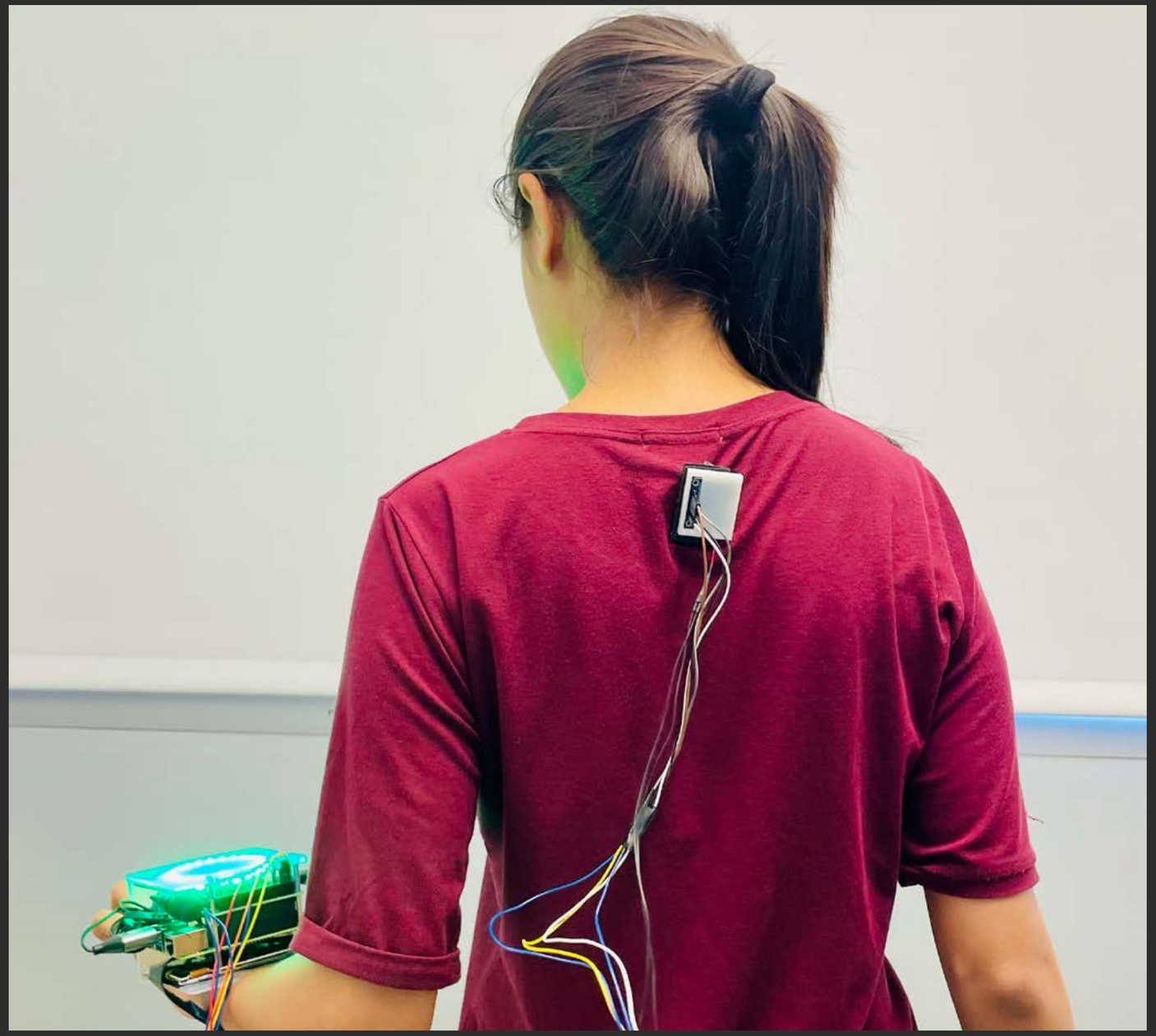


Shikha Shah

Master of Design

Resume

WORK EXPERIENCE

AR Haptic Design Engineer | Accenture x UC Berkeley
September 2023 – Present

- Successfully leading a team of 4 to design a computer-vision based Augmented Reality coaching system using multimodal bio-feedback
- Leveraging iterative design thinking process and critique to create an accessible, ergonomic, and user centered Non-Visual AR based audial training of physical tasks for healthcare sector
- Implementing an end-to-end demonstration through real-time guidance and minimized visual interaction, testing the prototype on 5 physiotherapists

Haptic Design Engineer | Augmental Technologies, San Francisco
July 2023 – September 2023

