

Omniglass Factory: Game Documentation



Team Omniverse

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Introduction

Overview

OmniGlass Factory is a 3D factory management simulator game that focuses on realistic physics, visuals, and small management minigames. The goal of the game is to smoothly produce products and fulfill orders on time with minimal errors. The game is meant to be a fun, semi-stressful management game that teaches the player an abstract version of a factory's process. Starting from raw materials and seeing the real-time process a product goes through to be completed and shipped out.

Story

The game takes place in the modern-day, inside a glass-making factory that consists of a set of 6 stations as later defined in this document. The player works for a large corporation that creates glass products such as bottles, jars, etc. Due to the corporation's investment in AI and wanting to play for fewer workers, you are the only human in the factory. To ensure that you can access all machines within the factory and waste less time walking, you operate a camera system on rails. This camera system is attached to metal beams and spaced out to allow users to access all machines with a clear view of them and bottles as they are being created. The camera allows the user to click on machines to remotely open their interfaces and alter their settings. Once again to minimize human labor, AI robots are deployed that move completed orders and clean messes on the factory floor.

Gameplay Overview

The player is given the order requests by the company to be finished by the time the day has passed. The days consist of the player constantly managing the machines so the desired bottles can be produced. The player starts on the side nearest the raw resources and can move throughout the factory using the ceiling-mounted rails. Each machine has two interface systems, that is maintenance and repair modes. Maintenance is used to change how the machine acts and the quality it outputs. Repair is when a machine has not been interacted with in a timeframe and breaks. The player plays the minigame to fix whatever issue is affecting the machine.

Features

- Effective management of each machine is necessary to obtain a high score for each bottle produced.
- The player is required to allocate their time efficiently among the machines, while also ensuring timely maintenance and repair of each one.

Gameplay

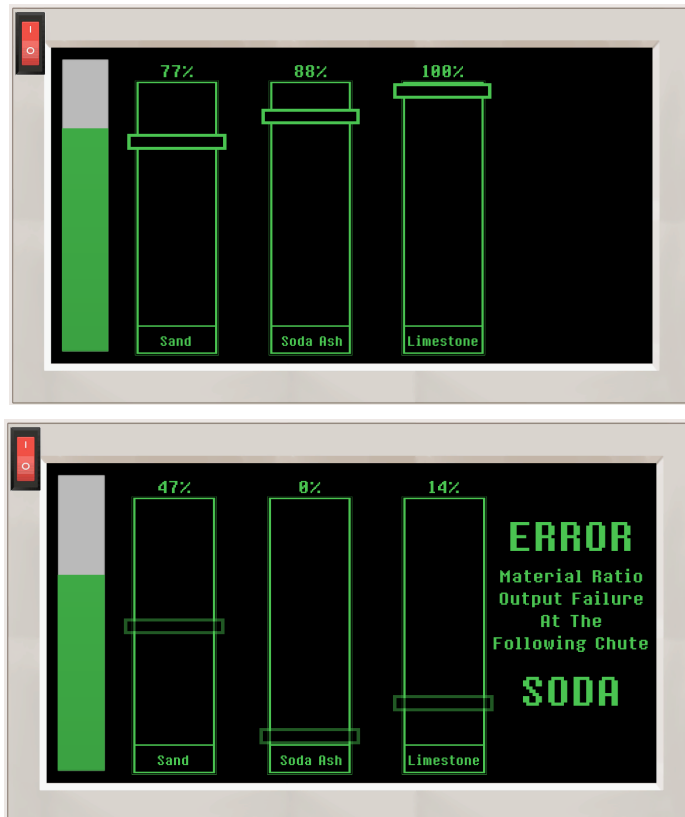
Game Flow


The game flow is based on the factory's different stations. The player will be tasked with running between them to make sure they are using the settings they want and repairing machines that are currently broken. The process starts with the delivery and distribution of materials into the furnace. Then the furnace melts the materials into molten glass that is periodically released. The molten glass is then cut by the glass divided which determines the amount of glass in the mold. In the mold, a nozzle is attached and pressures the glass to fit the current mold. Once released the bottles move and are cooled with a coolant. Finally, the bottles are ready to be shipped and packed into boxes.

Chute Management System



Maintenance

Three dynamic sliders allow the player to control the ratio of materials used in the bottle-making process, Sand, Soda Ash, and Limestone. These sliders are dynamic in nature and gradually shift downwards with the passage of time.

