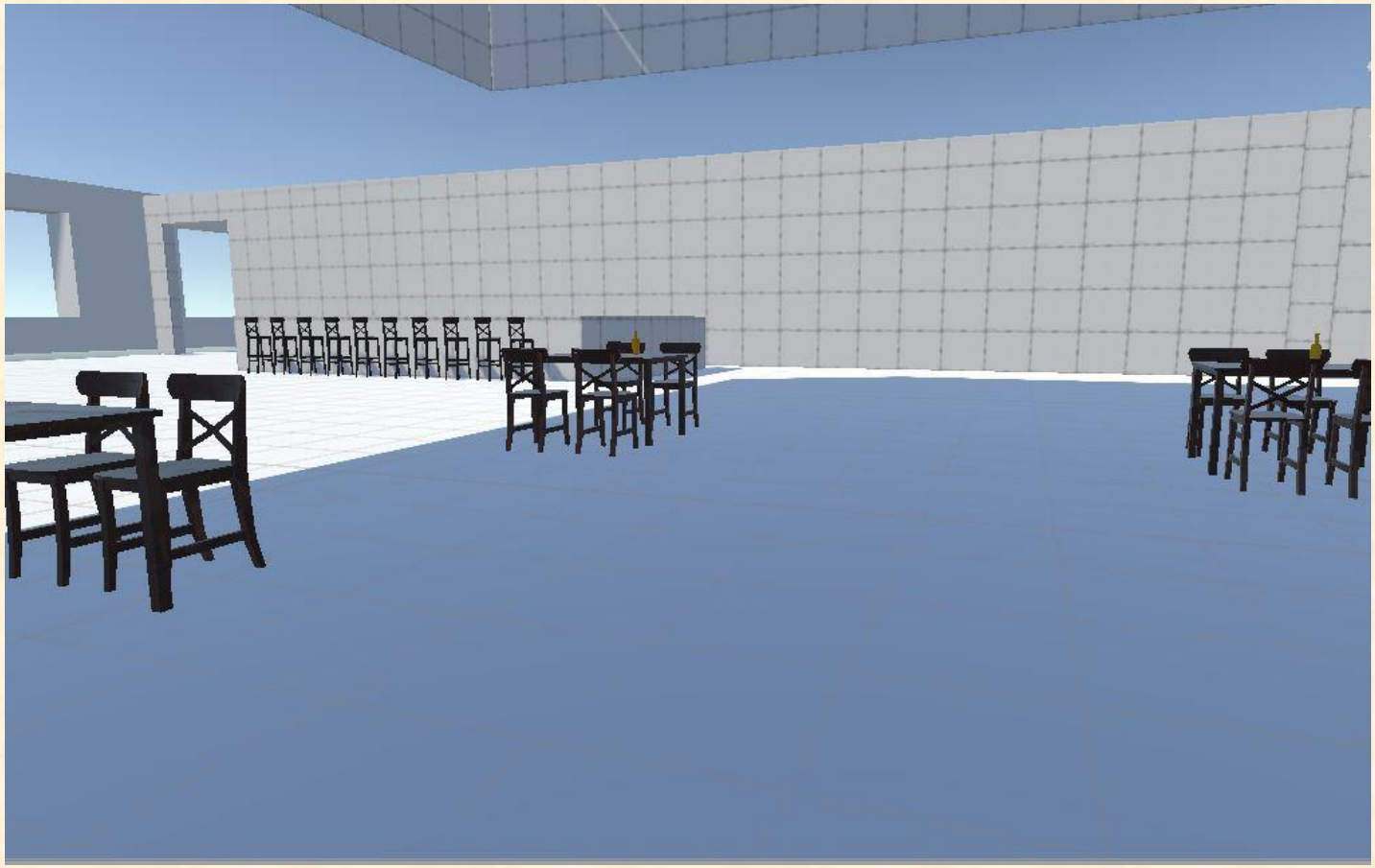
- Auto-Owners is always looking for new ways to train employees to recognize good and bad safety practices in businesses.
- Our project will help train employees to recognize potentially liable situations in a fun and engaging way.
- This program will offer real world experience without risk of financial loss or time consuming simulations.