- Led research on state-of-the-art hardware solution to propose a novel interaction design for people with quadriplegia to interact with smartphones, computers and other connected devices
- Designed 15 test solutions, designed experiments, implemented hardware and mechanical changes to increase the robustness by 90% of intra-oral human interface device reducing 21% inaccuracy in sensor data collection

Senior Design Engineer | NXP Semiconductors, India
January 2019 – June 2022

- Collaborated cross-functionally with teams located in different time zones, including India, Austin, and Munich, to facilitate seamless communication, resolve design challenges, and ensure efficient project coordination.
- Owned complex IPs on 16 and 5nm finFET technology ASIC Physical Design RTL to GDS flow including Dual Data Rate and High-Security Engine with 400 Mhz clock frequency, 950k gates and utilization of 74.4%
- Possess a strong analytical mindset honed in 3 + years of physical design, adaptable to solving complex design challenges in research, extracting actionable insights, and facilitating data-driven decision-making improvements by 30%

SKILLS

Design Methodologies
Empathy, Design Thinking, Human-Computer Interaction, Interface Design, User Experience Design, User Research, Human Centered Design, Problem Solving, Design Strategy, Storyboarding, Rapid Prototyping, 3D Modeling, Usability Testing

Design Engineer
Sensors, Gesture Recognition, Actuators, Biosensory Computing, Human Perception, Tangible Computing, Soft Robotics, IoT, Digital Circuits, VLSI, Physical Design, STA

Design Tools/Frameworks
C/C++, Python, Arduino & Raspberry pi microcontrollers, Processing, Unity, OpenCV, Touch Designer, Blender, Fusion 360, CAD, Adobe Creative Suite, Figma, Audacity, Photoshop

Chip Design Tools
IC Compiler 2, Design Compiler, Conformal, PrimeTime, VCLP, Shell Scripting, Verilog, Eagle (PCB design)

HONORS & AWARDS

SF Design Week Award 2023
Honorable Mention in Student Category

SkyDeck Pad-13, Berkeley 2023
Entrepreneur in Residence, Design Strategist

Collider Cup XI, SCET, UC Berkeley 2022
Winner for Innovative venture

CalHacks Hackathon, San Francisco 2022
Winner HealthTech, Designed app to predict fall detection and locate nearby healthcare facilities in-network with insurance

MDes Distinguished Scholar Award 2022
Awarded for exceptional skills

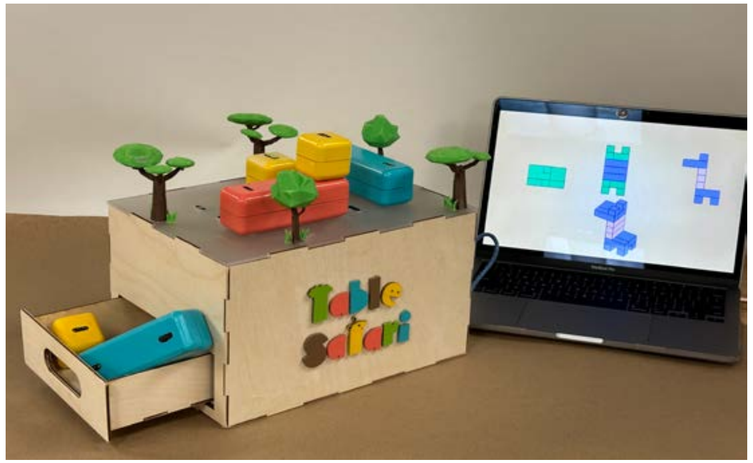
NXP Semiconductors, Global 2021
Published Company Trade Secret paper, Awarded for raising the bar, taking initiative, demonstrating competence

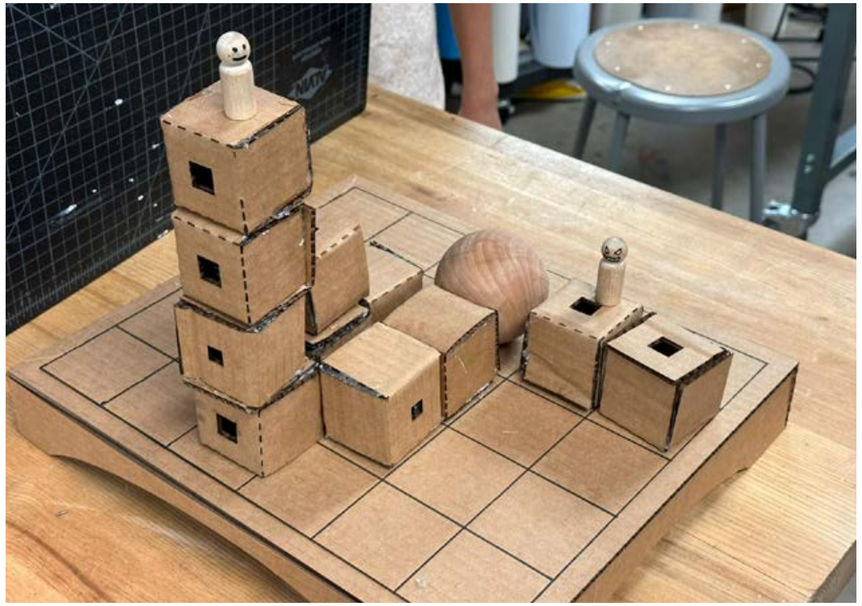
Email Id: shikha.shah@berkeley.edu
Portfolio: https://www.shah-shikha.com
LinkedIn:https://www.linkedin.com/in/shikha-shah-537910143

