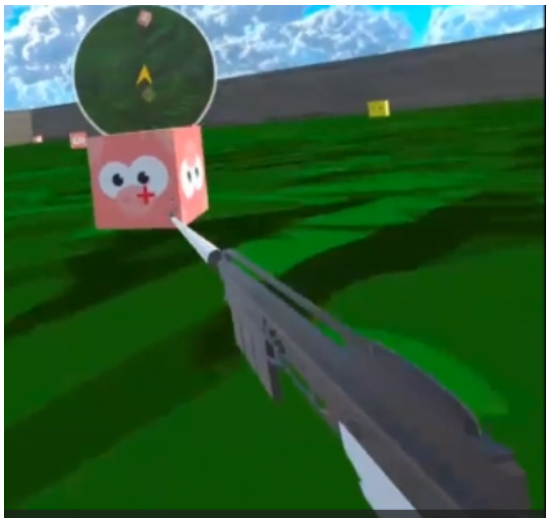
Helping Bettina Cook in VR Documentation

Team Name: JEMM Studios
Team Members: JP Suh(js4777), Eric Song(ys3069), Min Kim(jk4449), Yupeng Yang(yy3303)

Overview



Representative Screenshot

Eric, Min, Matt, and JP agree to the usage of our media and names online.

Eric, Min, Matt, and JP are willing to have their names appear next to their presentation of their work on the project web page and video for COMS W4172.

1. Introduction
    1.1. Overview of the Game

    While Bettina has many teams cooking for her in VR, she doesn't have anyone gathering the necessary ingredients. To address this critical gap, we built Hunt & Harvest, a VR game where the player hunts animals and collects vegetables. The user's goal is to collect the animals or vegetables specified in the quota, in their exact types and amounts. In order to do this, the player must approach the targets using the necessary travel and wayfinding techniques (e.g. minimap) and subsequently capture the targets using the provided selection and manipulation techniques (e.g. tranquilizer, knife, basket). These techniques are further discussed below.

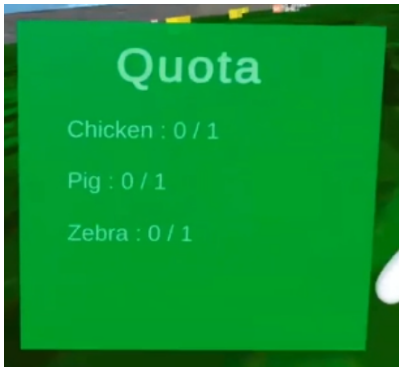
2. Scenes

2.1. Start Scene

The game offers two modes: Meat Lover mode (where the player must collect the specified animals) and Vegetarian mode (Where the player must collect the specified vegetables). The start scene allows the player to choose between these two modes. There is also a “Quick Guide” button on the bottom left corner that outlines all the controls and necessary instructions.

2.2. Gameplay

Once the player enters one of the two game modes, the player is given a quota to fulfill (e.g. 2 zebras, 3 chickens, and 2 pigs). The user’s goal is to capture all targets specified in the quota.



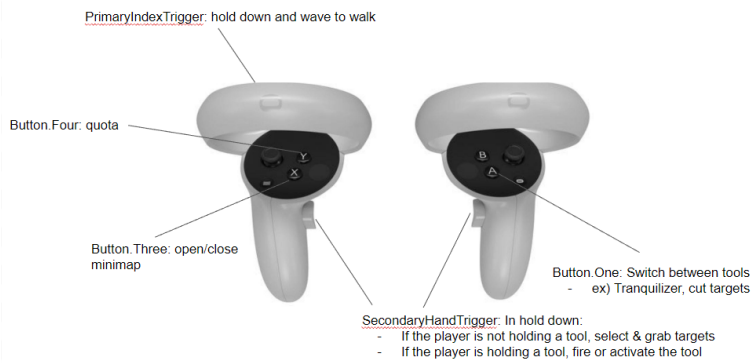
2.3. End Scene

Once the player captures all targets specified in the quota, the game is complete. The user can then press the ‘B’ button at any time to return to the start scene.

