Warehouse Simulator

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Final Project Presentation
Dec 3rd, 2020

What is Warehouse Simulator?

Description: You're a warehouse worker! Drive your forklift around a 3D warehouse to pick up and deliver pallets of goods from one location to another. See how fast you can deliver with increasingly complicated pick-up and dropoff locations. How good are you at multitasking? Manipulate the front-end of your forklift with intuitive drag-and-drop functionality.

Purpose: The purpose of Warehouse Simulator is to culminate all the concepts we have learned in CSS 451 into one final project that, while complex under the hood, is fun and easy to play! Warehouse Simulator will be a meaningful, interactive application with a friendly layout and intuitive UI which will allow users to operate a forklift in order to pick up and deliver pallets of goods around a warehouse. With multiple viewing angles, an easy-to-use drag-and-drop design, instinctive steering controls, and helpful lighting control, users must deliver the goods with care (and a little bit of speed) in order to beat the clock!

Layout

The player sees the warehouse from the perspective of their forklift

- The **Main Camera** looks down upon the forklift
- The **Secondary Camera** looks from a side-profile and only takes up the views corner.
- As the player traverses the world, both cameras follow the forklift
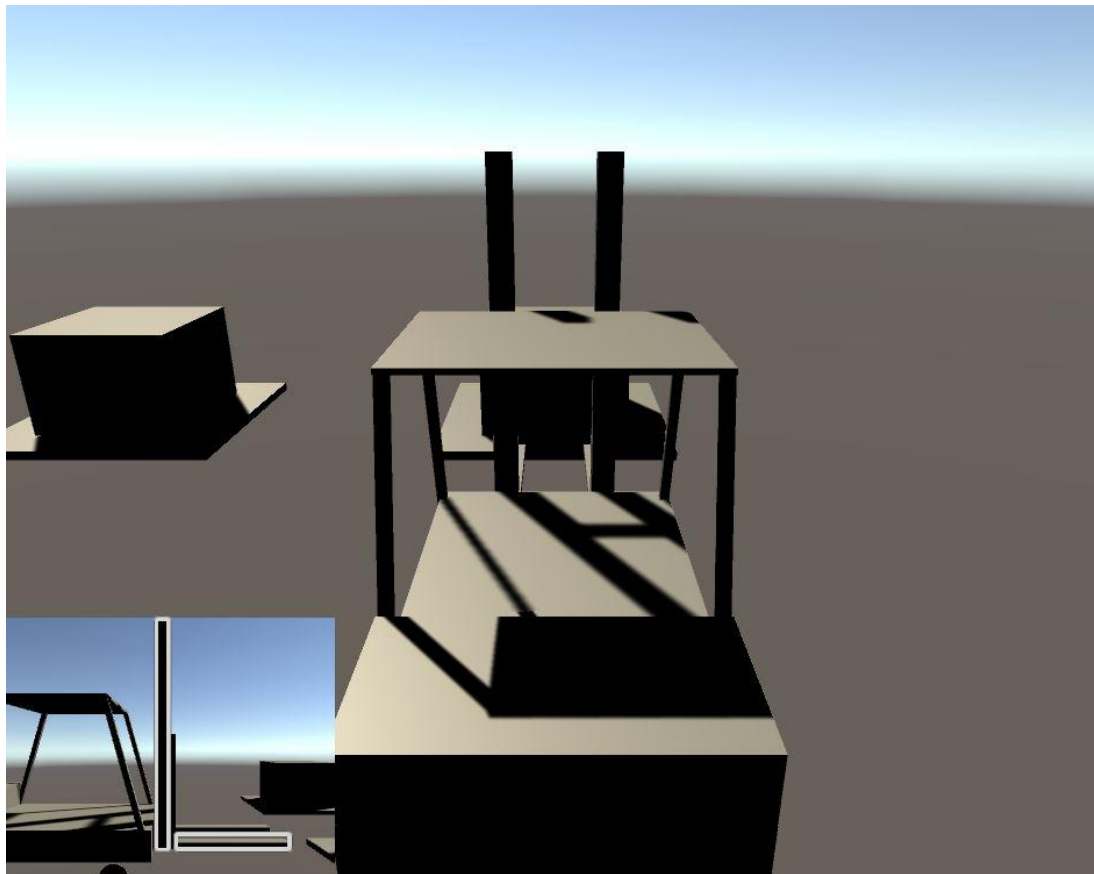
SceneNode Hierarchy