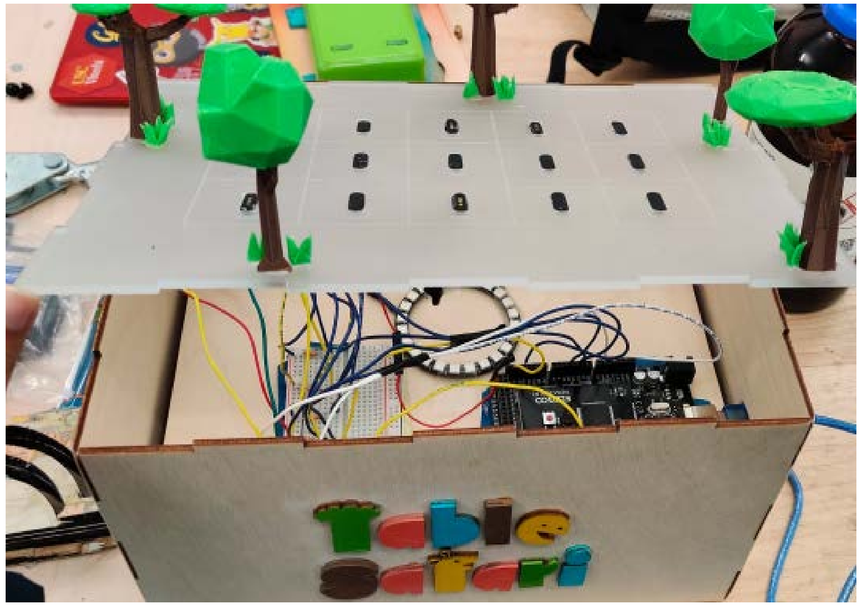
Table Safari

Poor sensory processing can lead to problems with motor coordination, depth perception, poor space perspectives and vision challenges. Table Safari is reimagining the future of play and learn to improve kids' cognitive skills, especially children facing spatial awareness challenges.

Team :
Ashwan Kadam
Shirley Zhang
Siming Jin
Yanyi Mai
Shikha Shah



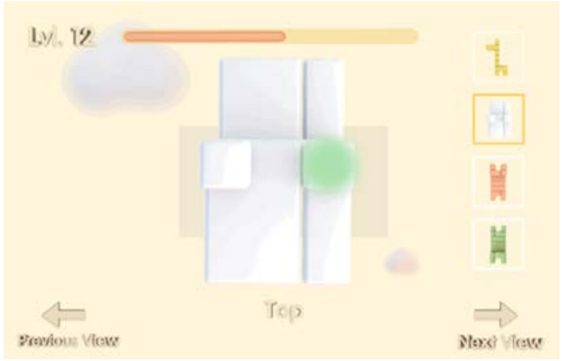


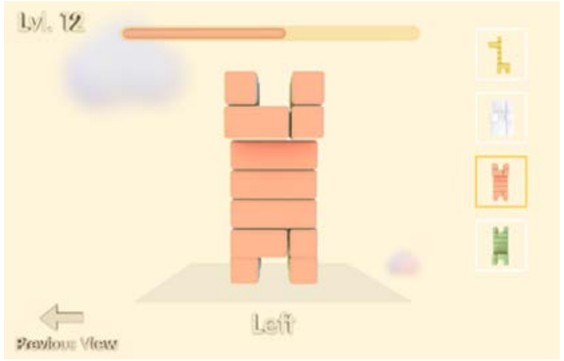


The design process encompasses defining goals, conducting insightful research, ideating solutions, and prototyping with user-centric ergonomics and functionality. It culminates in iterative testing, leveraging user feedback for impactful refinements.