Description of 3D interactions

3. Player Movement (Travel)

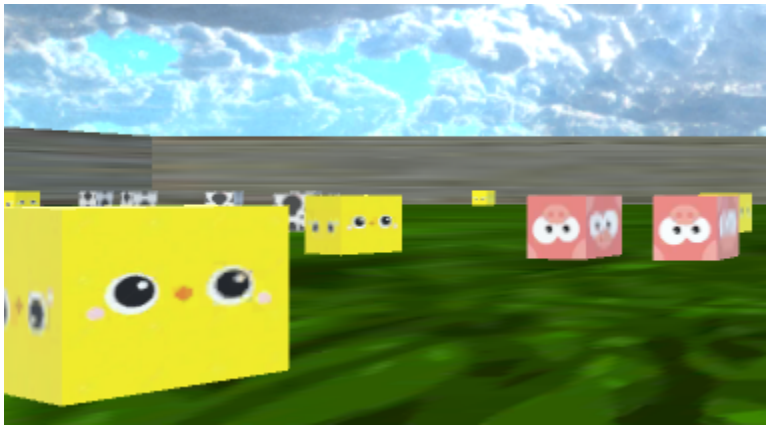
The player is able to walk with the left index controller holding and wave arms to walk. The walking velocity is determined by how fast and how far the user waves their arms.



4. Meatlover Mode

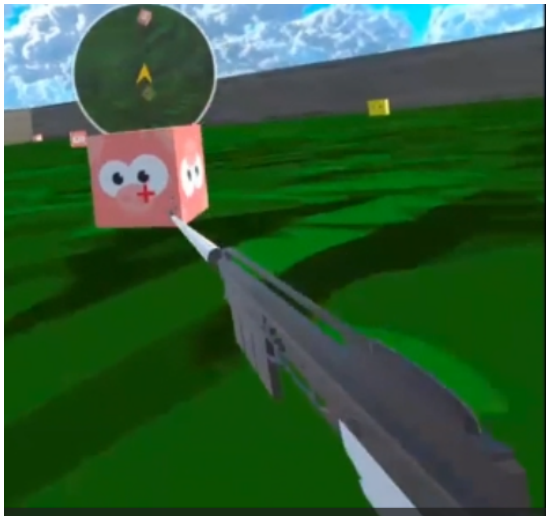
4.1. Animals

There are chickens, pigs, and zebras. Each animal has a distinct look, speed, and sound, which is originally recorded using the team members' voices. Each animal can be collected by (1) approaching the animal by traveling, grabbing it from a grabbable distance, and putting it into the basket, or (2) using the tranquilizer to shoot it from a distance, approaching the tranquilized animal, and putting it into the basket. The tranquilizer has a maximum distance it can shoot from, and a crosshair target will be displayed on the animal when the player is in a shootable range from the animal.



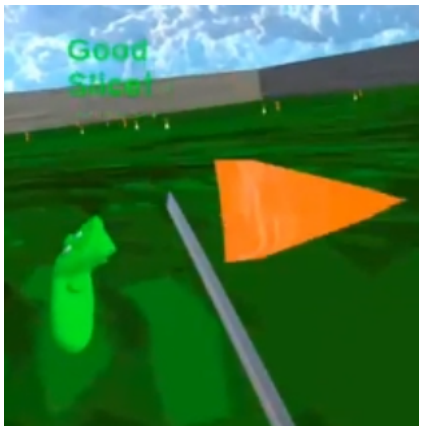
4.2. Tools

The player can use either bare hands or a tranquilizer. He or she can switch between the two tools (refer to **section 6**).



5. Vegetarian Mode
    5.1. Vegetables

    There are parsnip, daikon, and carrot. Each vegetable has a distinct appearance and is rooted in the ground (stationary). Each vegetable can be collected by (1) pluck it out of the ground, (2) slice the vegetable in a way that cuts out the un-edible parts (leaf & stem), and (3) put the edible part (taproot) into the basket. If the user does slice in the right way, a canvas feedback will appear in front of the user displaying “Good Slice!”. Then the user can pick up the edible part into the basket, and the quota will be updated. If it was not sliced in a right way, the canvas feedback displaying “Bad Slice!” will appear. The user won’t be able to pick up any of the sliced parts. He or she should travel to the next available vegetable and make another slicing attempt.



    5.2. Tools

    The player can use either bare hands or a knife. He or she can switch between the two tools (refer to **section 6**). The knife tool won’t affect the

vegetables if the vegetables are not plucked from the ground (still stuck in the ground). The knife tool will only slice when the vegetable is plucked out from the ground. The slicing feature is enabled by using an additional ‘sliceable’ layer, manipulating is_kinematic values, and identifying slice planes using a transparent, invisible rectangular plane that is attached to the knife.

6. Switching between Tools

The player can switch between tools using the ‘A’ button. Once the ‘A’ button is pressed, mini examples of available tools will appear next to the player’s controller. Still pressing the mini examples, the player can hover over the desired tool and let go of the button to select that tool. When the player is hovering over a tool, the tool will turn red to indicate that it is ready to be selected. If the player is not hovering over the tool, it will remain its original color. Once the ‘A’ button is released, the mini examples will disappear. If the ‘A’ button is released and the player is not hovering over any examples, the player will continue to hold whatever tool they had before.

