

Did You Hear That?

Adding Audio to the AR Experience

Learning Objectives

1. Explain why audio matters in an AR experience
2. Define the two parts needed for audio in Lens Studio

Adding Audio

Bringing Your Lens to Life with Sound

In the world of STEAM, adding audio is the transition from a silent visual project to an immersive experience. Sound provides immediate feedback to the user, telling them that their actions—like tapping the screen or flipping the camera—have been recognized by the digital world.

Why Audio Matters

Audio is more than just background noise; it is a vital part of User Interface (UI) Design:

- *Feedback*: A "pop" or "click" sound confirms a tap worked, even before the visual animation finished.
- *Atmosphere*: Background loops can set a "Comic Book" or "Sci-Fi" mood for your entire Lens.
- *Accessibility*: Audio provides an alternative way for users to interact with your creation, ensuring that the experience is engaging for everyone, regardless of how they perceive visuals.

The "Two-Part" Audio System

Adding sound in Lens Studio involves two specific parts working together:

1. *The Audio Asset*: This is your actual file (like an .mp3 or .wav) sitting in your Asset Panel.
2. *The Audio Component*: This is the "Player". It's attached to an object in your Inspector.

Curating Your Soundscape

A great developer knows where to find high-quality, open-source resources. For your project, you can use these professional tools to find and prep your audio:

- [Internet Archive \(archive.org\)](https://archive.org/): A massive library for finding unique, vintage, or atmospheric sounds.
- [AudioTrimmer](#): Use this to crop long files down to short, "snappy" sound effects before importing them into Lens Studio.

In the world of AR Engineering, there is rarely just one "right" way to build a project. As you move from simple stickers to complex experiences involving custom scripts and audio, you get to decide how to organize your digital workspace.

This decision-making process is a core part of Systems Thinking—organizing components so that they are easy to find, test, and fix.

Organization Styles: Two Professional Paths

When adding audio logic to your Lens, you generally choose between Centralized and Decentralized organization.

1. The Centralized Hub (Global_Logic)

In this style, you treat your Global_Logic object like a "Command Center." You add your Audio Component and your Behavior Script (triggering the sound) right alongside your other global controllers.

- Pros: Everything that controls the experience of the Lens is in one place.
- Best For: Ambient background music or sounds that happen regardless of where the user is looking.

2. The Modular Specialist (Audio Object)

In this style, you create a dedicated Scene Object named Audio. This object's only job is to house your sound players and the scripts that trigger them.

- Pros: It keeps your Global_Logic from getting too cluttered. If a sound isn't playing correctly, you know exactly which folder to open.
- Best For: Specific sound effects (SFX) like "POW" or "ZAP" that are distinct from your global settings.

Connecting Logic to Sound

Regardless of where you place the object, the logic remains the same. You are creating a bridge between an Event and an Action:

- *The Trigger:* You select an event, such as a Tap or Lens Opened.
- *The Target:* You point the script toward your Audio Component.
- *The Command:* You tell the script to Play the sound asset.

