Tab 1

Chordors

By Michaela Mae Medel

Creative Programming - SOUND FOR SOMEONE Project

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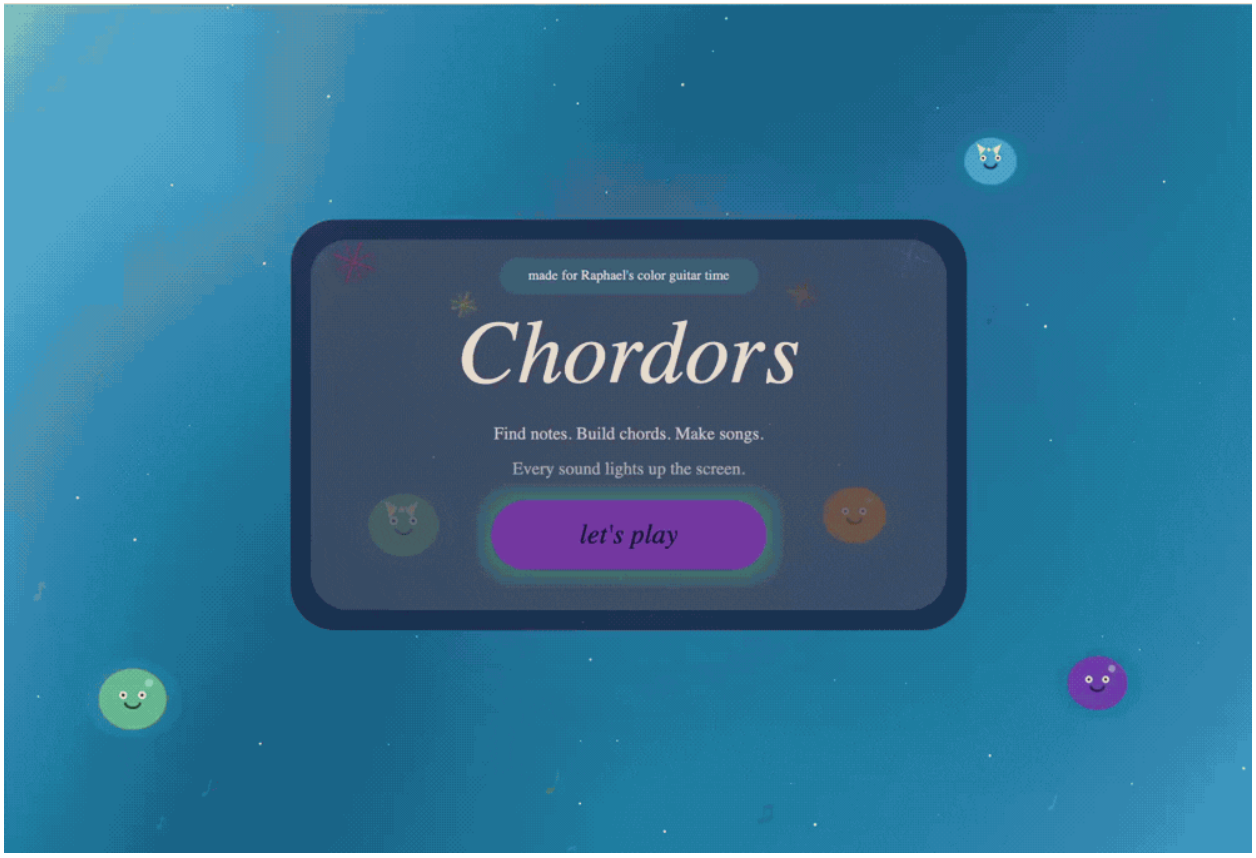
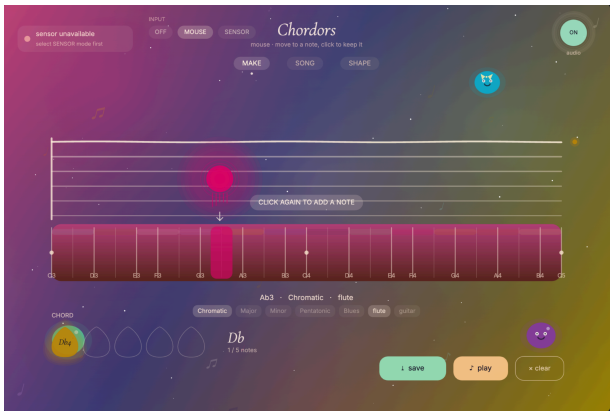
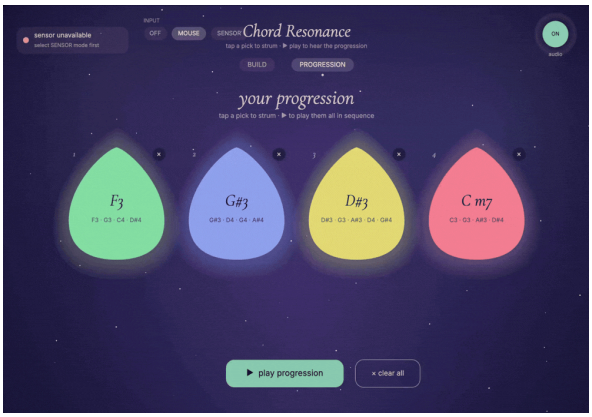


