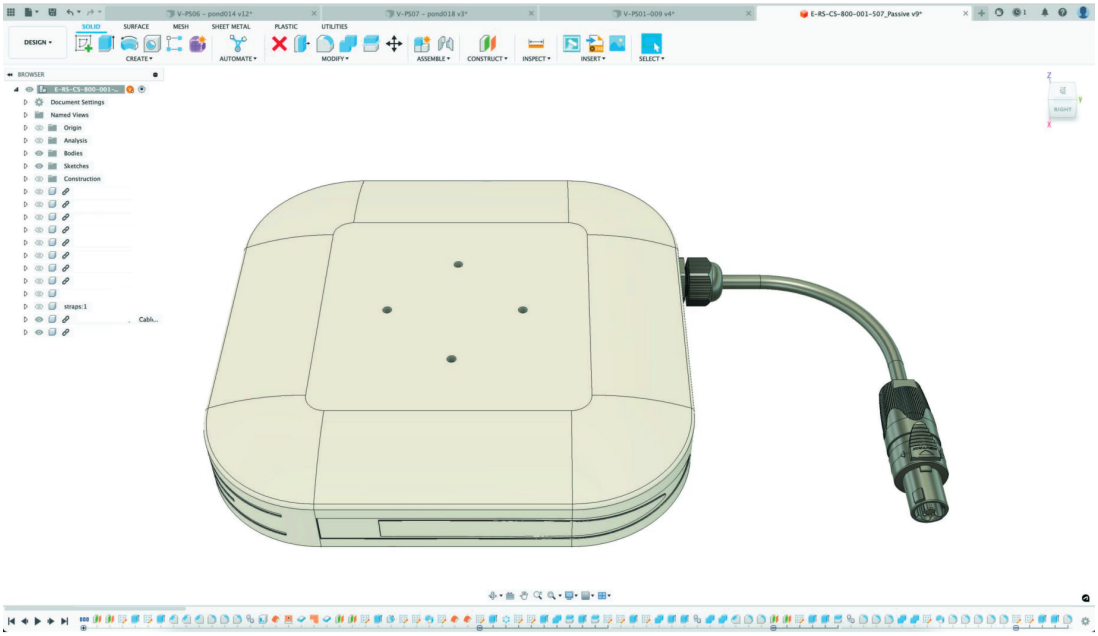
AUTODESK

EDGE Sound Research Creates a Sound Sensation With Autodesk Fusion

See how EDGE Sound Research developed the ResonX, a system that fuses acoustic sound with tactile sensations.



Ethan Castro was born with complications that left him hard of hearing in both ears. Growing up, doctors told him he shouldn't pursue a career in the music industry. "So, I immediately went into music," he says.

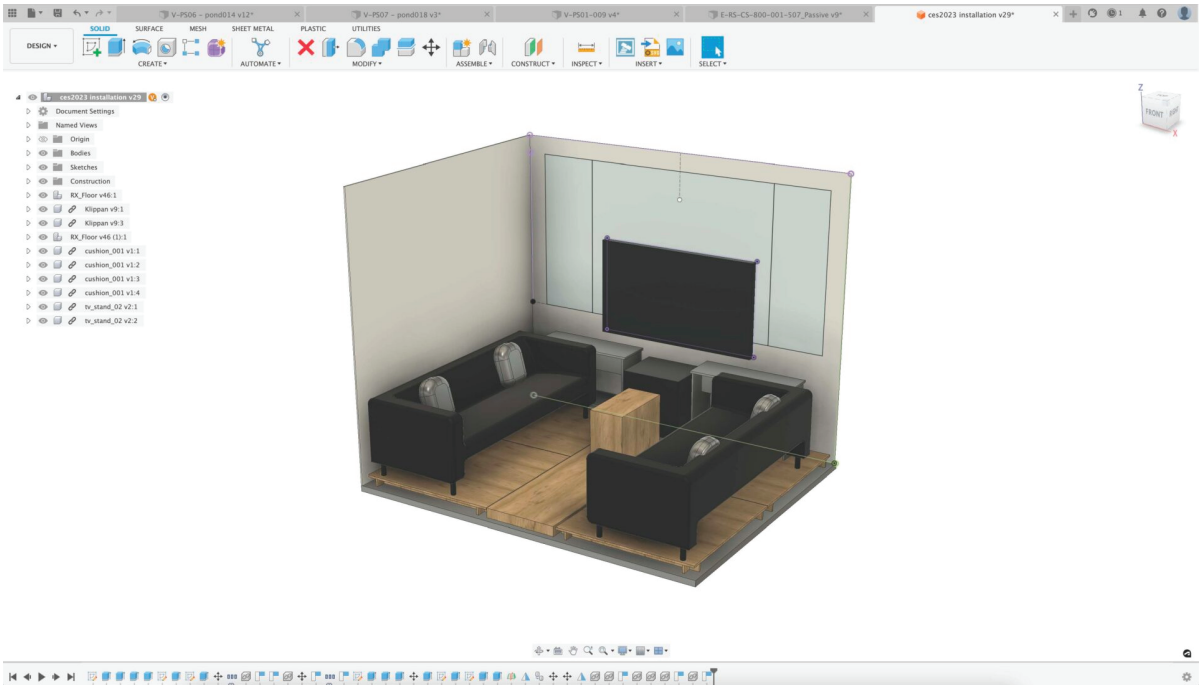
Castro worked in Los Angeles as both a recording and mixing engineer, mainly for drums and bass. Over time, he built a reputation for clear sound and was eventually asked to help with vocals. He resisted at first since he couldn't hear them well.