Design Specifications

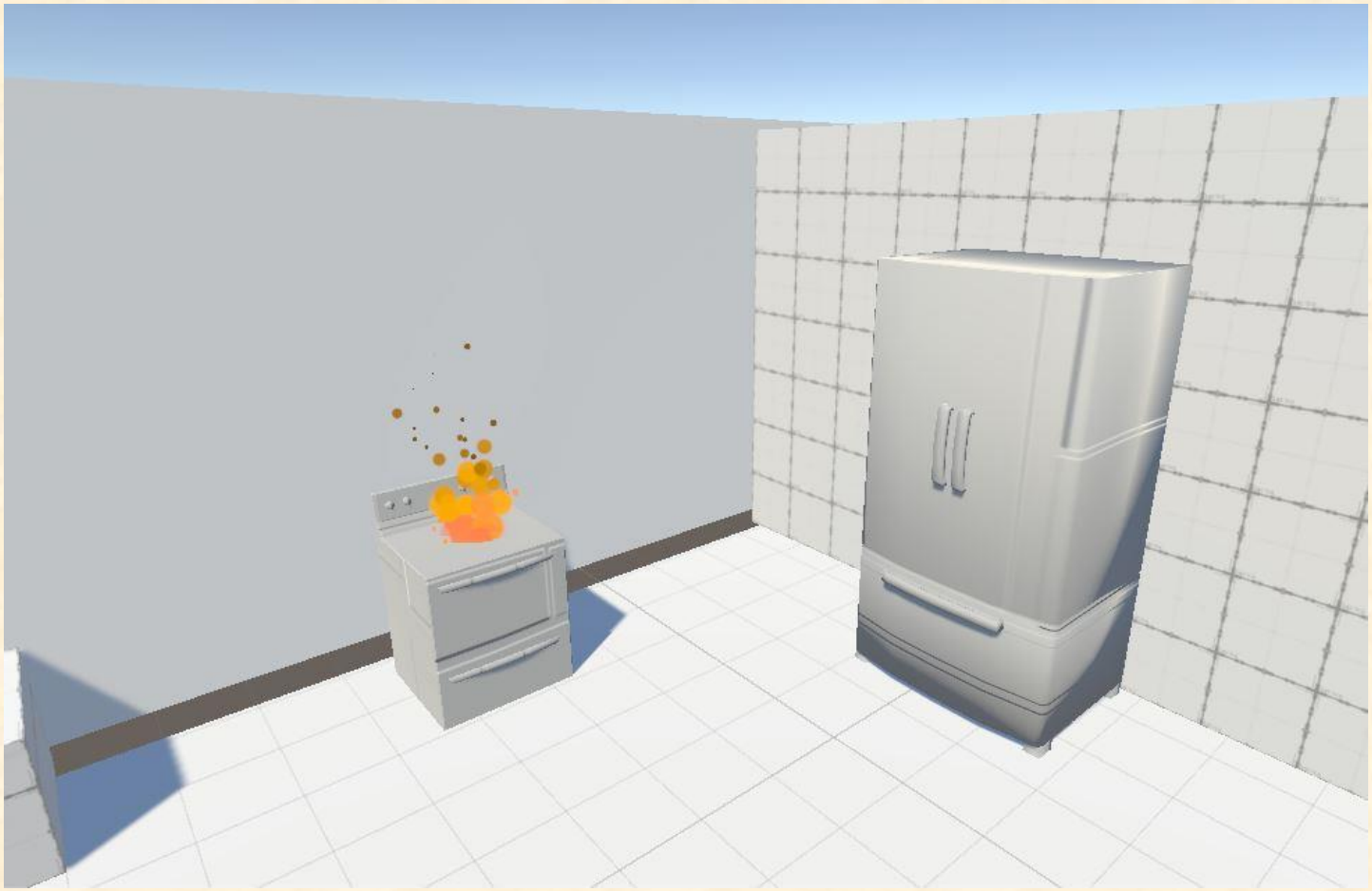
- Danger Diner is a VR game, where the player explores a diner and tags potential hazards as well as good safety features.
- Each correctly tagged item will increase the player's score.
- At the end, the player will review all the items they tagged correctly or incorrectly.
- The player's score will be added to a leaderboard to compare with their coworkers/fellow players

Screen Mockup: Main Menu Scene

Screen Mockup: Level Concept



Screen Mockup: Item tagging (before)