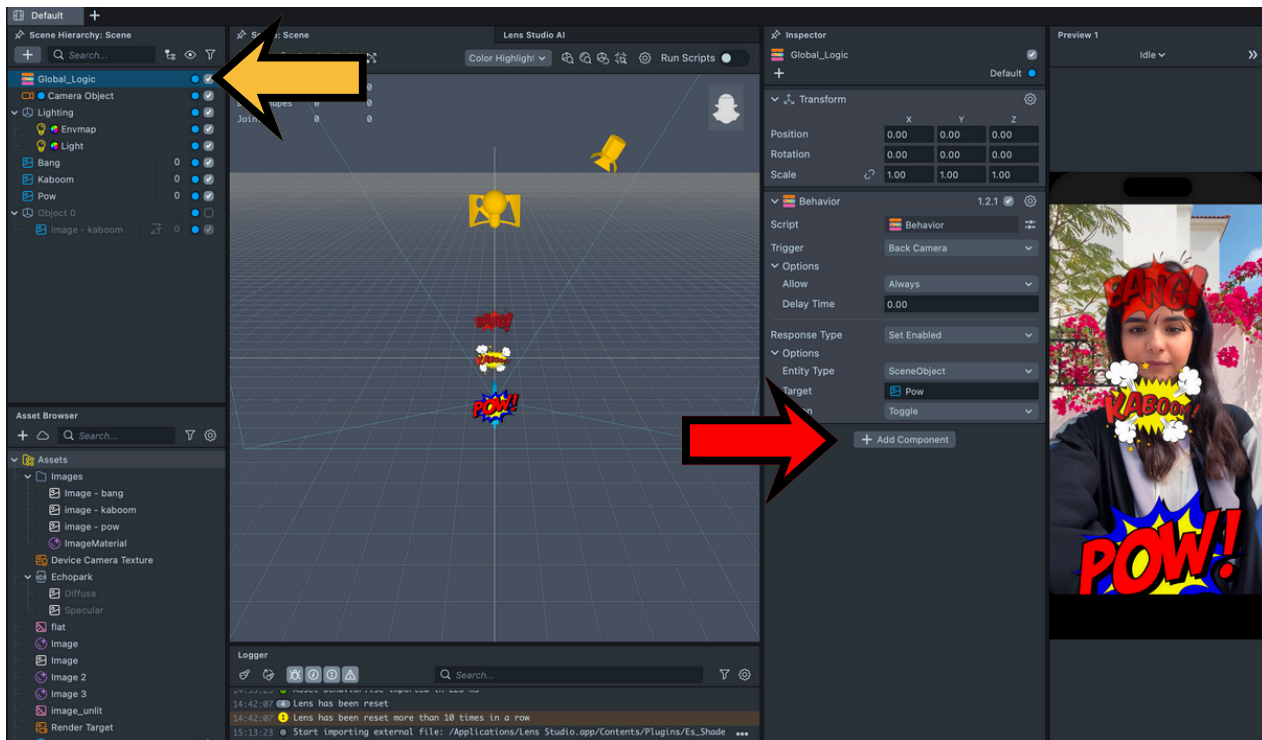
Global Logic: Adding the "Soundtrack"

Now that your graphics are reacting to the camera, let's add sound to the AR experience.

The Set-Up:

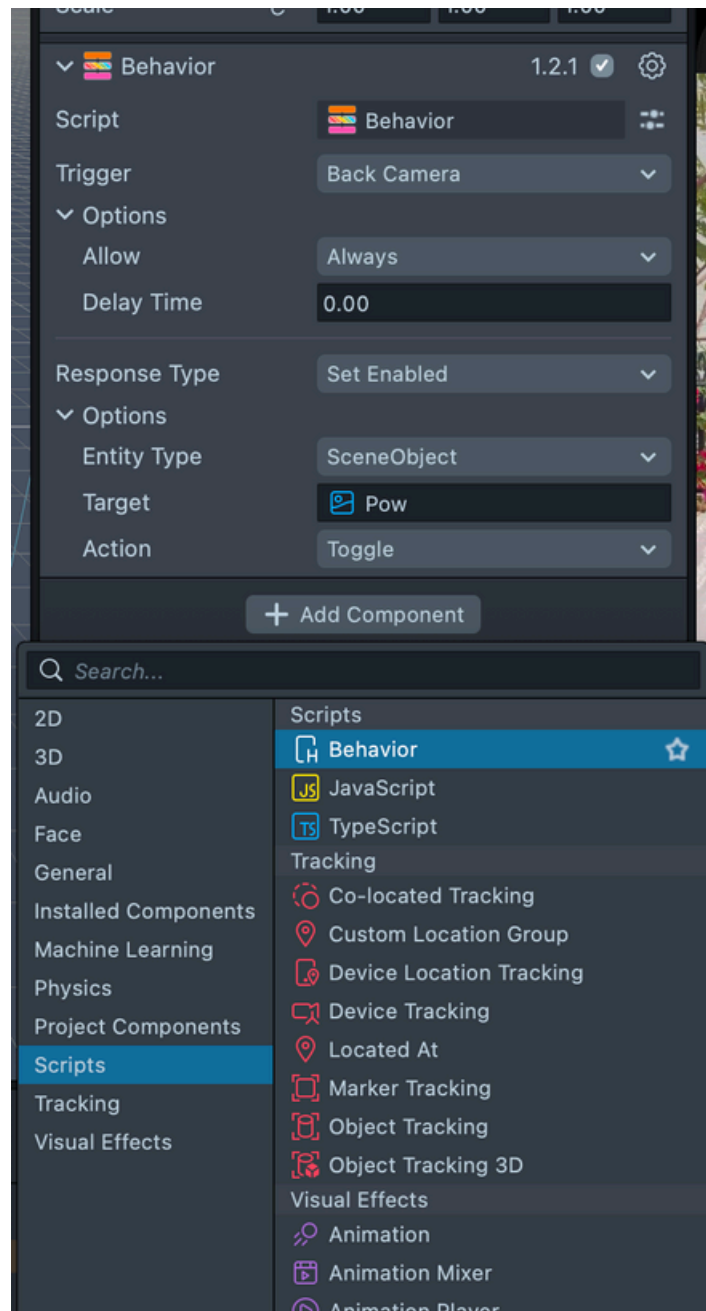
In this demo, we are using the Global_Logic and are adding another behavior component to it in the Inspector.