Every block has embedded resistors inside so that the location of blocks can be detected using resistance mapping. The whole coding for Gameplay was done with Arduino and Processing software interfaced with a microcontroller and actuators.

Images :
Iterative design process for the physical game play.





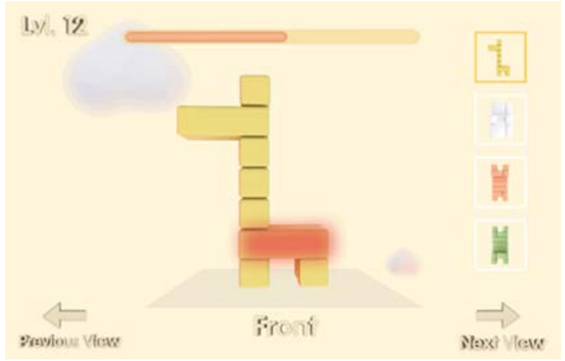
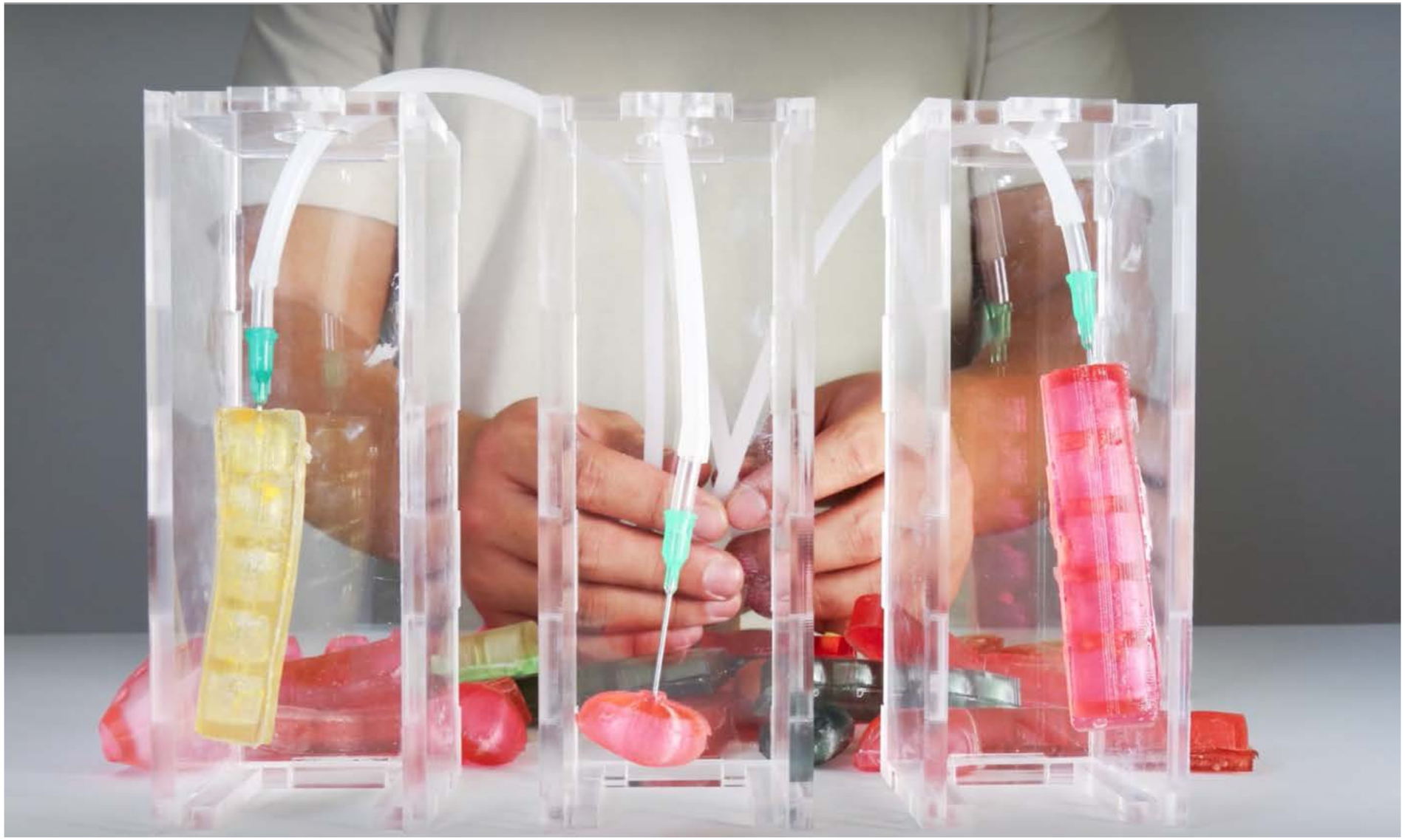


Table Safari is a game focussed on bridging the gap between 2D and 3D spatial awareness in young children. Players are given 3 perspectives - the top, front and side of an animal. Players have to build the physical animal using the game blocks. The game provides audio and visual feedback. Additionally, they receive a fun fact about the animal upon placing the block in the correct orientation in space.