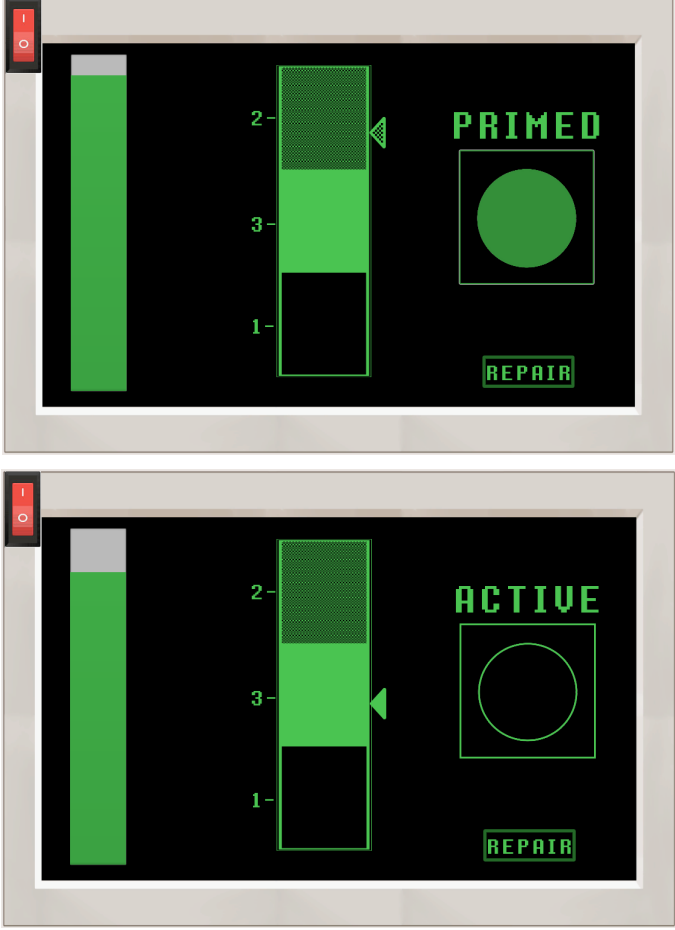


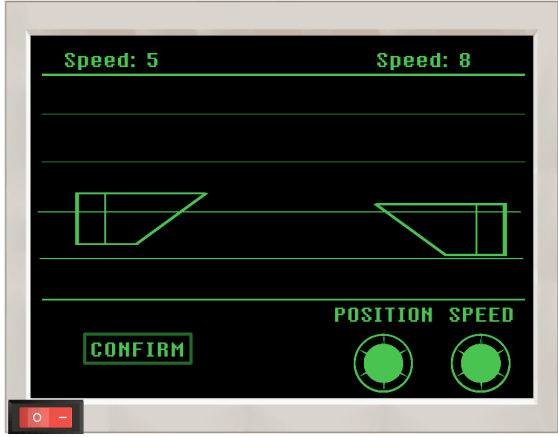
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| Problem | A potential issue that may arise during the game is the clogging of one of the chutes with material, which prevents the specific material from being mixed with others until the chute is fixed. |
| Repair | <p>To resolve this issue, the player must engage in repeated interaction with the clogged chute to remove the blockage and ensure that all materials are properly mixed.</p>  |
| Default Animation | By default, the game displays a static animation of sand-like material flowing out of three separate chutes and into a reservoir. |
| Repair cue for the problem | Foggy sand particle animation around the clogged chute that plays until fixed |
| Consequences on bottle quality | Failure to create glass if missing one component entirely. The closer to the preferred ratio the more glass is produced |

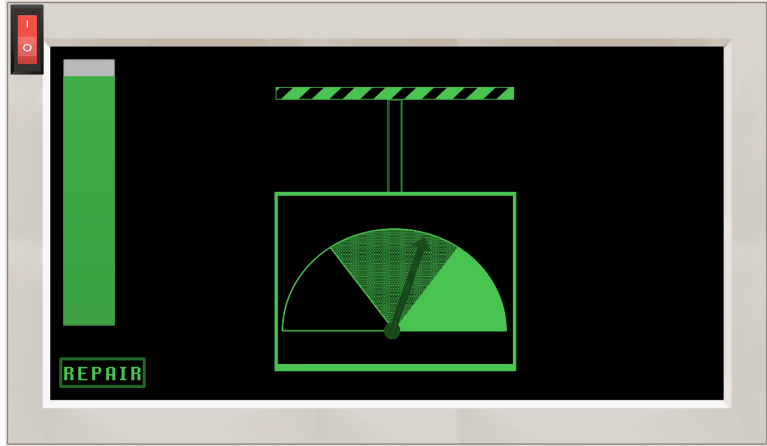
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| Heat Control Module | |
| Maintenance | The Heat Control Module features an indicator of temperature and two buttons that allow the player to increase or decrease the temperature. By default, the temperature gradually increases over time. |


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| Problem | There is the risk of the entire machine overheating. If the temperature becomes too high, the module will detect this and activate a short circuit, which will put the machine into safe mode. |
| Repair | <p>To fix this issue, the player must locate and flip the circuit breaker switches to match a digital note.</p>  |
| Default Animation | The machine spins and produces smoke and fires |
| Repair cue for the problem | When the machine is in safe mode due to overheating, it will produce an alarm sound, which serves as a cue to the player that there is an issue that needs attention. |
| Consequences on bottle quality | When the machine overheats the production line will be halted, and no glass will be produced, resulting in a loss of points for the player. |