1. In the Object Panel, select the Global_Logic Behavior
2. The Inspector Panel opens. Click +Add Component



As before, we have a variety of components that can be added.

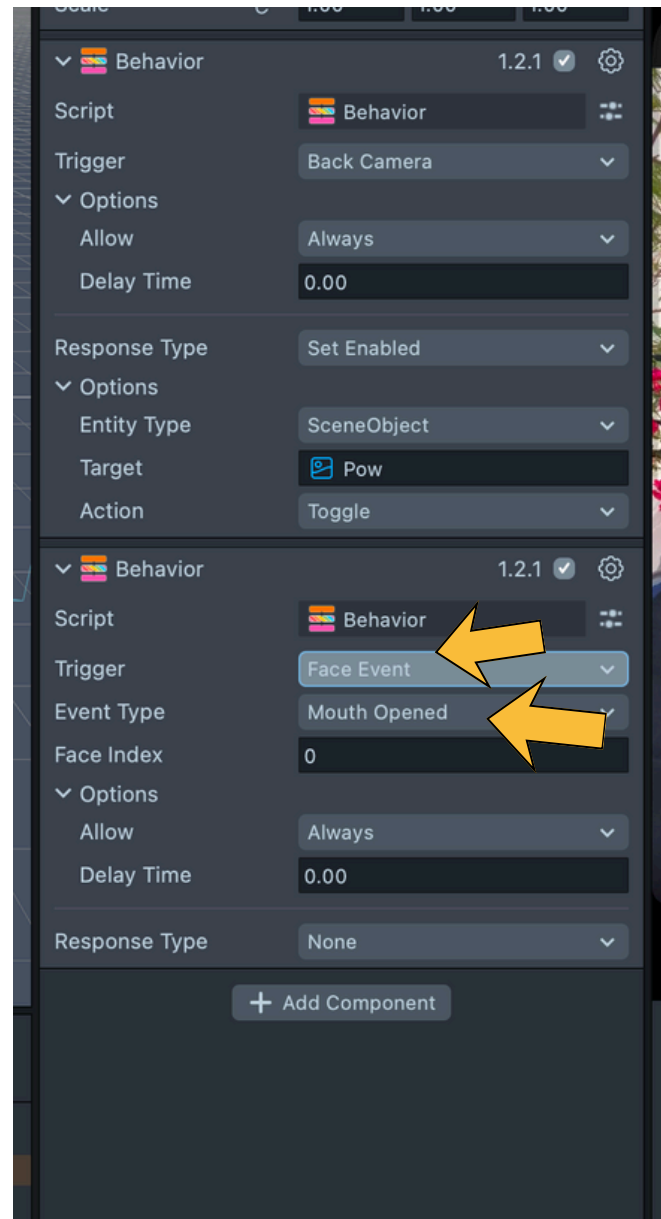
For this exercise, we're going to select Scripts > Behavior to add another behavior component that will be used to control the audio portion of our AR experience.



