

ThinkFast VR

Fate Hardin and Jay Downing

What is it?

A WarioWare-inspired VR game.



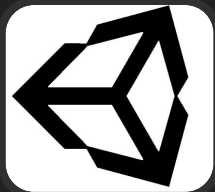
Fast-paced, endless minigames!

Why did we make it?

- Virtual Reality lends itself to full-body, reflex-based gameplay.
- SteamVR makes developing VR games in Unity approachable.
- Endless potential for adding new content: more minigames!

What tools did we use?

Unity



Real-time game development suite.

Includes built-in physics engine, rendering engine, etc.

SteamVR



VR platform created by Valve.

The SteamVR Plugin for Unity provides numerous utilities for game development.

C#



Object-oriented language, used for scripting objects in Unity.

GitHub



Version control service with many other useful organizational tools.



More on SteamVR

The SteamVR plugin for Unity provides:

- Hand Rendering and Interaction
- Controller Support and Control Mapping
- Scene Loading and Transitions
- Player Camera Control

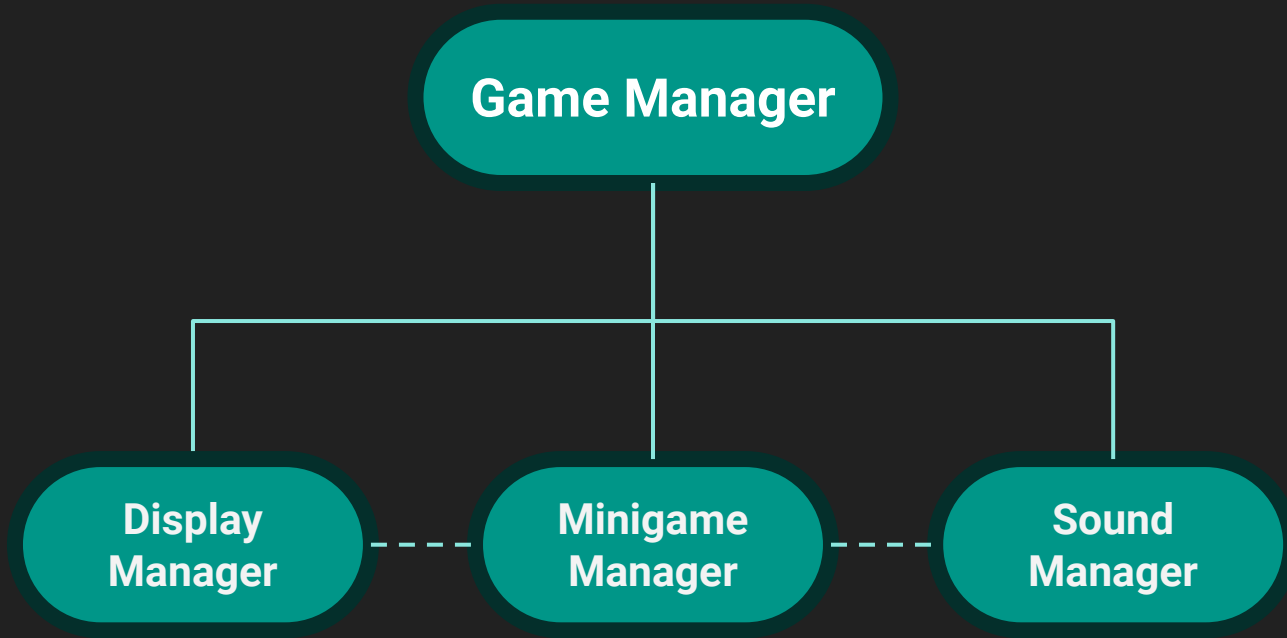
Equipment Used

- Valve Index HMD
 - Internal motion tracking
- Valve Index Controllers
 - Full finger tracking
- Valve Index base stations
 - External motion tracking



How does it work?

