

User Manual

Introduction

This guide contains instructions for how to use all of the product's features. Troubleshooting can be found below.

Minimum requirements of product

- Meta Quest 2
 - Or equivalent Head Mounted Device with Hand Tracking
- Two hands with all fingers

Launch Instructions

Make sure the project is installed beforehand. If not, see the Installation Guide.

1. Run the Meta Quest 2
2. Navigate to Files
3. Change the search filters to *Unknown Sources*
4. Select SmoothBrainers Capstone.

Usage instructions

ID	Task	Procedure
1	Activate Palm Menu	Tap the right index and right middle finger to the inside of your left wrist at the same time (mimic checking your pulse). Palm Menu must be in an inactive state.
2	Deactivate Palm Menu	Tap the right index and right middle finger to the inside of your left wrist at the same time (mimic checking your pulse). Palm Menu must be in active state.
3	Scrolling the Palm Menu Taskbar	Place the right index finger on the palm menu surface and drag horizontally in either direction.

4	Using a Button (universal)	Tap the right index finger onto the desired button. Button will flash white if selected. Smoothly release finger from surface to activate the appropriate menu.
5	Switching between Docked Menus	Activate the respective button on the Palm Menu taskbar. (See 4)
6	Pressing a button on the Docked Menu	Tap the right index finger onto the desired button. Button will flash white if selected. Smoothly release finger from surface to

Section 2: Entity Manipulation

Each of the following tasks require the appropriate Docked Menu to be activated. See 5 on how to complete this.

7	Spawn New Environment Entity	Select the chosen entity by activating the respective button on the Environment Docked Menu.
8	Drag Environment Entity	Grab and move the entity with either hand. Grabbing technique can be a pinch, clasp, or fist. Grabbable entities will be shaded slightly lighter to signal they will be picked up.
9	Place Environment Entity	Open the hand that is moving the entity. This will snap the entity to the y level of the table.
10	Clear Environment Entities	Select the "Clear All" button on the Environment Docked Menu.
11	Spawn, Drag, and Clear Weather	These actions are identical to the Environment actions listed above (7, 8, 10). Use the Weather Docked Menu.
12	Place Weather	Open the hand that is moving the entity. This will snap the entity to a suitable rotation, in the chosen position.

13	Spawn Controllable Unit	Activate the chosen unit's button in the Base Units Docked Menu.
14	Create Controllable Unit Path	Grab and Drag the unit in the chosen path above the table. Black waypoint markers will indicate the desired route to be taken.
15	Edit Controllable Unit Path	Grab and Drag the black waypoint markers. Release in desired position. <ul style="list-style-type: none"> • Ground unit waypoints snap onto table • Aerial unit waypoints remain fixed in 3D space
16	Clear Controllable Entities	Select the "Clear All" button on the Base Units Docked Menu.
17	Spawn AI Unit	Activate the chosen unit's button in the AI Units Docked Menu.
18	Reposition AI Unit	Grab and Drag AI unit to desired position <ul style="list-style-type: none"> • Ground units must be released on the table surface • Drones must be released slightly above table surface • Helicopters must be released slightly above drone height
19	Clear AI Entities	Select the "Clear All" button on the AI Units Docked Menu.

Section 3: Director Controls

Each of the following tasks require the Director Controls Docked Menu to be activated. See 5 on how to complete this.

17	Spawn New AI Target	Activate the Target button in the Director Controls menu.
18	Move Target	Target entities have the same properties as environment entities. Use 8 and 9 for references.

19	Play All Units	<p>Activate the Play button in the Director Controls menu.</p> <ul style="list-style-type: none"> • Non-AI units that have no waypoints will remain still • AI units with no Target present will remain still
20	Remove Everything	<p>Activate the Clear All button in the Director Controls menu.</p>
<p style="text-align: center;">Section 4: Painting</p> <p>Each of the following tasks require the Painting Docked Menu to be activated. See 5 on how to complete this.</p>		
21	Start Painting	<p>Select the “Start/Stop” button when it’s stopped to initialise painting. Pinch together your right index finger and right thumb to start painting.</p>
22	Stop Painting	<p>Select the “Start/Stop” button when it’s started to stop painting. You can also switch menus via the Palm Menu to stop painting.</p>
23	Show all Paintings	<p>Select the “Show/Hide” button when all paintings are not visible.</p>
24	Hide all Paintings	<p>Select the “Show/Hide” button when all paintings are visible.</p>
25	Change Brush Colour	<p>This will cycle through 4 colours (red, green, blue, and yellow). (See 4).</p>
26	Change Brush Width	<p>This will cycle through 3 set widths. (See 4).</p>
27	Clear All current Paintings	<p>Select the “Clear All” button on the Painting Docked Menu.</p>
28	Undo Last Action	<p>Select the “Undo” button on the Painting Docked Menu.</p>

Troubleshooting

Menus

- Palm menu has a cool down timer of two seconds. It cannot be activated, or deactivated for this time. This is done to prevent accidental activations.

AI Units

- Each unit must be placed at the appropriate height on or above the table. This is where their 'navigation surface' is for the unit to read navigation from.
- All AI units follow the same navigation mesh. This means if the infantry, troop transporter, or tank, cannot traverse the between locations, then neither can the helicopter or drone. As un-intuitive as it is, this was the best solution available. The development engine (Unity) was not designed with run-time changes to navigation surfaces in mind.

Controlled Units

- Creating a path for the controlled units will always begin at the first waypoint. The waypoints are placed after a short delay upon picking up the unit. Thus, quickly moving the unit to the beginning of the route is recommended. Keep in mind all waypoints can be dragged into more suitable locations.
- If a waypoint is too close to an environment entity, it will not be able to 'check it off'. This will prevent the rest of the path from being completed.