



# MIDI Colors Mykhal Parson

## Department of Emerging Media Technology

### Introduction

My Major: Emerging Media Technology

Concentration: Music Technology

My Role in this Project: Project Manager, Designer, Programmer

For my Senior Culmination Project, I originally wanted to make a live installation. But, in order to see how the project would turn out, I made it more portable.

With the help of a MIDI keyboard, a laptop, and p5.js, if two of the same types of chords are played, then the color would be intensified and bolder (brighter or darker). If one key is pressed (or no keys at all), the room would not change colors, but the note's sound would play. For the MIDI Colors prototype, the user has to press at least three notes. The prototype will determine if the played chord is a major or minor chord and show the name of the chord. The screen's color changes based on the chord played and a graphical representation will be shown on the screen as well.

#### The skills include:

1. Research Skills (Finding the connection between emotions and music)
2. Coding/Programming (Javascript)

#### The Process:

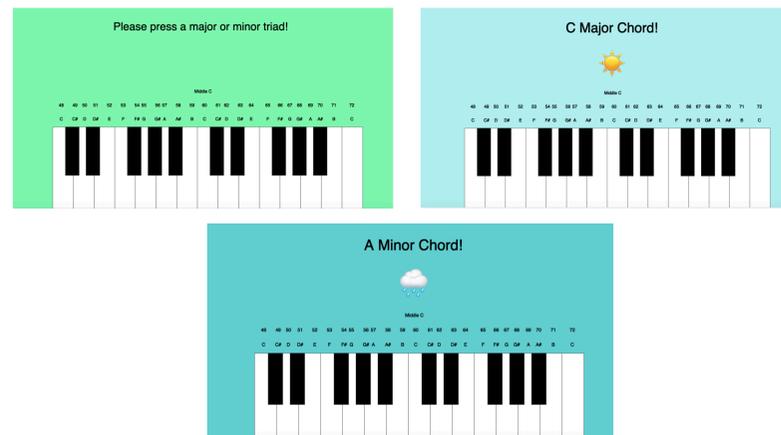
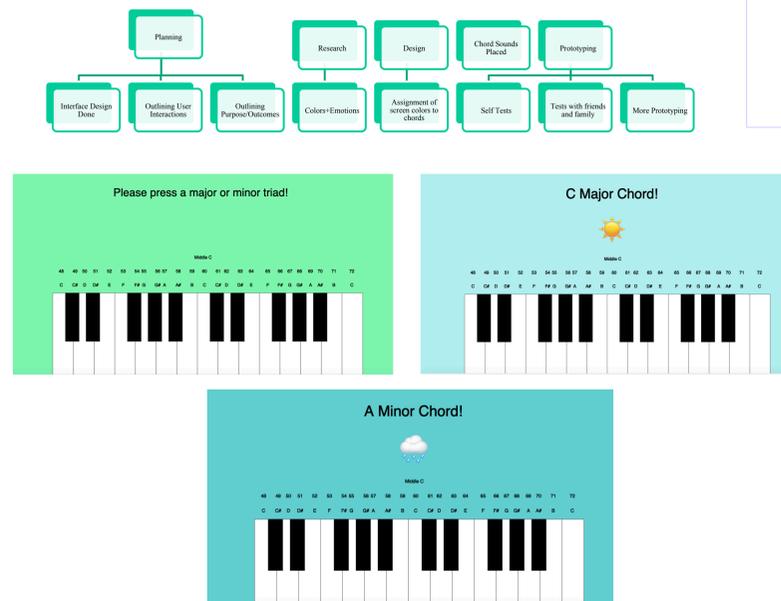
First I had to meet with Prof. Wilson and determine the specifications of my project. After this, I outlined how I wanted my project to look, and outlined my intended purposes and expected outcomes for it. Then I had to research various chords and their connections to colors. The third step was combining the design and my research to building my first prototype. Lastly, I had to test out my prototype, let my family and friends test it out, and fix my prototype based on their feedback as well.