"I said, 'I'm not a fit with this,' but I gave it a try," Castro says. "I ended up having a unique advantage: Since I don't go through the normal pathway of hearing, I could feel speakers and instantly detect where there was mud or an issue with the signal. I could fix vocals much quicker, and I started receiving even more requests for sessions."

At that point, Castro received an offer to pursue his doctorate at the University of California, Riverside. One research avenue stemmed from his own experience in the music industry: How is it possible for a hearing-impaired individual to create a desired outcome for audio engineers? And not just hear it—but also feel it?

"Feeling" sound with the EDGE Sound Research ResonX

In late 2019 while pursuing his doctoral studies, Castro was sick in bed. He ordered a few components from Amazon to tinker and explore his sonic relationship. This prototype became the foundation for EDGE Sound Research's Embodied Sound invention and the development of the ResonX device. Now any object can become a speaker.



“This technology allows you to hear and feel sound at the same time because we don’t deliver audio the traditional way,” says Vincent Zhang, Industrial Design Engineer, EDGE Sound Research, “We truly believe we’ve opened a new way to experience reality in the sense that everything is multisensory. That’s the beauty of what we’re doing.”

But what is the ResonX experience like? It’s not just something that makes a chair vibrate. It’s a true experience of hearing and feeling the real vibrations that accompany it.

The device itself is modular and can be easily suited to fit many environments—whether it’s in an arena, a baseball stadium, a concert venue, etc. As EDGE Sound Research puts it, “Any seat can become the best seat in the house” with a system that fuses acoustic sound with tactile sensations.

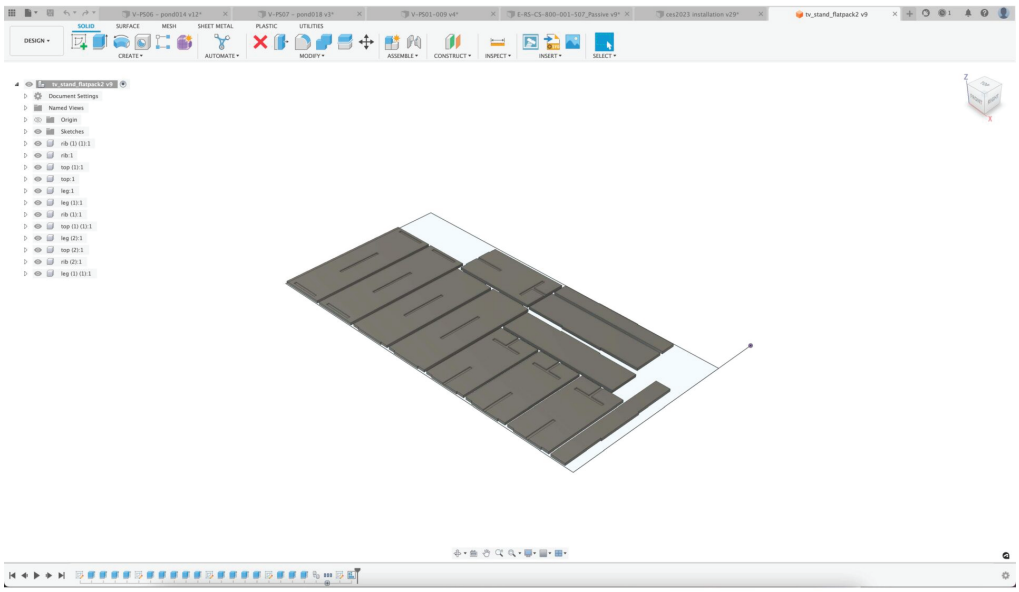
Recently, EDGE Sound Research installed a pilot project with NBA Launchpad, an initiative dedicated to enhancing the fan experience. Even fans seated in the highest part of the Golden 1 Center in Sacramento could hear—and feel—the thrill of being in the first row. With ResonX installed in seats, they could even feel the dribble of the ball like it was bounced on the floor next to them.