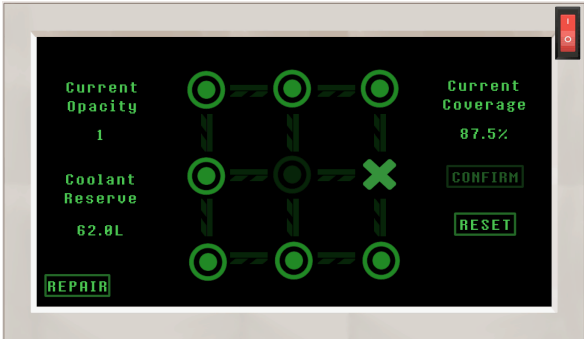
Glass Divider System

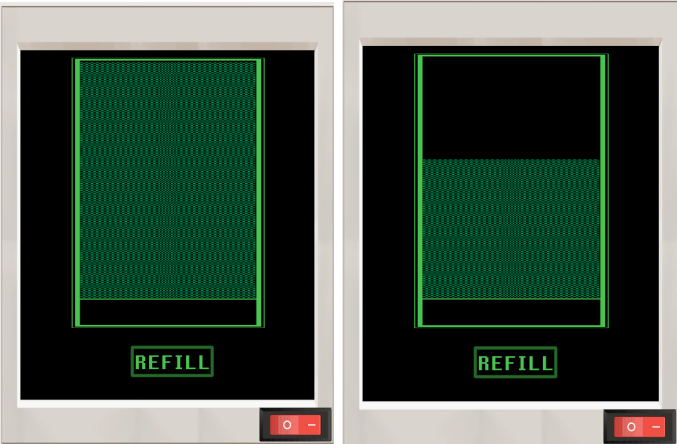
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| <p>Maintenance</p> | <p>The Maintenance module includes a bar with a range of values and an arrow that moves up and down. By clicking a button, the player can lock the amount of glass that will be produced for the next minute.</p>  <p>The image displays two screenshots of a game interface for a maintenance module. Both screenshots show a vertical green bar on the left, a central control panel with a green bar and a green arrow, and a 'REPAIR' button at the bottom right. The top screenshot is labeled 'PRIMED' and the bottom screenshot is labeled 'ACTIVE'.</p> |
| <p>Problem</p> | <p>A potential issue that may occur during the game is the inability to cut the glass and/or failure to deliver the glass to the molds for bottle production.</p> |
| <p>Repair</p> | <p>To address this issue, the player must align the cutting arms on one side of the machine to match the other, adjusting the knobs for speed and position as needed.</p> |

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| Consequences on bottle quality | The thickness of the glass used in bottle production is directly related to the amount of glass cut. If the issue with the cutting arms is not resolved, the thickness affects the quality of the final product. |

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| Pressure Station | |
| Maintenance | <p>The Maintenance module features a bike pump that constantly loses pressure and must be pumped by the player</p>  |
| Problem | One potential issue with the bike pump is that the pressure can become either too high or too low, affecting the quality of the glass produced. |

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| Repair | <p>To fix this issue, the player must locate the valve on the pressure station and spin it to increase or decrease the pressure as needed.</p>  |
| Consequences on bottle quality | <p>The quality of the glass bottle produced is directly related to the pressure of the system. If the pressure is too high, the glass can become brittle, while too little pressure can result in deformed glass.</p> |

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| Bottle Cooling System | |
| Maintenance | <p>The Bottle Cooling System requires the player to start from the active node and activate the adjacent node that is connected to the highest number of nodes until reaching the ending X.</p>  |
| Problem | <p>One issue that may occur during gameplay is the coolant running out after cooling bottles</p> |

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| Repair | <p>To address this issue, the player must refill the coolant by holding down a button until it is full.</p>  |
| Consequences on bottle quality | <p>If the bottles are not sprayed correctly, they may not be as clear as needed, negatively impacting their quality.</p> |

Controls

- The player can move using the WASD keys, and the camera view can be adjusted by moving the mouse.
- To interact with machines, the player must be near the target machine and press the E key.

Bottle Qualities on a Scale of 1-3:

Thickness/Weight:

Rated on a scale of 1-3, with 1 indicating very light bottles, 2 indicating heavy bottles, and 3 indicating average weight bottles.

Brittleness:

Rated on a scale of 1-3, with 1 indicating heavy cracking, 2 indicating deformed bottles, and 3 indicating no cracks.

Clarity:

Rated on a scale of 1-3, with 1 indicating opaque bottles, 2 indicating semi-opaque bottles, and 3 indicating clear bottles.

Prices:

The prices of the bottles are based on both their quality and quantity. For example, on average, bottles that are rated as having an average weight, no cracks, and clear will sell for the highest price. Conversely, bottles that are rated poorly in any of the three categories will likely sell for a lower price.

Interface Design

All interfaces in the game are designed with a retro aesthetic, featuring a combination of dark backgrounds and bright green text. The player's HUD (heads-up display) will include the current day number, time of day, and the day's profits. When interacting with a machine, a small application window will appear, providing the player with relevant information about that particular machine.