Chordors - Entry Page

Chordors is a mouse-sensor chord builder designed for my current guitar student, Raphael. The project gives users a simple, playful way to create chords and chord progressions by moving through sound, color, and senses instead of starting with theory alone. As notes are browsed through and selected, they are paired with colors (hence *Chordors*) and translated into guitar tabs, helping users connect what they hear, see, and eventually get to play on guitar!

Stages





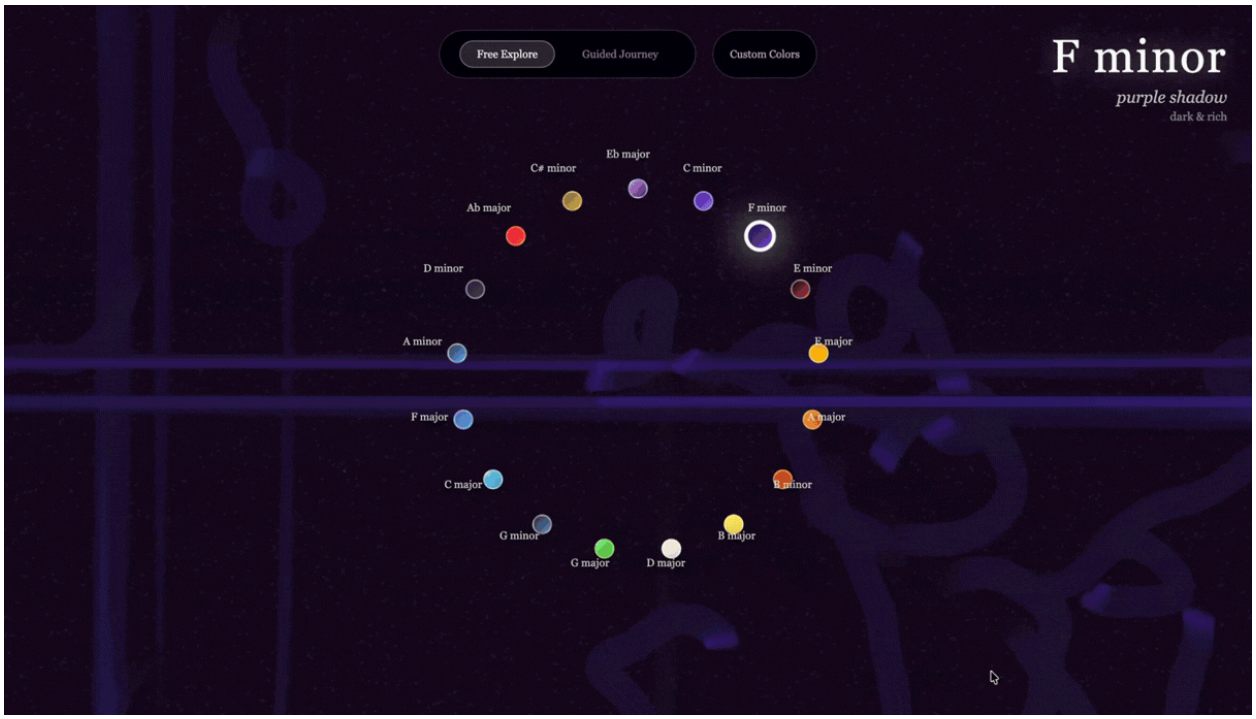
Chordors contains three stages: MAKE, SONG, and SHAPE.