7. Minimap

7.1. Implementation

The minimap is a bird's eye, 2D view of the player's vicinity. The yellow icon at the center of the minimap represents the player, whose location in the minimap is fixed and always pointing north. Nearby targets are displayed on the minimap with respect to the player icon.

7.2. Method 1: Press the 'X' button

The player can press 'X' to toggle the minimap on and off. When displayed, the minimap will appear in the front center view of the player.

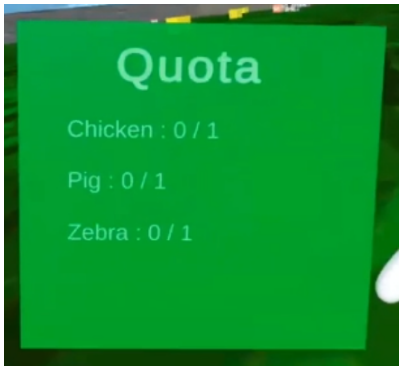
7.3. Method 2: "Look at watch" motion

The player can also load the minimap by displaying it on their left wrist with specific wrist motion (refer to **section 10**).

With the minimap on the player's wrist, the player can flexibly adjust the size of the wrist minimap by scaling it. The player can scale it by grabbing the minimap with two hands and moving the right hand outwards for expanding or inwards for shrinking. Once the minimap is scaled, it will stay scaled.

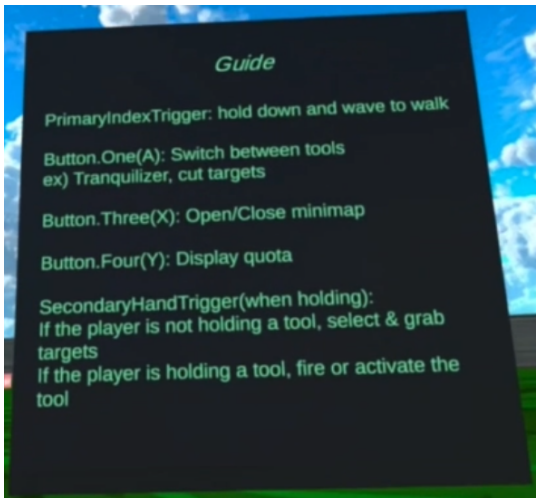
8. Quota

The user is able to display the Quota by pressing the Button.Four(Y) when they want to check the catching progress. The quota is real-time updated with the game. Once the quota is finished, a game end notification will pop up to indicate the success of the game.



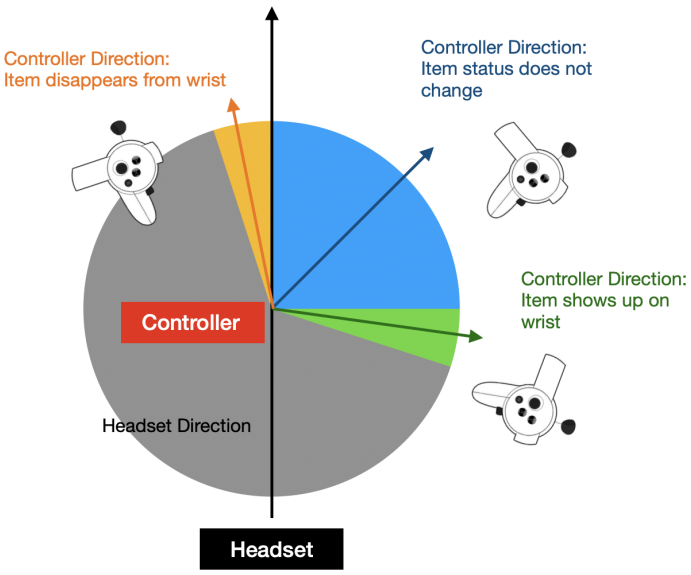
9. Display of Instruction

In the start menu, there's an instruction button located at the left bottom of the canvas. The player is able to check the instruction to quickly understand the control logic. If they want to check again after they enter the game, they can display it on their right wrist with specific wrist motion (refer to **section 10**).



10. Display on Wrist Feature

The player can display minimap and instructions on their wrist using this feature. The player can fold their left and/or right arm, so that the controller is perpendicular to the headset direction in birds eye view, to toggle minimap and/or instruction respectively. Once the item is toggled it should be displayed on top of the player's wrist. The player can remove the items from their view by unfolding their arm so that the controller and headset direction aligns. This means that the item will stay on the player's wrist once spawned, as long as the player's wrist angle is less than the aligned angle. Below is a diagram that shows the mechanism for left hand, and right hand would be the same but flipped horizontally.


Controller Direction:
Item disappears from wrist
Controller Direction:
Item status does not
change
Controller Direction:
Item shows up on
wrist
Controller
Headset Direction
Headset