“These are the types of experiences where an event can be truly elevated and create more value,” Zhang says.

Designing a new sonic experience with Autodesk Fusion

EDGE Sound Research now includes seven full-time employees at their office and workshop in Riverside, California. And Autodesk Fusion has joined Castro throughout the entire journey since the first prototype at UC Riverside.

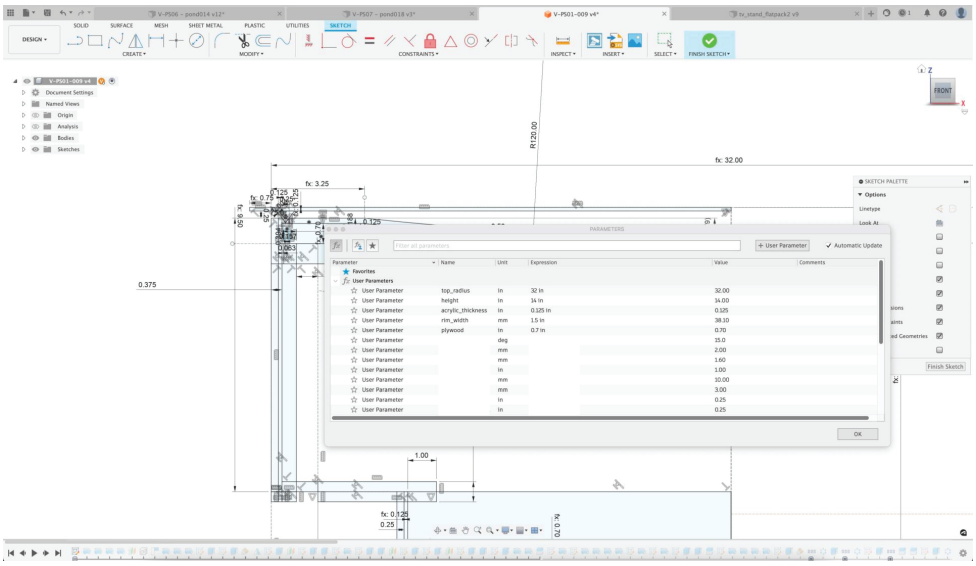
“Even since school, Autodesk Fusion has been part of the bread and butter for us,” Zhang says. “You can bounce between sketches to more modeling and forms iteratively. What I really like about Autodesk Fusion is that I can ‘sketch’ very quickly. I don’t have to worry about dimensions or anything—I can just get the idea out there.”



Early development happened during COVID-19, so collaboration was crucial for Castro and Zhang to bring EDGE Sound Research and ResonX to life. With Autodesk Fusion, they could easily exchange files and make updates in the cloud. Castro also bought a 3D printer to create prototypes. 3D printing is now a core piece of the team's design and development process.

Revisions made easy

Now that the ResonX is in production, making changes is easy because there is a strong foundation of information and hardware knowledge already in the models. This is especially important because each installation may be different depending on whether the device is installed on a seat, wall, or floor. The team can also perform quick parametric modeling to adapt the design for various environments and standardize assembly.



"Maybe there is a part that we need to change and design to be more modular and compatible for a certain installation," Zhang says. "We can do that with the models we have already. Just this week, I was in Vancouver, and I could make the change and have another team member in Riverside print it. We can do that in a day to make sure we hit deadlines, even if the full team isn't in the studio."

"The ability to iterate quickly was what really sold us on Autodesk Fusion. No other software can do that for us."

Vincent Zhang, Industrial Design Engineer, EDGE Sound Research

As a startup, moving through the prototyping process to achieve a finished product with speed is crucial. Being able to iterate with speed and agility saves the EDGE Sound Research team valuable resources.

“We’ve done so many iterations in the cloud with Autodesk Fusion where we can suggest a different shape or orientation,” Castro says. “Vincent can shoot us a link, and we can fully understand it and go back and forth virtually. We can have all these evolutions before we ever actually use resources to make it the first time. It’s a higher likelihood that we’re going to be a success because we’ve done the homework within Autodesk Fusion to experiment.”

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Read the original blog post

https://www.autodesk.com/products/fusion-360/blog/edge-sound-research-reasonx/?us_oa=dotcom-us&us_si=c6fa568e-8ae4-4f44-aa6e-ca2c6d55d5fe&us_st=Edge%20Sound%20Research

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and Learn more about Autodesk Fusion:

https://www.autodesk.com/products/fusion-360/consumer-products