3 Generations of SceneNodes exist in Warehouse Simulator
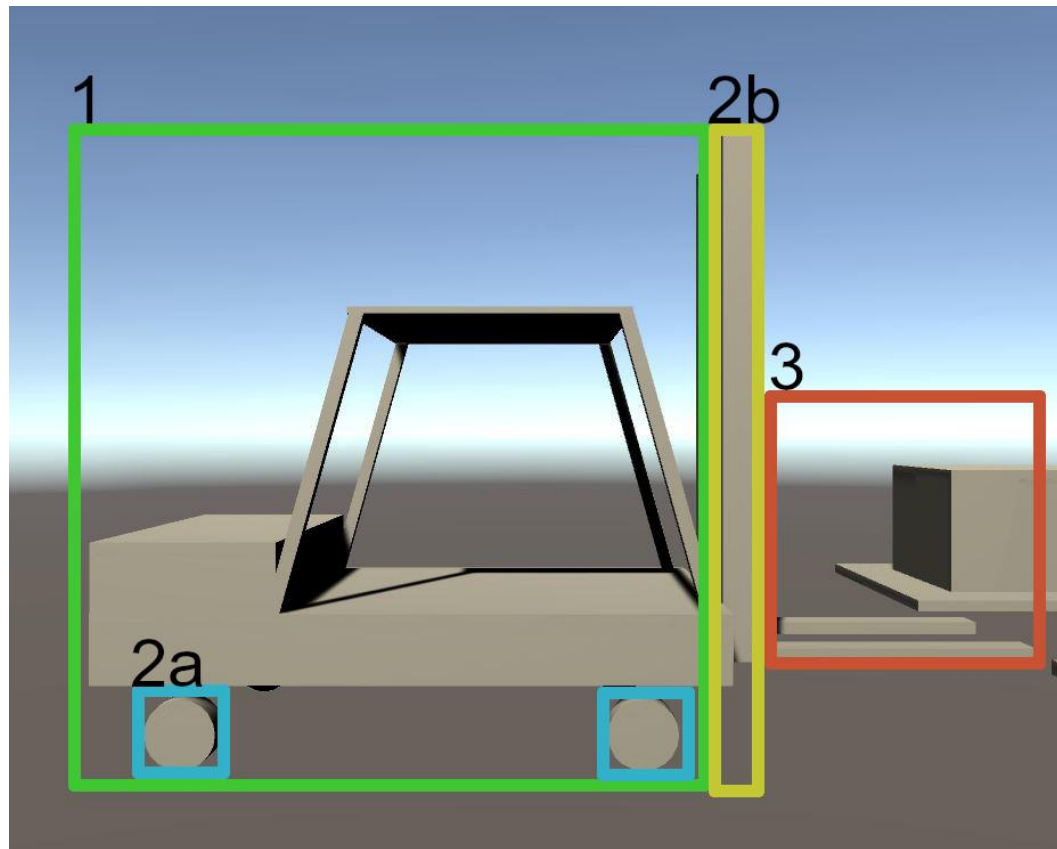
1: Forklift Body

2a: Wheels

2b: Front-end

3: Forks

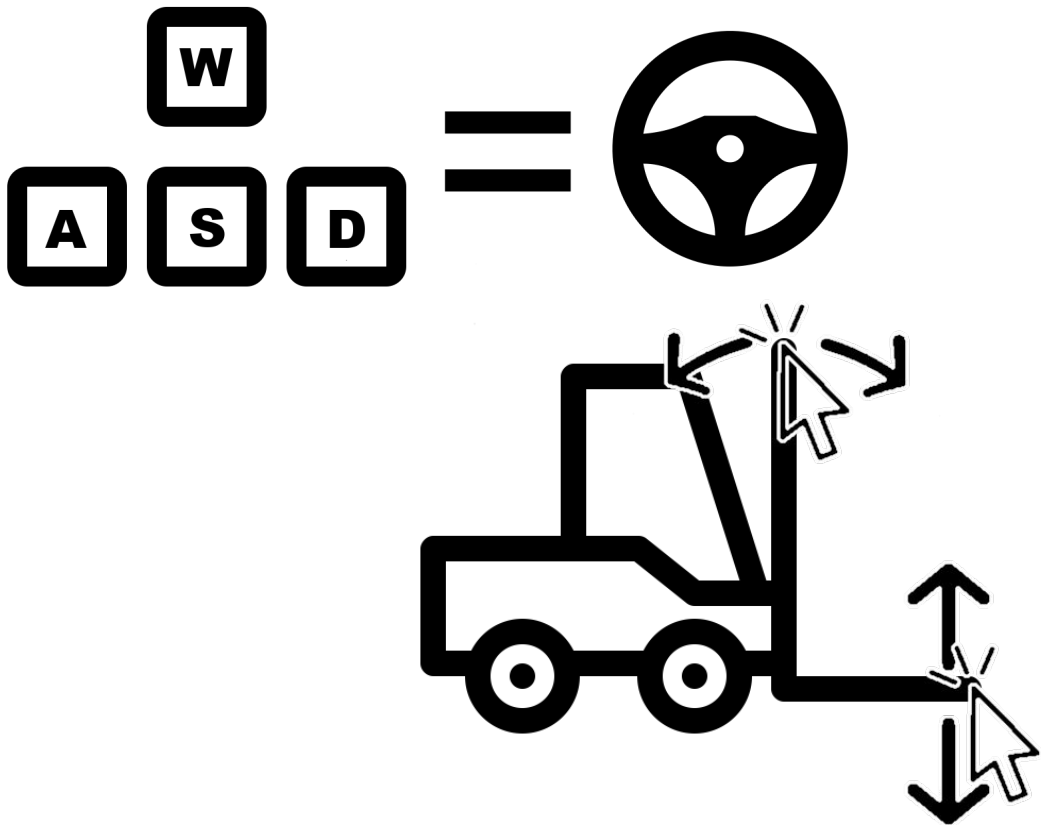The Wheels and Front-end are children of the Body

The Forks are children of the Front-end

SceneNode Manipulation

The Player interacts with the SceneNode Hierarchy by:

1. Driving the Forklift using the WASD keys
2. Tilting the Front End by clicking and dragging it
3. Moving the Forks vertically by clicking and dragging them