Project Structure



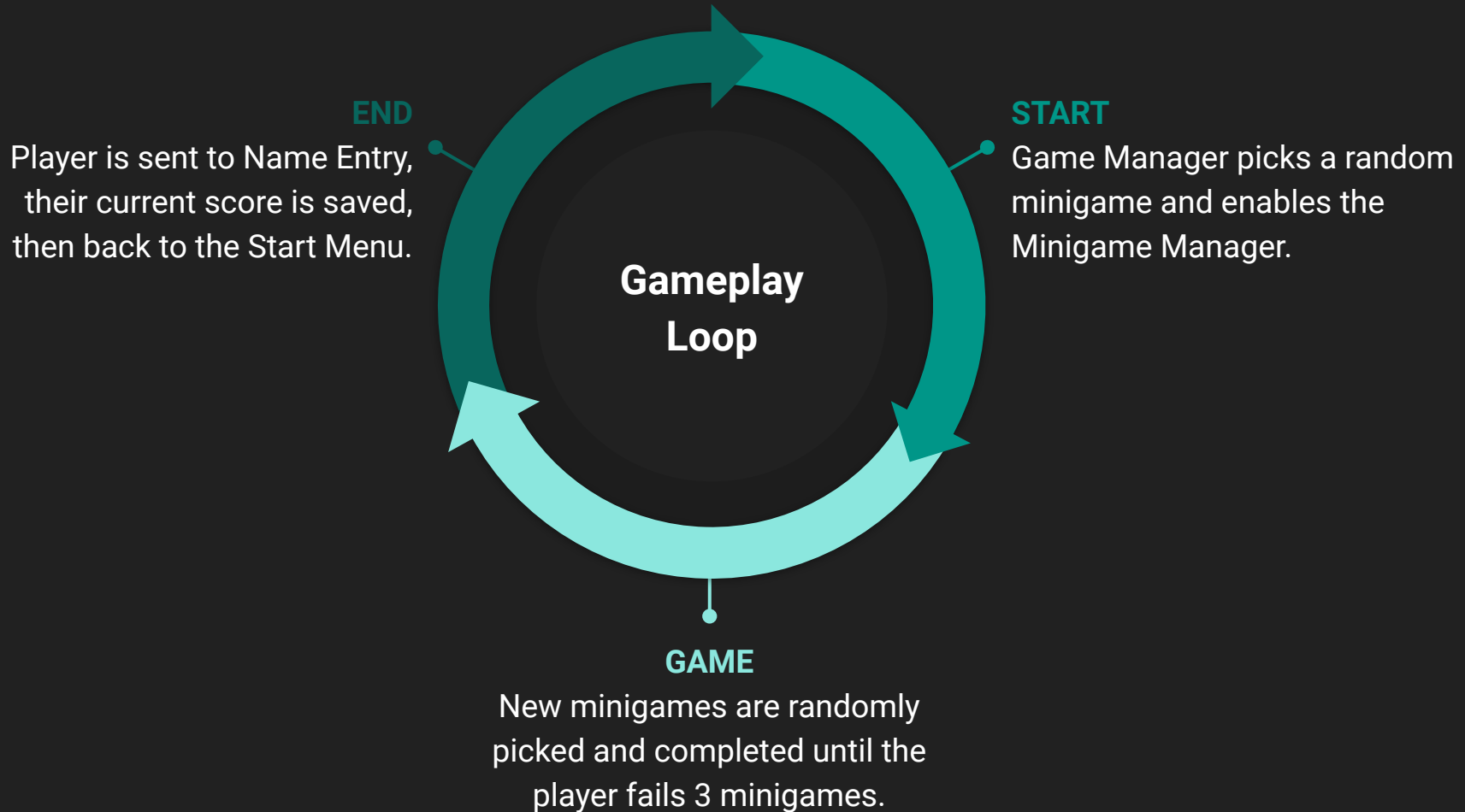
Structure Overview

Game Manager - Manages *player stats*, *game state*, and *scene management*.

Minigame Manager - Manages only the *current minigame* and related objects.

Display Manager - Manages the *in-game displays*, such as the score counter.

Sound Manager - Manages both *game music* and *sound effects*.



Minigames

Minigame Overview

The Game Manager picks each successive minigame from a list of scenes.

Each minigame scene must minimally contain:

- **Ready Objects** - Objects needed **before** the minigame starts.
- **Minigame Objects** - Objects needed **during** the minigame.
- **Displays** - Time countdown, score, and strike displays.

Usually, a single Ready Object is used to display the name of the minigame.

Ready Objects are disabled after ~1.5s and Minigame Objects are enabled.

What minigames are there?