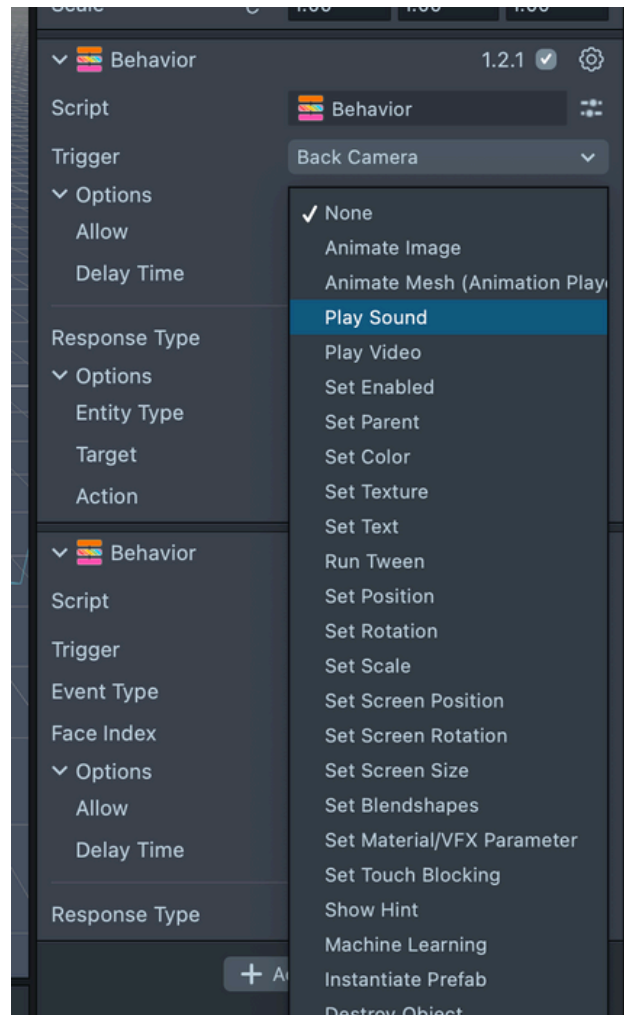
For our audio event, select a trigger and event type. Triggers can be reused or separate to create a an AR experience that does different things with different triggers.

For this demo, we are using a Face Event trigger and our lens will be looking to react every time a user's mouth is opened.

In short, IF a user's mouth is opened, THEN our audio will play.

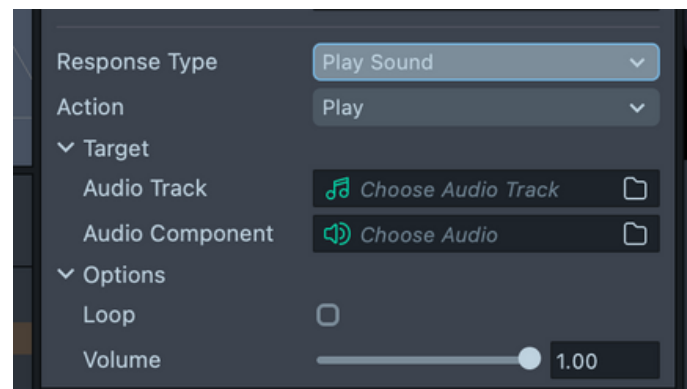


For our Response Type, choose “Play Sound”.