Object Interaction

Using the Forklift, the player shall interact with:
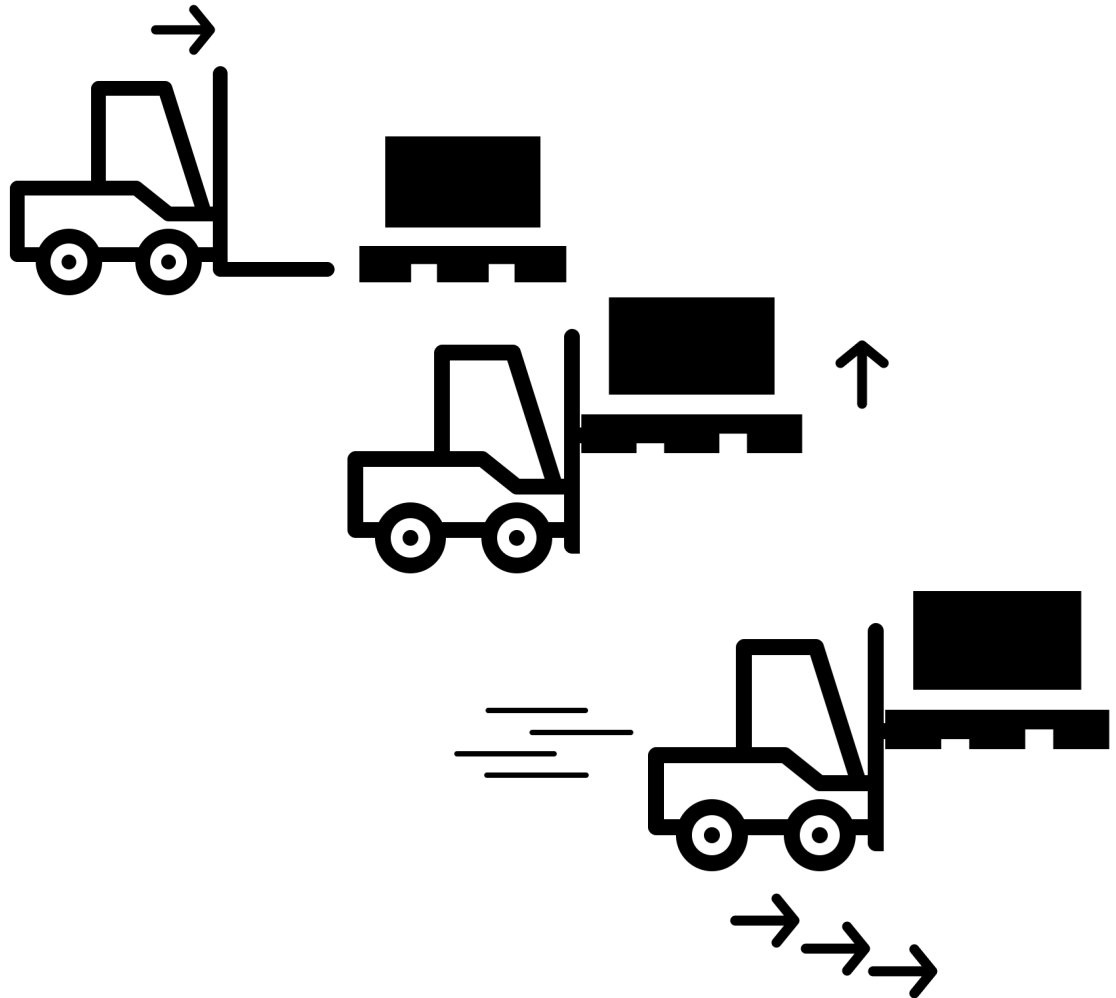
1. Pallets
   a. The Forklift will slide Forks under, lift, and carry pallets
2. Shelves
   a. The Forklift will run into Shelves
3. Warehouse walls
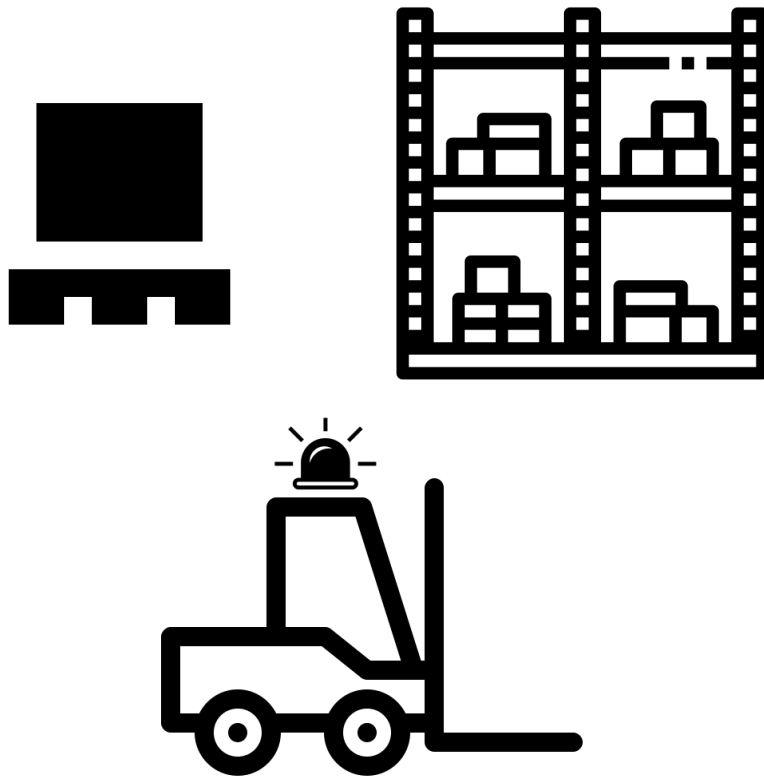   a. The Forklift will run into Warehouse Walls