- Catch
- Clean Up
- Don't Move
- Press The Buttons
- Sort
- Repeat
- Hit The Bottles

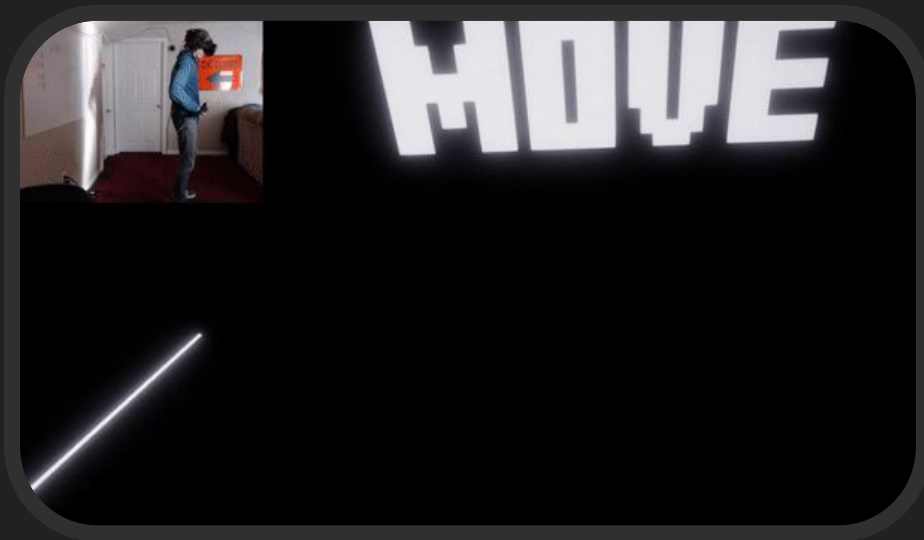
Catch

- Spawn ball above the player
- Each frame:
 - Check if the ball has a parent
 - If so, complete the minigame
- If the ball touches the floor, fail



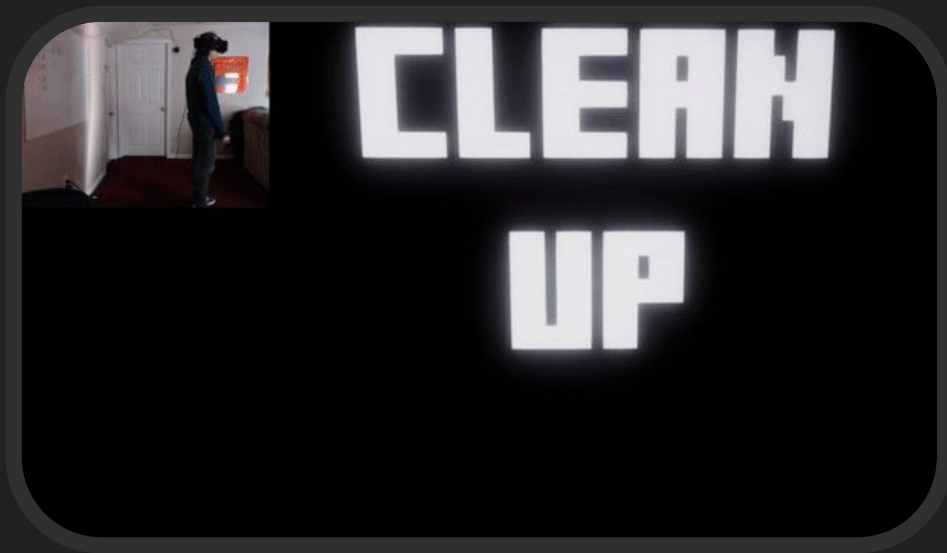
Don't Move

- Get position of the headset and each controller on each update (updates every ~50ms)
- If the headset or either controller move more than a small amount between updates, fail the minigame



Clean Up

- Assorted trash is spawned at random points around the player
- Must throw away at least the number of items shown
- Number of items to throw away scales with player score



Press The Buttons

- Start by lighting a random button
- Upon pressing a lit button:
 - Increment score, check if complete
 - Light up a new button
- Number of buttons to press scales with player score



Sort

- A primary and secondary color are picked from a preset list of colors
- Each cube and bin is randomly assigned one of the two colors
- Once all items are in the correct bin, complete the minigame



Repeat

- A random pattern is generated, increasing in length as the player's score increases
- The pattern is shown more quickly as its length increases
- Upon recreating the pattern, the minigame is complete
- Any wrong presses cause a failure