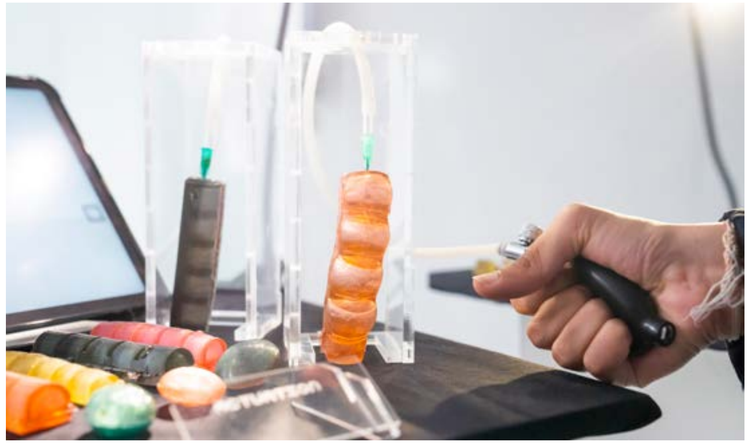
Images :
Figma screens of the digital game play.

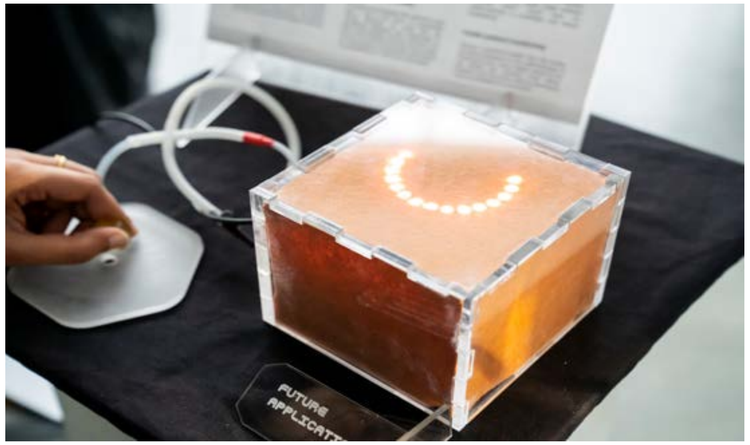
Edible Soft Robotics

a material exploration of the sustainable applications of edible soft robotics. We were inspired by Cradle to Cradle design principles, which is an approach to design that aims for the infinite circulation of materials. When learning about soft robotics, we found ourselves intrigued by the similarities our silicon molds shared with gelatin. Inspired by our team's shared passion for food and sustainability, we decided to explore potential possibil-