In MAKE, the user starts by building a chord one note at a time. By playing with the mouse-sensor interaction, they can move through different pitches and “capture” notes into a small collection. Inspired by my synesthesia and previous projects (*KEYLORS*, *SynesDJ Cube*, *Sounds of the Moon*, etc.), each note is connected to a color, so the chord comes alive as both a sound and visual element. This stage is aimed to feel low pressure and experimental, as there purposefully aren’t any guidelines or note suggestions. Instead of asking the user to already know chord names or music theory, MAKE enables them to listen first, choose what feels right to them personally, and slowly understand how individual notes are able to combine into a larger harmony.

In SONG, the user turns such captured chords into a chord progression. This stage expands the project from a single moment of sound into a sequence that feels more like actual music, hence “SONG.” Users can test how one chord moves into another, hear the difference between progressions, and start recognizing how chords create direction, tension, and resolution. For Raphael, this stage is especially important because it connects the creative side of making music to the practical experience of playing guitar. My goal is not just to make isolated chords, but to also help him understand how chords/combined notes can work together within a song structure!

In SHAPE, the chord becomes something Raphael can interpret and physically translate back onto the guitar. The chosen colors, chord structure, and guitar tabs come together so the user can understand the chord from multiple angles: as sound, as color, as its own visual form, and as finger placement. This stage reflects the main purpose of *Chordors*, which is to make music learning more sensory and less abstract for Raphael. By the end, he will not only create a chord or progression, but also shape it into something playable and memorable.