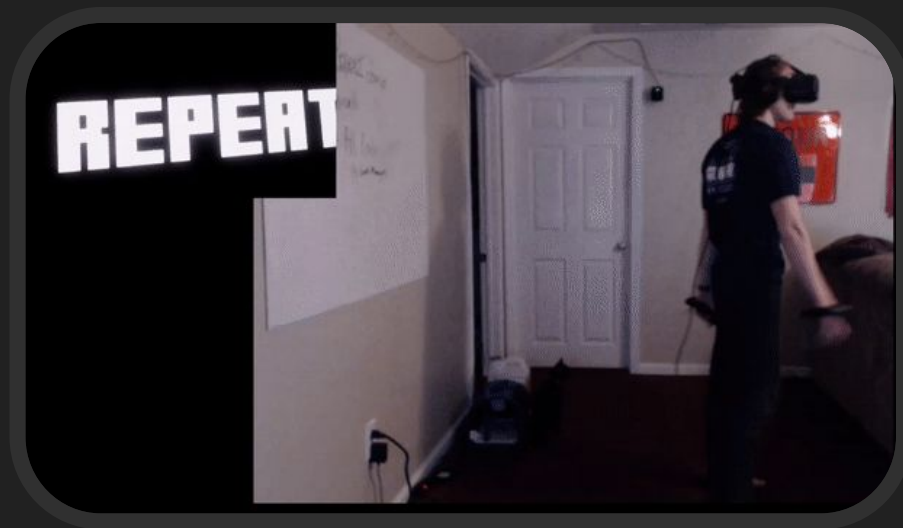
Hit The Bottles

- All bottles must be knocked off the table to complete the minigame
- The number of balls to throw decreases as the player's score increases
- A player with 0 score is given 8 balls, a player with 128+ score is only given a single ball

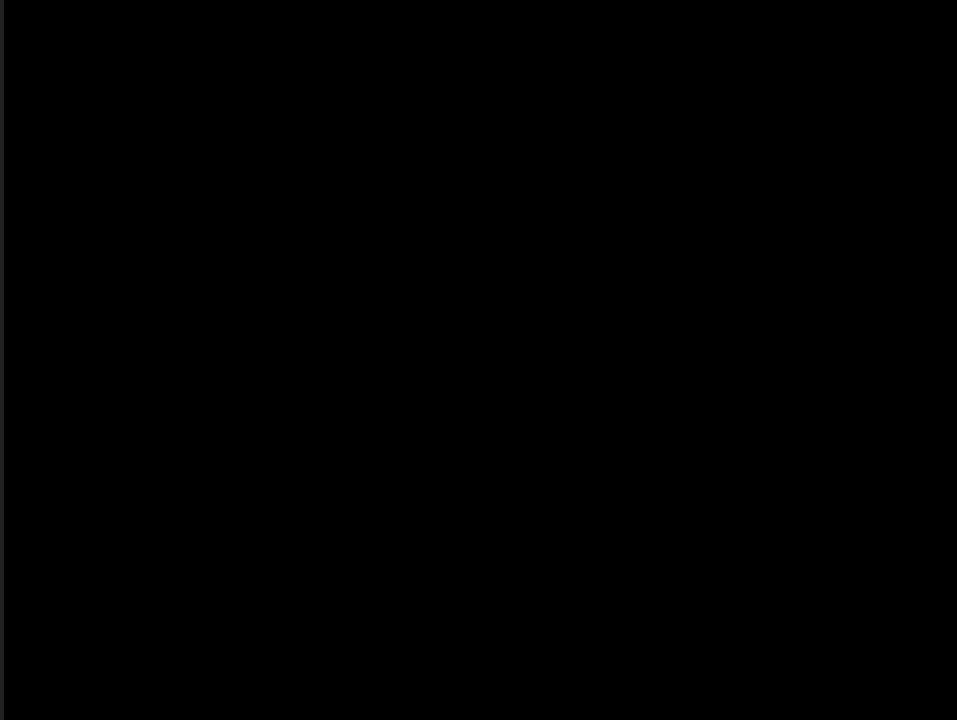


Current Features

- 7 Minigames
- Difficulty Scaling
- Custom Menu Music & Effects
- Locally-Stored High Scores



Current Version



Future Plans

- Splash Screen
- Professional art and assets
- More Minigames
- Steam Integration (achievements, etc)
- Progression & Unlocks

Who are we?

Jay Downing

bryjdown@ut.utm.edu

- Undergrad at UT Martin
- Aspiring game developer
 - Big fan of WarioWare

Fate Hardin

joshhard@ut.utm.edu

- Undergrad at UT Martin
- Aspiring SpaceX employee
 - Has a VR Headset

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Release Date: TBA