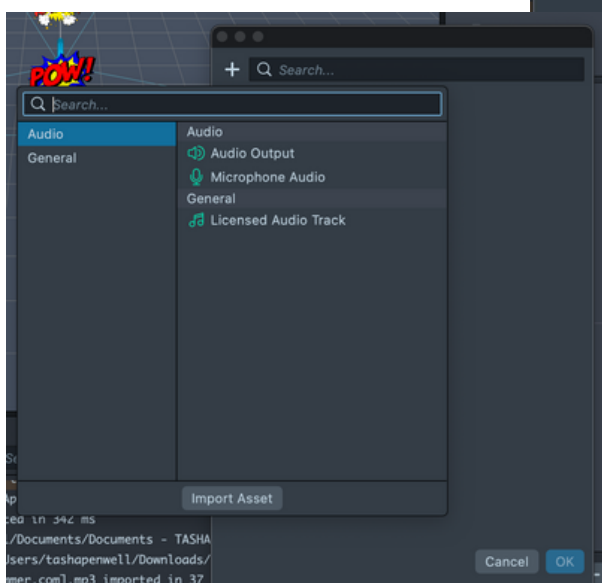
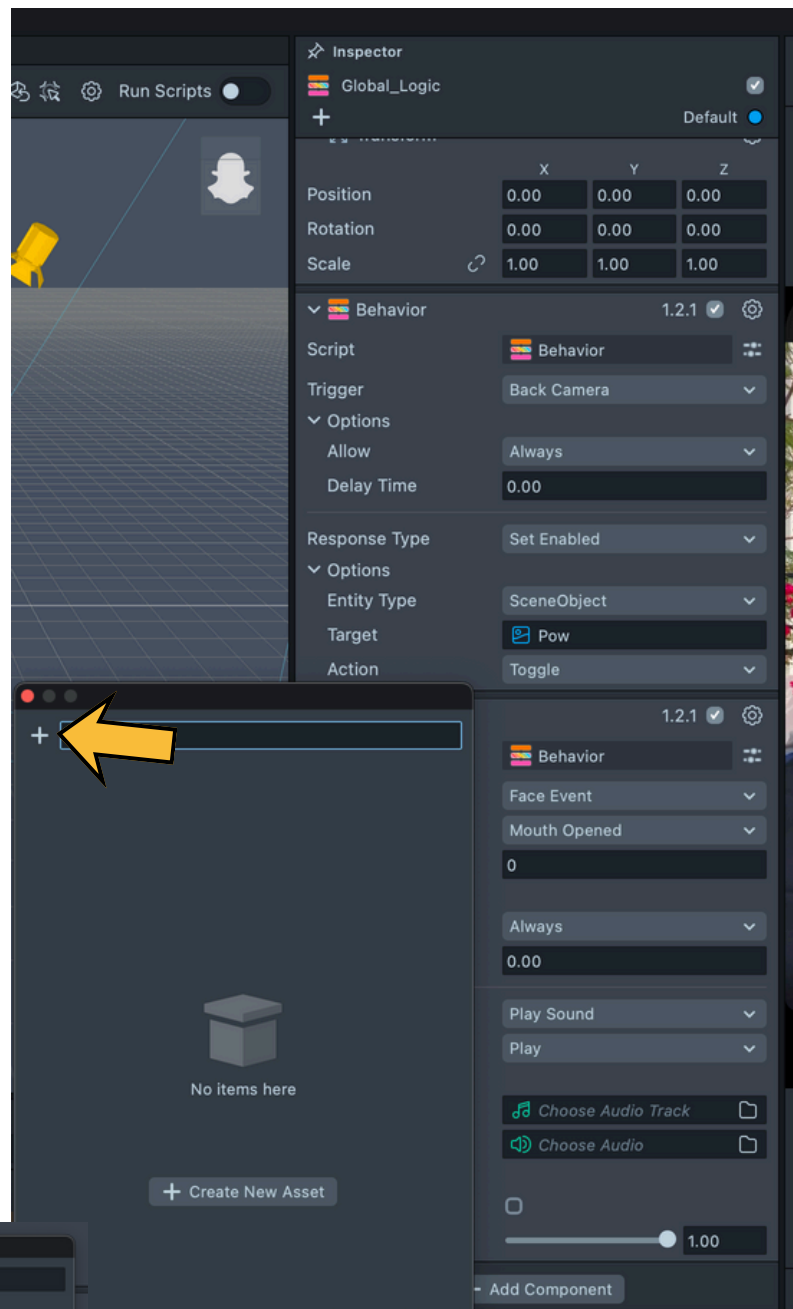


Once Play Sound was selected, we have some options to choose from.

- **Action:** Do we want our sound to Play or Stop? For this demo - we choose Play.
- **Target:**
 - The Audio Track is the actual digital file.
 - The Audio Component is the functional tool attached to an object.
- **Options**
 - Loop: Determines what happens when an audio file reaches its end (stops or repeats)
 - Volume: Controls the loudness of the audio output.



The audio file hasn't been added to our assets yet but we can do that from the Inspector panel by click on "Choose Audio Effect" and click + .



Select Audio > Import Asset
Find the file downloaded to your computer.

The audio track has been added.