Texturing and Illumination

Texturing

- The Forklift, Shelves and Pallets will be textured using the 451Shader

Illumination

- The Forklift will have a beacon light on its roof to help the player see where they are going

Camera Views

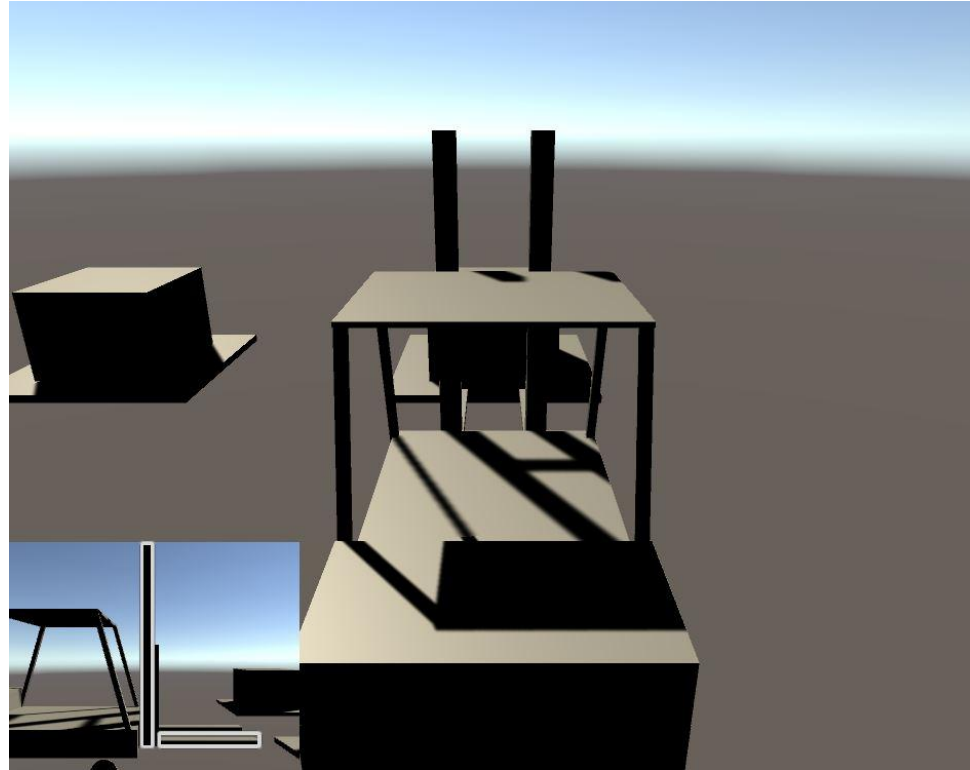Warehouse Simulator consists of two views:

1. **Main Camera**

   The Main Camera will be used for navigating the warehouse.
   The player will be able to tumble the Main Camera

2. **Secondary Camera**

   The Secondary Camera will be used for manipulating the front end and the forks.
   The player will be able to Trolley the Secondary Camera

Timeline

Nov 24: Proposal Due
Nov 26: Scene Hierarchy Setup
Nov 28: Cameras Setup, Main Camera Manipulation
Nov 30: Driving, Pallet Model
Dec 2: Front-End Manipulation
Dec 3: Shelf Model
Dec 5: Forklift Model, Object Collision, Progress Demo Complete
Dec 7: All Pallets Layout, All Shelves Layout
Dec 8: Progress Demo Debut
Dec 10: Full warehouse model, Lighting and Texture
Dec 12: Secondary Camera View and Manipulation, Final Demo Complete
Dec 15: Final Demo and Submission

Extra Features (To be completed only if time permits):
1. *Game Timer*
2. *Boss Dialogue*
3. *Rudimentary Object Physics*

Attribution

- **arrow keys** by b farias from the Noun Project
- **Steering Wheel** by W. X. Chee from the Noun Project
- **Forklift** by joe pictos from the Noun Project
- **Cursor Click** by Florent B from the Noun Project
- **Pallet** by Alex Fuller from the Noun Project
- **beacon** by b farias from the Noun Project
- **Shelves** by Petai Jantrapoon from the Noun Project