Calibration Tracking Project Setup Guide

1. Set Up the DoublescreenCameraManager Script

- Navigate to the **Cameras** object in the scene.
- Locate and open the **DoublescreenCameraManager** script component.
- Under the **Points** section, check in your project if it is divided by the **X = 0 (X_Axis)** or **Z = 0 (Z_Axis)** axis.
- Set the **Split By Axis** field accordingly.

2. Configure the Tracking Manager

- Go to **Managers > Tracking Manager** in the scene hierarchy.
- Open the **TrackingManager** script component in the inspector windows.
- Check the **Enable Tracking** checkbox.
- Set the **Path to Save the File** to the desired location for saving the calibration file.
    - This path must be the **same** in the project where the calibration will be used.
- Set the **Number of Players** to match the number of trackers you will have connected during calibration.
    - At least **one tracker** must be connected.
    - If more than one tracker is connected, **move each one individually** and observe the **UI** to identify **Tracker #1** (its position and rotation values will update in real time).
- Ensure the **Tracking** checkbox is **checked**.
    - If not, SteamVR will fail to establish a connection during build or runtime.

3. Perform the Build and Connect Trackers

- Build the project.
- Before launching it, connect the same number of **trackers** via **SteamVR** as set in the **Number of Players** parameter.
- Once connected, run the application.

4. Verify SteamVR Connection

- After launch, verify that **Position** and **Rotation** values are **not disabled** in the UI.
    - If they are disabled:
        - Ensure the number of connected trackers matches the **Number of Players**.
        - Verify that all trackers are correctly **paired** (re-pair if necessary).
        - Check SteamVR settings and reconfigure if needed.
        - Restart SteamVR or consult documentation if the issue persists.

5. Calibrate Overlap

- Before calibrating the trackers, ensure that the projection overlap is as accurate as possible. Follow these steps:
    - Use the **Up Arrow** key to **increase** the overlap and the **Down Arrow** key to **decrease** it.
    - Adjust until both projections align perfectly, where one ends, the other begins seamlessly.
    - Once aligned, click **"OK"** to save the overlap calibration in a file for later use in your project.
    - You can now proceed with the tracker calibration process.

Note: The cameras used in the tracking project and those provided in the template may have different configurations. However, they share the same parameters, so there's no need for concern if they appear different. In both cases, the overlap between the projections should still align correctly.

6. Run the Calibration Process

- With the project running and tracking confirmed, click **Start Calibration Process**.
- Complete the five guided steps:
    1. **Steps 1 to 4**:
        - Place the tracker **at the center of each projected circle marker**.
        - Make sure not to **block the base stations' view** of the tracker.
        - Click **OK** to proceed to the next step.
    2. **Step 5**:
        - Place the tracker at a **height of 1 meter**.
        - Use a measuring tool if possible and, ideally, perform this step with two people for accuracy.
        - If working alone, hold the tracker at the correct height and ensure it stays in view of the base stations.
        - Click **OK** to finish the process.

7. Confirm Calibration Results

- After completing the five steps, ensure that the **three calibration parameters** are no longer marked as **uncalibrated**.
- Test the calibration by **moving the cube in the scene** and verifying that its position aligns accurately with physical space.
- If results are not satisfactory, repeat the calibration process.
- In the other hand, if satisfactory click on **Save Current Calibration.**

8. Troubleshoot Calibration Failures

If calibration still shows as uncalibrated or produces incorrect alignment, possible causes include:

- **Incorrect tracking position** during one of the five steps
    - *Solution: Repeat the calibration carefully.*
- **Human error** in tracker placement
    - *Solution: Repeat the process with more precision.*
- **Bad projection alignment**
    - *Solution: Manually adjust by slightly offsetting the tracking positions to form a proper quadrilateral (ideally with near-90° angles), or re-align the projectors.*

9. Override Consistency Check (Last Resort)

- If the issue persists and cannot be resolved through recalibration or projector alignment:
    - Open the **TrackingManager** script.
    - **Comment out** the line responsible for the calibration consistency check, line 283, and take out everything inside the if condition.
    - **Warning**: This will allow a badly calibrated result to pass through, which can lead to significant inaccuracies in the tracking. It is **not recommended** unless absolutely necessary.