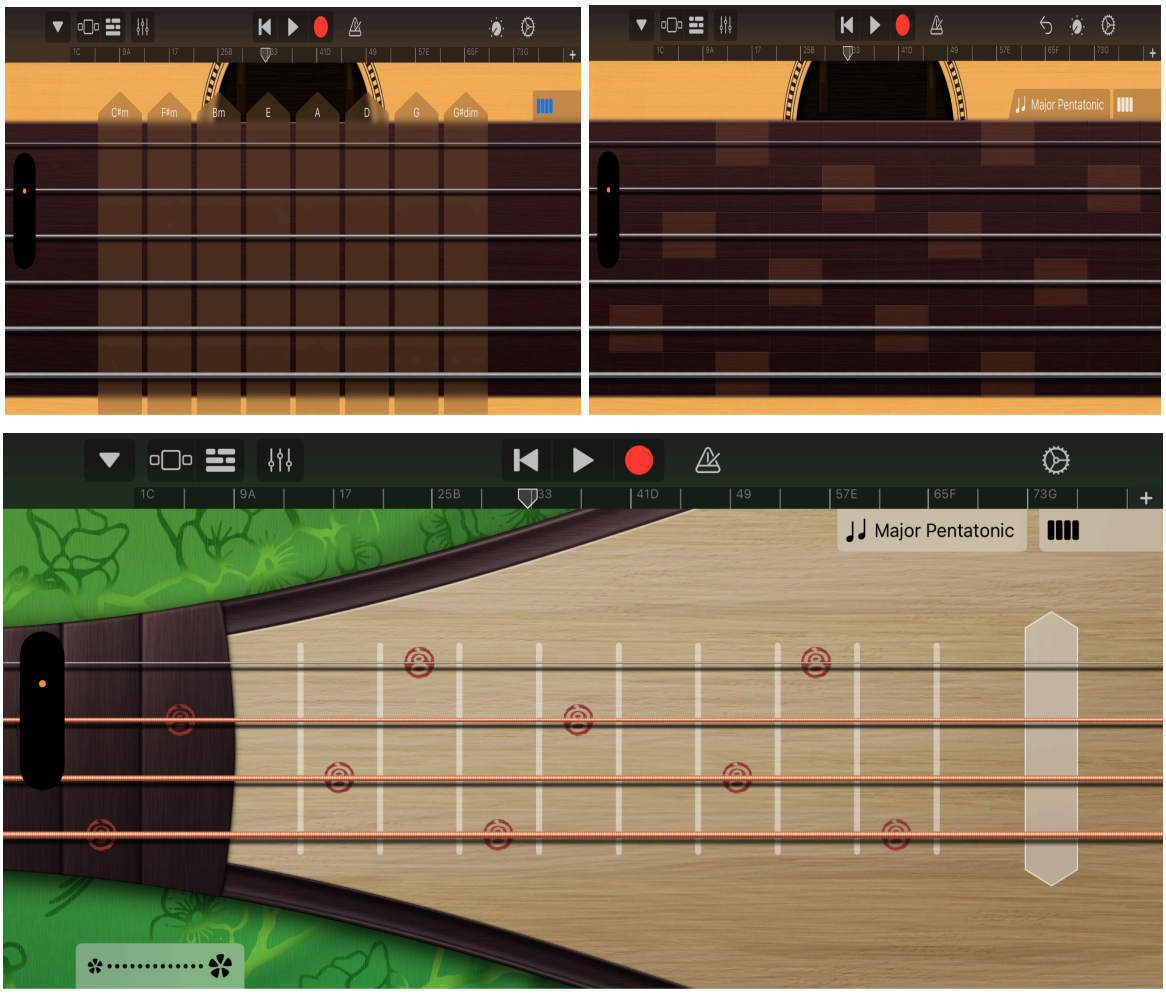
Ideation



KEYLORS "Free Explore" Page

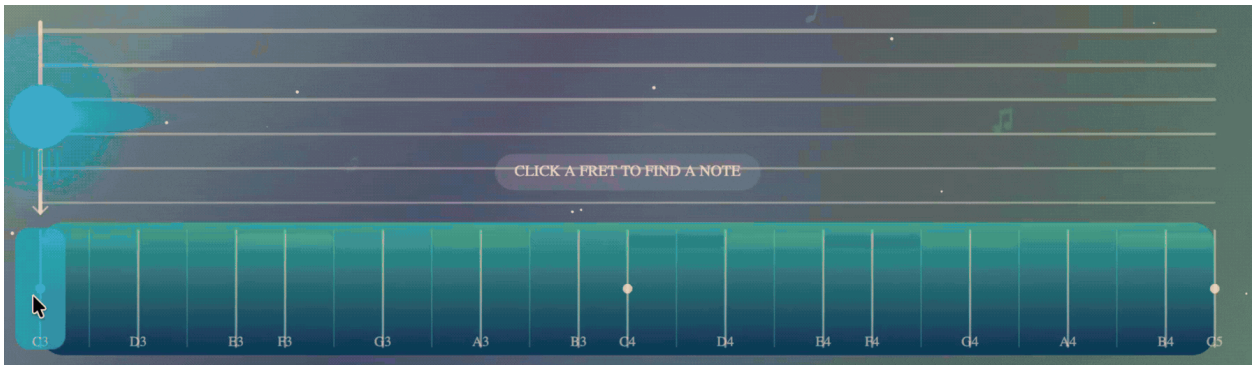
Expanding off a personal project, *KEYLORS*, I wanted to develop my chromesthesiatic palette further and connect that visual language to Raphael's lessons and musical learning. *KEYLORS* originally helped me think about how individual notes, keys, and sounds could be translated into colors, but *Chordors* allowed me to make that relationship more interactive and instructional. Instead of keeping color as a private or personal way of experiencing music, I wanted to turn it into a useful tool that could help someone else explore harmony. For Raphael, who is learning guitar through me, the project utilizes color as a type of entry point into notes, chords, and progressions, making musical structure feel more playful and less intimidating. In this way, *Chordors* expands *KEYLORS* from my own synesthetic experiment into a shared learning environment, where the combination of color, sound, and guitar practice can support one another.

Design

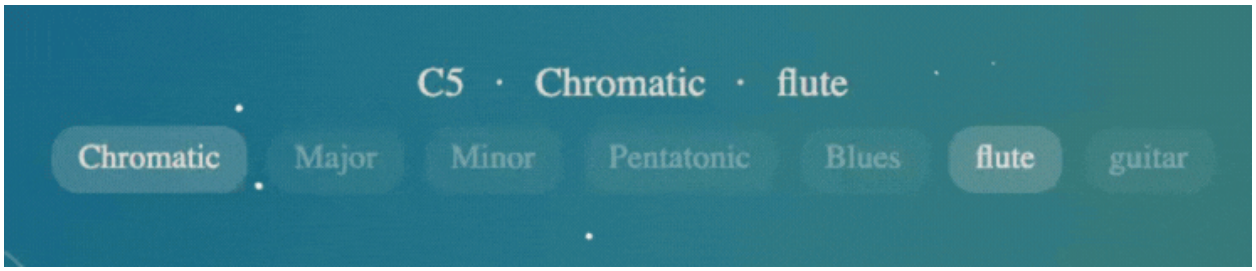


Preview of Garageband's Guitar & Pipa instruments

The layout for the MAKE stage was inspired by GarageBand's instrument UI for its built-in guitar and pipa instruments, especially the way those interfaces make music creation feel more tactile and approachable. Instead of presenting users with a traditional staff or a technical chord chart, GarageBand turns each instrument into a playable surface and allows users to explore sound through tapping and arranging. I wanted *Chordors* to carry that same sense of promptness, where users can build chords without needing to fully understand music theory first. The influence of GarageBand also helped shape the balance between structure and imagination.