### Hypothesis

1. It is possible to teach people the purpose of chords by associating them with colors, and visual representation
2. After teaching people about chords, they can learn how to compose songs

### Methods:

#### Work Break Down Structure Chart



### Method:

#### Schedule/Timeline

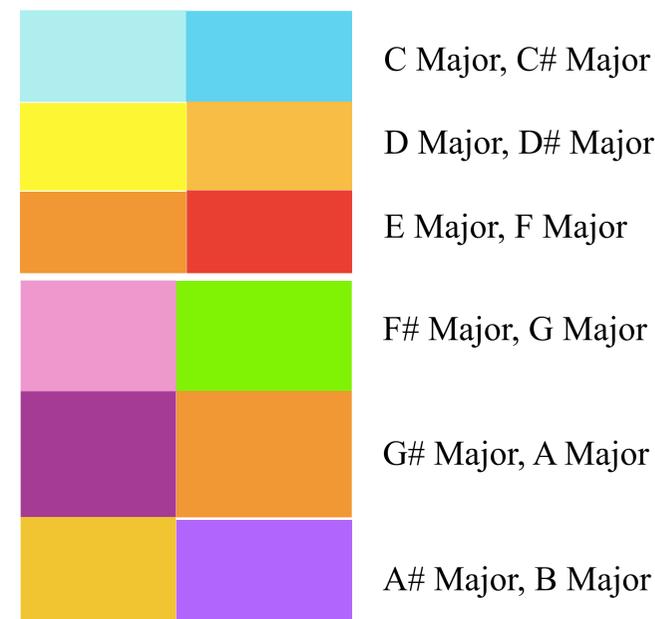
- Research colors and their connections to chords (Weeks 1-2)
- Programming Interface on p5.js (Weeks 3-4)
- Assignment of colored screens to chords (major, minor, major + major, minor + minor, major + minor) (Week 4)
- Design (Weeks 5-7)
  - Importing MIDI/USB data into Javascript (Week 5)
  - Placement of chord names on screen (Week 6)
  - Sounds of chords implemented (Week 6)
- Programming Graphical Objects (Visuals that connect to chords) (Week 7)
  - Displays of shapes and images chosen
- Prototyping/Testing (Weeks 8-10)
  - Initial self-tests (Week 8)
    - Self-testing captured on camera
  - Testing with friends and family (Week 9)
    - Showing test subjects my video from week 8 to help them with ear training
  - Final changes to project (Week 10)
  - Last tests of project (Week 10)

### Materials

1. 32 Key MIDI Keyboard
2. MacBook Air (any laptop)
3. P5.js (Javascript)
4. Scholar papers

### Results

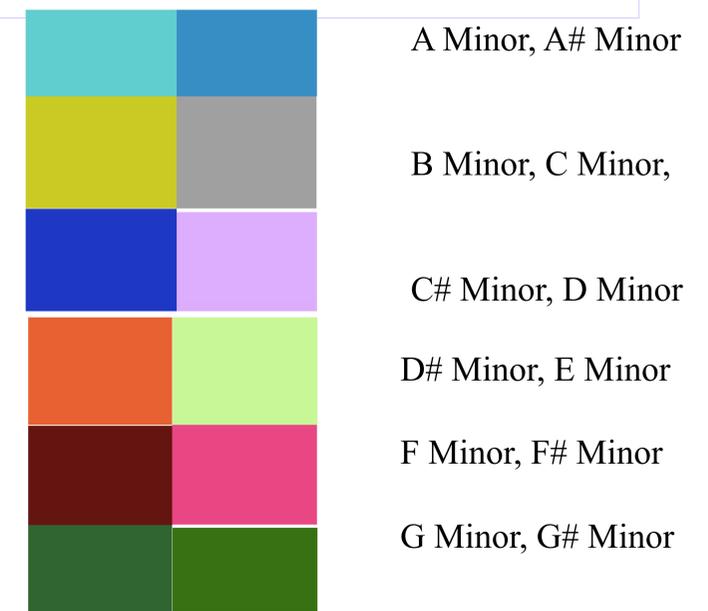
1. It is possible to teach people minor and major chords by associating them with colors and shapes/images
2. People can associate chords to various emotions (major chords mean happier songs, minor chords are used for more melancholic songs)
3. The finished product is portable and accessible in various homes



### Conclusion & Acknowledgements

My findings will help me learn how to teach people of all ages. This small project will help me think of new ways to flesh out my original idea, a larger scaled immersive installation of this project. I want to use this project to discover other ways of teaching music with the help of MIDI keyboards and various software. I want to also be able to put this project in multiple homes as well, and eventually make my own software based on this idea.

I would like to thank Professor Adam Wilson for his help with MIDI Colors on a weekly basis.



### Literature Cited

- Elkoshi, R. (2004, September 10). Is music "colorful"? A study of the effects of age and musical literacy on children's notational color expressions. *International Journal of Education & the Arts*, 5(2).
- Palmer, S. E., Langlois, T. A., & Schloss, K. B. (2016). Music-to-color associations of single-line piano melodies in non-synesthetes. *Multisensory Research*, 29(1-3), 157-193. <https://doi.org/10.1163/22134808-00002486>