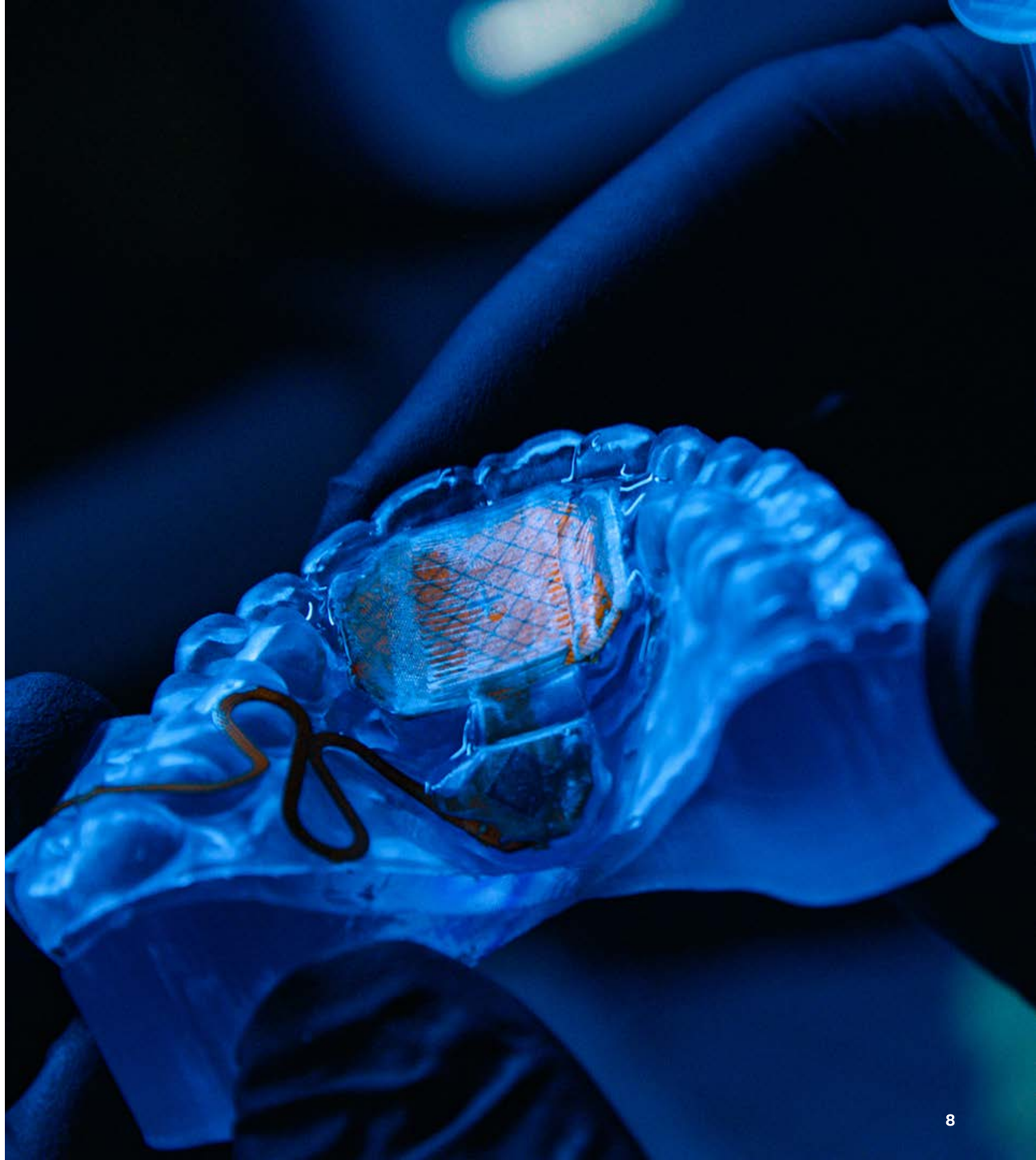
Medical Application: With the ability to be safely ingested by patients, soft robotics could deliver targeted treatments to the digestive tract or detect harmful substances in the body. Gelatin promotes cell proliferation. It mimics human tissue and could create artificial muscles, which could lead to advancements in prosthesis and tissue engineering. Sustainable Packaging: With their biodegradable and biocompatible properties, edible soft robots can be used as environmental packaging. Because it dissolves in water, packaging materials would no longer need to end up in the landfill.





Design Engineer

Developed test solutions, designed experiments to increase the robustness of intra-oral human interface device that allows users with spinal cord injuries or quadriplegia to interact with smartphones, computers and other connected devices