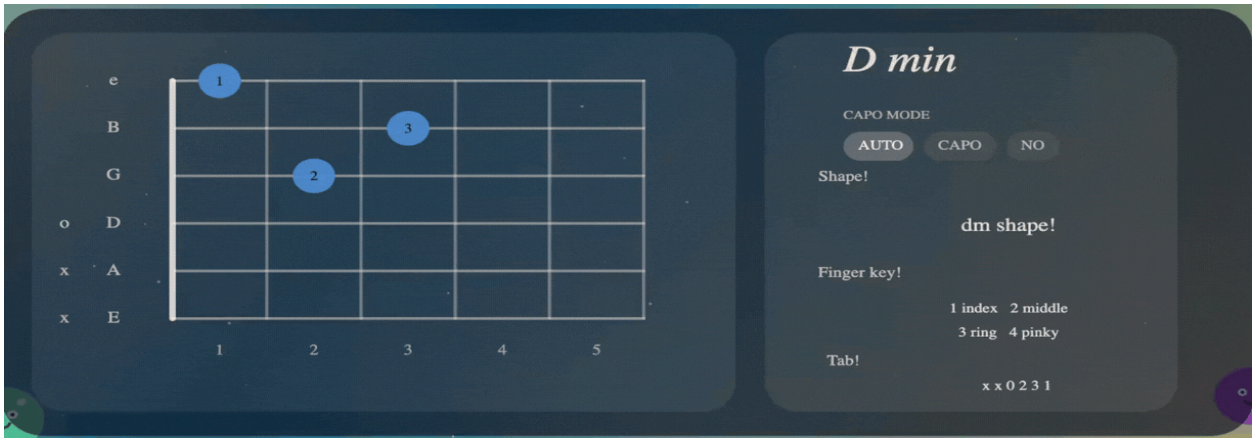


Simplified fretboard for note discovery, chromatic

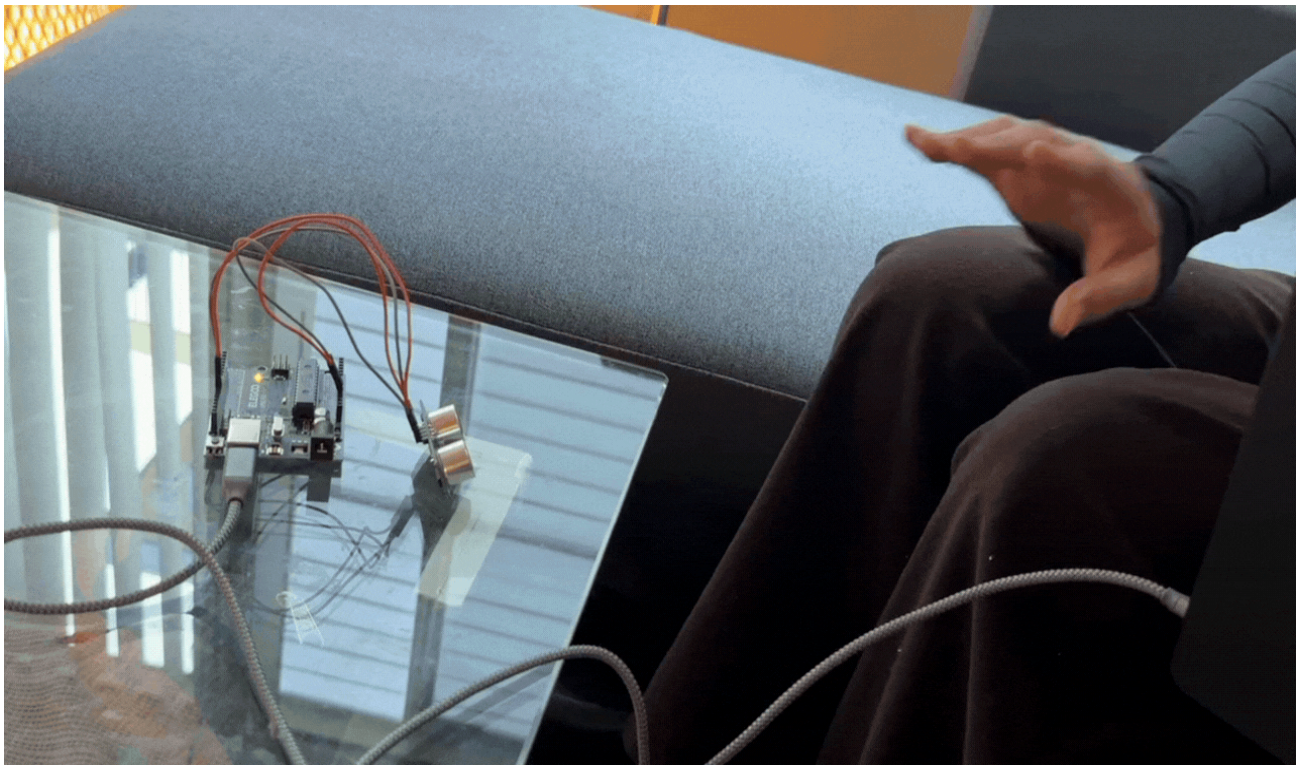


Name of note; musical scales available; flute & guitar options

Musical notes when selected, fit into a guitar pick shape



Guitar tab grid, capo/no capo modes, finger manual, type of shape, etc.



User test on ultrasonic sensor connected to Arduino board

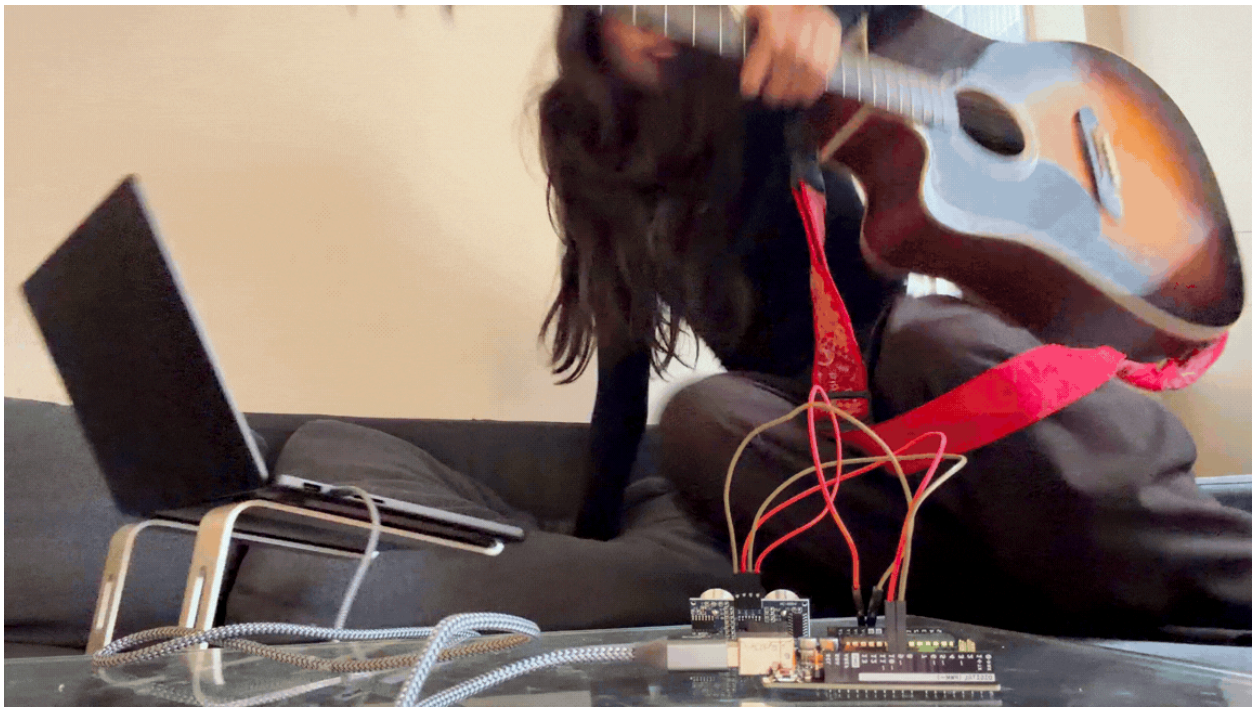
To account for Raphael's current troubles with navigating the guitar's fretboard, I decided to include an ultrasonic sensor option that lets him play notes by moving his hand closer to or farther away from the sensor. Since the actual guitar fretboard can feel visually and physically overwhelming at first, this interaction gives him another way to understand pitch placement without immediately jumping into complicated methods such as finger positioning. Although the sensor movement can be sensitive, I thought it would add a more interactive and tactile layer to the project because it connects sound to motion (and previous knowledge acquired in prior lectures!). As the user moves closer to the sensor, the icon moves farther left on the fretboard, representing a lower octave, and vice versa. This turns the fretboard into more so of a responsive visual space, where distance and pitch are linked together. For Raphael, the goal is not to replace practicing on the guitar, but rather to create a bridge towards it. By using hand movement first, he can start to build an intuitive sense of where notes live before translating that comprehension back onto the physical guitar.