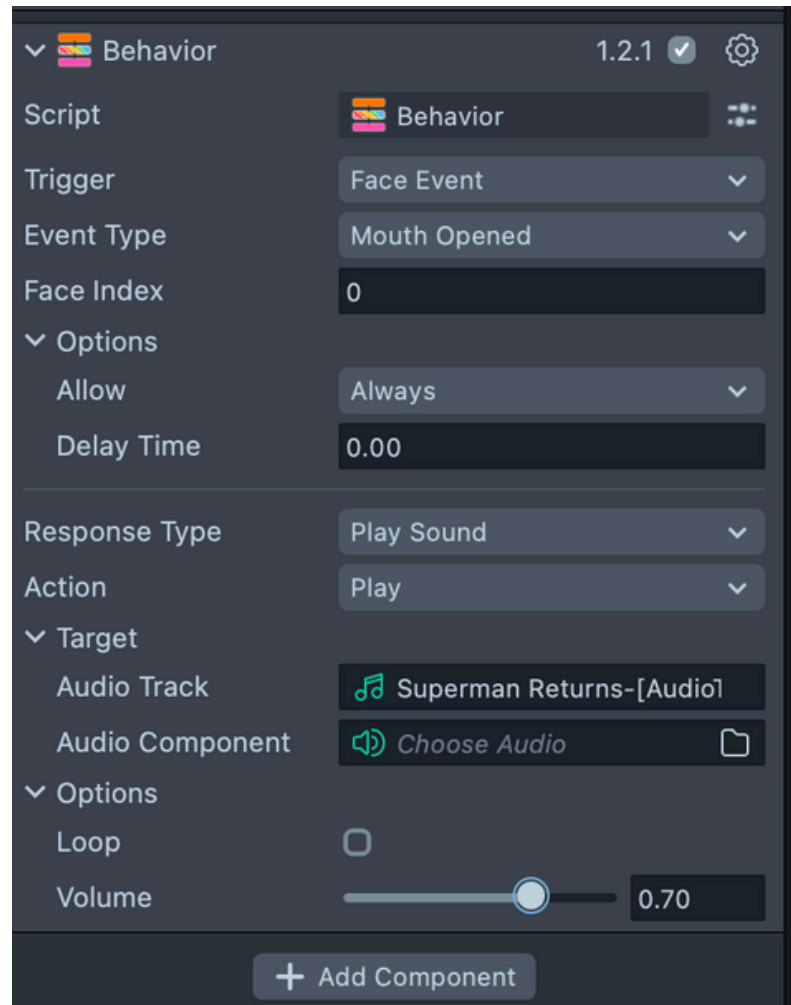
Feel free to explore options with Loop and Volume settings.

Technical Concept: The Audio Component

When you select a sound in the Behavior Script, Lens Studio does something behind the scenes. It creates an Audio Component.

In programming terms, the Behavior Script is the Trigger, but the Audio Component is the Player.

- The Script says: "Now!"
- The Audio Component says: "I'm playing 'Pop.mp3' at 50% volume."