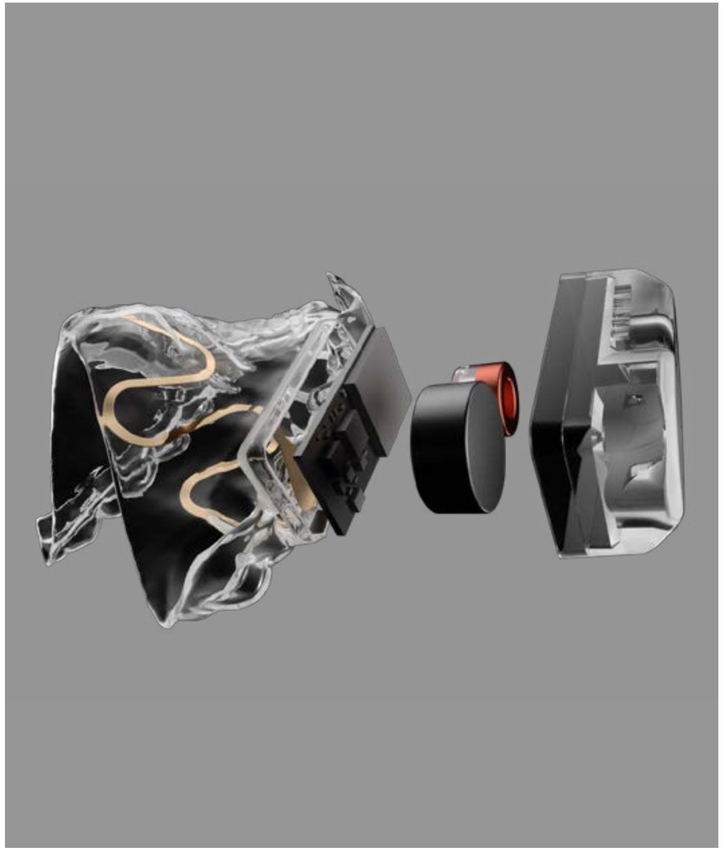
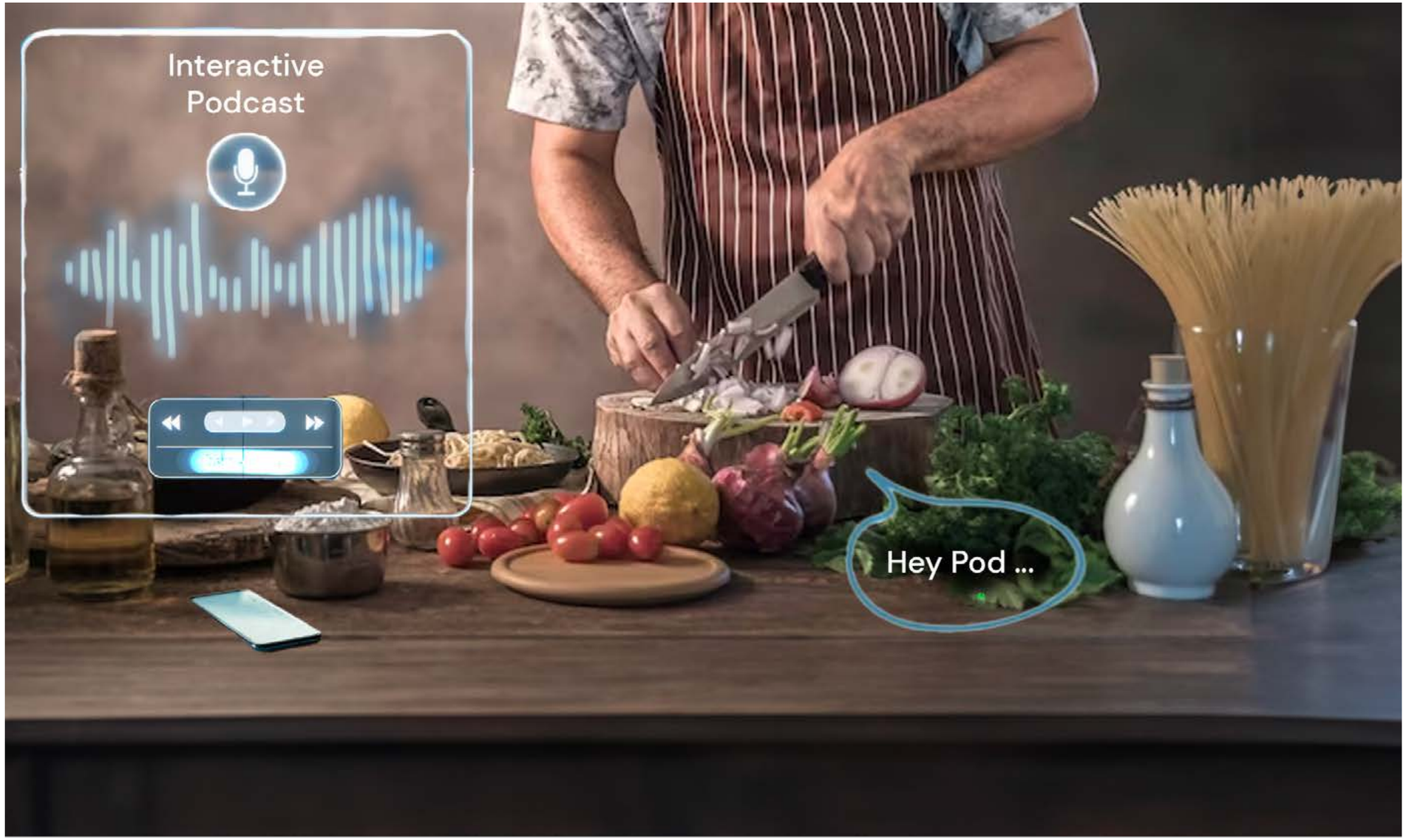