Taking on With Perfectionism

Example errors: text and tab design alignment, finger number placement, complicated chords, barring

A major part of developing Chordors was learning how much precision matters when turning music into a visual learning tool. Small errors became more noticeable than I thought they would, since they directly affected how Raphael would understand the chord. For example, if the tab design was slightly misaligned, the finger numbers were placed incorrectly, or a chord shape did not match the intended sound or was unnecessarily complicated, the interface could easily become confusing instead of helpful. I ran into issues with fingering errors, capo placement, visual spacing, text alignment, chord boxes, and more complicated shapes like barre chords. These problems forced me to slow down and check the project with a more perfectionist mindset, since I believe accuracy is part of the learning experience. Since Raphael would be using this to connect notes, colors, and guitar positions, the visuals had to be consistent.

Conclusion



Essentially, *Chordors* became a way for me to turn a personal relationship with music and color into something that could support my student's learning. What began as an extension of *KEYLORS* and my own chromesthesia became a more practical tool for Raphael, especially as he continues learning guitar and building confidence with the fretboard. Through the project's MAKE, SONG, and SHAPE stages, *Chordors* tries to make chord construction feel less intimidating by letting users approach harmony through play, movement, color, and visual form before translating it into technique.

The process also taught me that making something "for someone" requires more than just designing an interesting/aesthetic interaction. It requires paying close attention to where that person struggles, what might make learning feel more encouraging, and how small visual or musical errors can affect their education or understanding. At the same time, I hope Raphael can use this tool in his free time to explore the difference between dissonance and harmony in a more personal way. Rather than treating dissonance as a mistake or musically incorrect, *Chordors* gives him the freedom to decide what sounds interesting, strange, tense, or even beautiful to him. By giving him creative control over the chords he builds, the project encourages him to see music theory not as a strict set of rules, but as a space for experimentation, taste, and discovery. In the end, the project is not only about creating chords, but about creating a softer entry point into music!

Links

Chordors	https://openprocessing.org/sketch/2932476
Chordors HTML Code	https://drive.google.com/file/d/1benu-orMiK8lsvUF9D0PjfmiSQ9SWGXo/view?usp=drive_link
Chordors Javascript Code	https://drive.google.com/file/d/1RhI2MZToVJNPEk47f3Lv3-5AfWw7f6g4/view?usp=drive_link
Chordors Ino Code	https://drive.google.com/file/d/13syg_50H0zLkNhSRFIwNCGZDkX2iHcT9/view?usp=drive_link
KEYLORS_2 HTML Code (inspiration)	https://drive.google.com/file/d/1OTr5WHWW32u8oWjPyB8Mjrzq553FaJCn/view?usp=drive_link
Final video (also in lieu of Project Class Share)	https://drive.google.com/file/d/1_B994lBuPPfIi4bnESSjiucN23f2Tboq/view?usp=sharing

Sources

Tone.js	https://tonejs.github.io/
Dr. Sudhu's Arduino Tutorial	https://github.com/loopstick/ArduinoTutorial?tab=readme-ov-file
Claude	https://claude.ai
Codex	https://openai.com/codex/
Guitar Chord Tab Template	https://www.all-guitar-chords.com/
Fender Chord Research	• https://www.fender.com/articles/chords/how-to-read-a-chord-chart • https://www.fender.com/articles/chords/read-guitar-chord-charts • https://www.fender.com/articles/chords/learn-to-play-the-a-chord-on-guitar • https://www.fender.com/articles/chords/what-is-a-power-chord