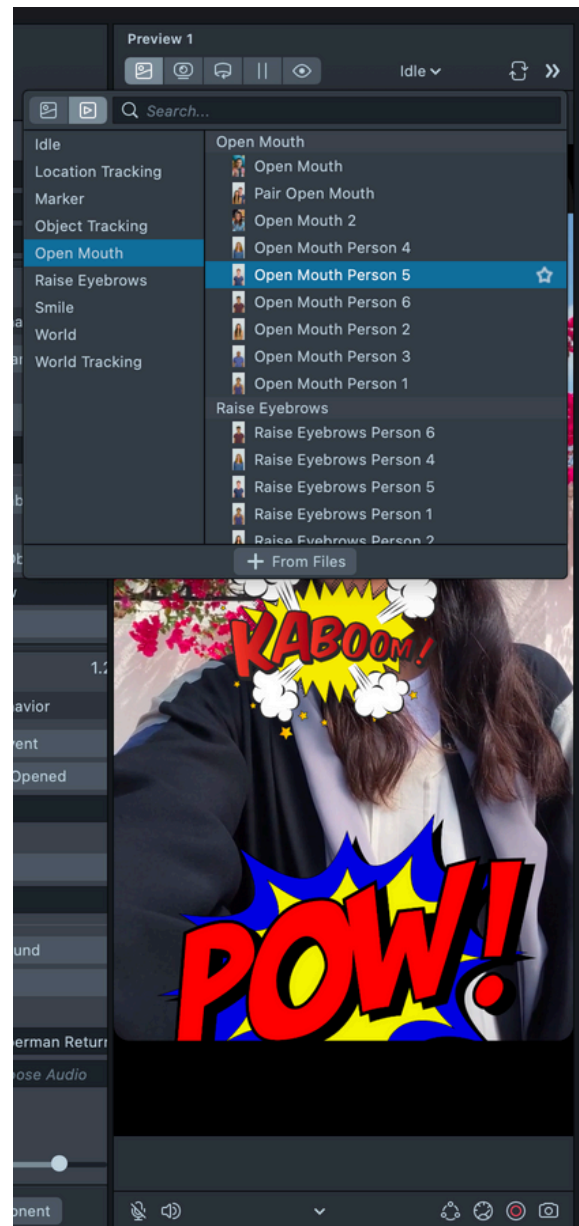


We add a behavior that responds to a face event instead of us tapping the screen. How can we test this?

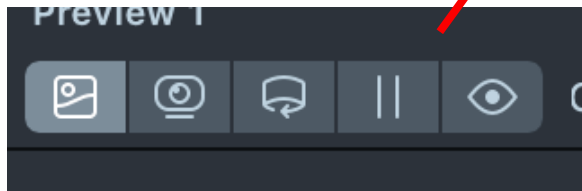
Fortunately, the preview panels provides a variety of options for us to choose from. Click on the current setting (this demo it says "Idle"). Since our new trigger is an Open Mouth, let's choose the "Open Mouth" option and select one of the options.

Since we're here, let's explore the additional options available in the Preview screen. It may create an idea for your next AR experience!

- *Idle*: Use this for standard testing of static 2D or 3D assets that don't require specific movement to function.
- *Location Tracking*: Select this when building a "Landmarker" Lens.
- *Marker*: Use this if your Lens is triggered by a specific physical image, like a poster or a business card. It simulates the camera "finding" that image to start your experience.
- *Object Tracking*: Choose this when your experience is designed to recognize and attach art to specific things, such as a cat, a dog, or a car.
- *Open Mouth / Raise Eyebrows / Smile*: These are Face Event previews. Use them to test conditional logic—for example, playing a "ZAP" sound IF the user smiles or THEN scaling a comic sticker when they open their mouth.
- *World*: Use this for simple ground-tracking experiences. It allows you to test how stickers look when placed on a flat surface in a room.
- *World Tracking*: Select this for more advanced "World AR." It simulates the camera's ability to map the depth and floor of a 3D space.



Once you have your preview set to Open Mouth, you preview will show an animated preview with the model opening their mouth. Turn up your volume and test to see if you can hear the sound!



Additional Preview Options to Explore:

1. *Multimedia Preview*: This is the default setting where Lens Studio plays a pre-recorded video of a person.
2. *Webcam Preview*: This switches the camera from the pre-recorded video to your computer's actual webcam.
3. *Interactive Preview*: This mode turns your mouse into a "virtual finger."
4. *Stop Preview*: This is the "Panic Button" for developers.
5. *Inspect Preview*: Allows you to see the "Hidden Skeleton" of your 3D objects.



Troubleshooting Tip: Make sure your preview lens is not muted.

Knowledge Check

The Power of Sound

Instructions: Answer the following questions to demonstrate your understanding of how audio transforms a visual experience into an immersive one.

1. *Why Audio Matters*

In an AR experience, why is audio considered a "secret weapon" for immersion?

- A. Because it makes the file size larger, which makes the Lens look more professional.
- B. Because it provides "Sensory Feedback" that confirms an action happened (like a click or a pop), making the digital world feel real.
- C. Because AR lenses are not allowed to be published unless they have at least three songs.
- D. Because it hides the mistakes you made in your 3D models.

2. *Short Answer: The Connection*

Explain why you can't just have an Audio Component without an Audio Asset.

Answer:

(Hint: If you have a DVD player but no DVD, can you watch a movie?)