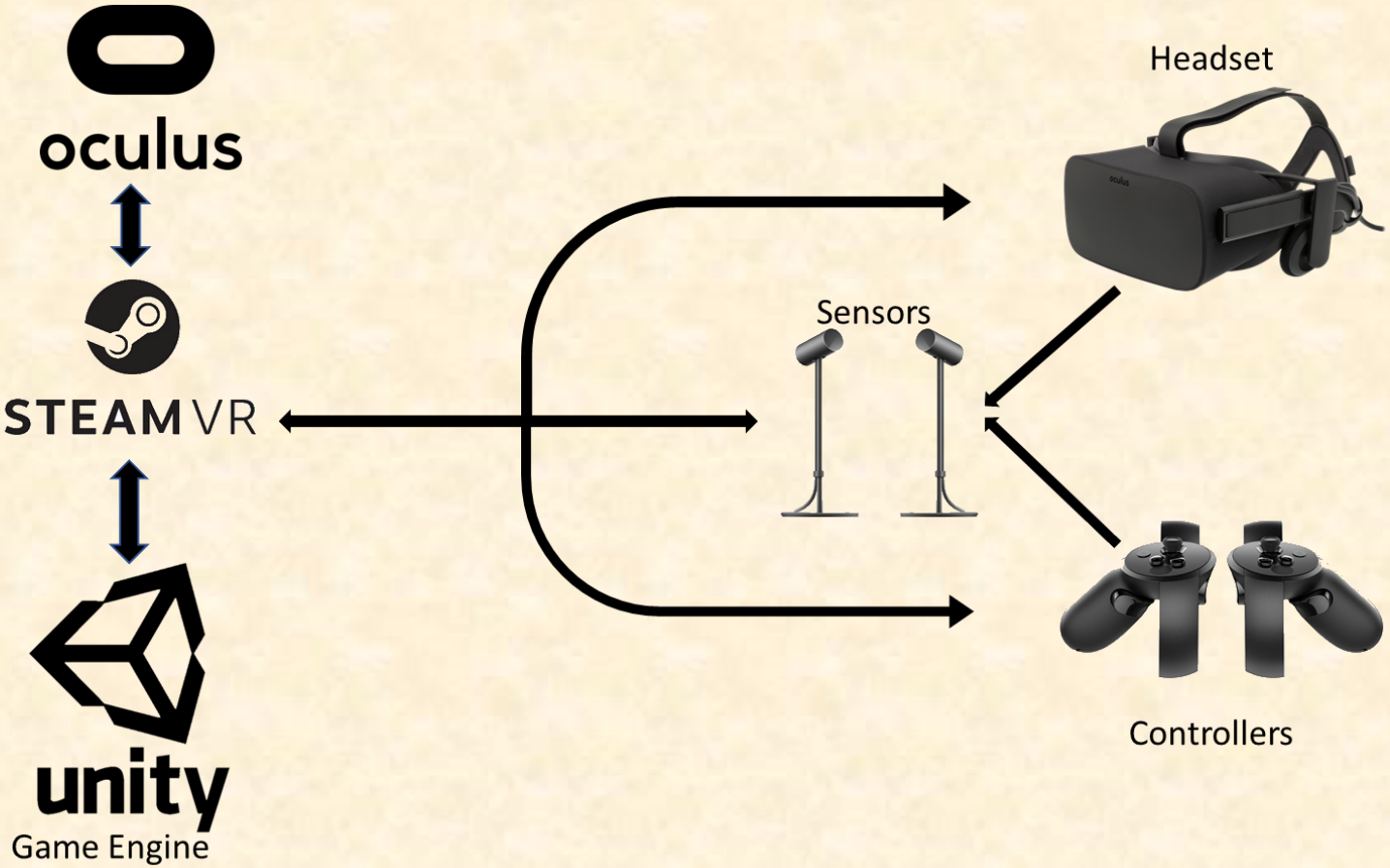
Screen Mockup: Item tagging (after)

Screen Mockup: Review Scene

Technical Specifications

- Unity is the engine we'll use to build the game and program all of the features
- The hardware is the Oculus Rift headset, two touch controllers, and two sensors
- We'll also use SteamVR, an open-source template to implement basic VR interactions

System Architecture



System Components

- Hardware Platforms
  - Oculus Rift
  - Windows 10 Desktop
- Software Platforms / Technologies
  - Unity Game Engine
  - SteamVR
  - C# - Visual Studio

Risks

- Motion Sickness
  - VR can cause sickness through lag, inefficient programming, etc.
  - Mitigation: Constant testing, minimizing code called within Update function.
- Recognition of Interactable Objects
  - Objects could be interactable as well as taggable, and distinction might not be clear
  - Mitigation: Interactable objects will have different highlight/effect, ask user preference
- Differentiation of Changing Objects
  - Some objects will change between rounds (i.e. sink working in one round, broken in another)
  - Mitigation: Each object state will have a unique model/object, will work with item generation
- Retention of Knowledge
  - Players may focus more on learning the game mechanics rather than the actual business practices
  - Mitigation: Randomized locations and appearances of objects, different interactions every round.

Questions?