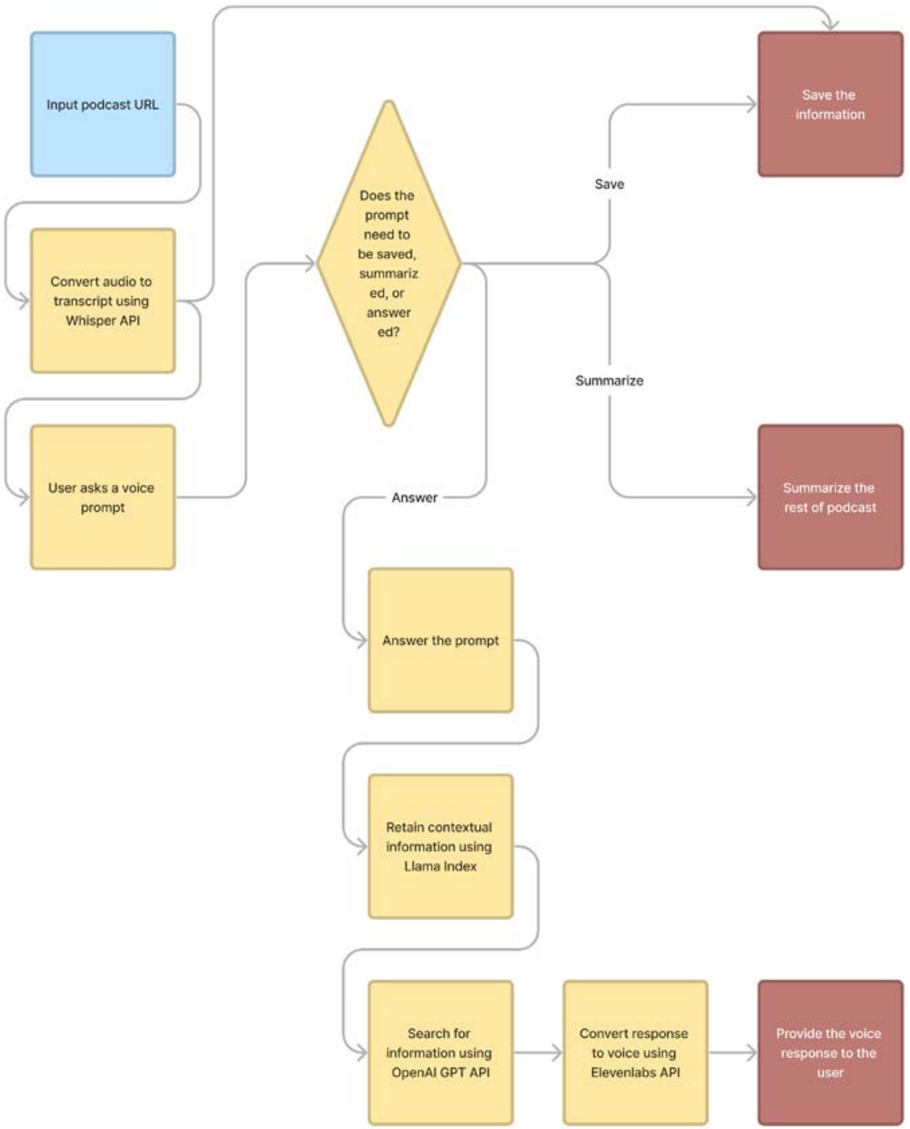
Image1 :
A user with Quadriplegia, who is also a gamer, using existing overwhelming and tiring mouth joysticks to interact with computer

Image 2 :
The MouthPad^ is a tongue-driven interface that controls your computer, smartphone, or tablet via Bluetooth. Virtually invisible to the world, but always available to you, it is positioned across the roof of your mouth to put all of the power of a conventional touchpad at the tip of your tongue.

Reverb - Conversation-al AI

Current content like audiobooks and podcasts often leaves us passive, unable to engage or take notes. Not being able to search or research more about what we are listening to when consuming audio media while driving, cooking, or exercising leads to added situational disability. I am trying to make audio content more interactive and conversational using AI. I created interactive podcasts using AI conversations to increase knowledge retention and create new interactions for electracy (electronic literacy).




Input podcast URL
Convert audio to transcript using Whisper API
User asks a voice prompt
Does the prompt need to be saved, summarized, or answered?
Save
Save the information
Summarize
Summarize the rest of podcast
Answer
Answer the prompt
Retain contextual information using Llama Index
Search for information using OpenAI GPT API
Convert response to voice using Elevenlabs API
Provide the voice response to the user

Reverb

This thesis presents a vision for expanding into various future applications, notably in the realm of distance learning education. Imagine an environment where students, while listening to prerecorded online lectures, have the ability to interact, asking questions as though they were physically present in the classroom, or directly taking notes from the video. This technology could also revolutionize engagement in audiobooks and enhance children's educational experiences through interactive dialogues with their favorite animated characters. Additionally, its application in museum audio tours could invigorate historical learning, transforming it into dynamic, conversational experiences.