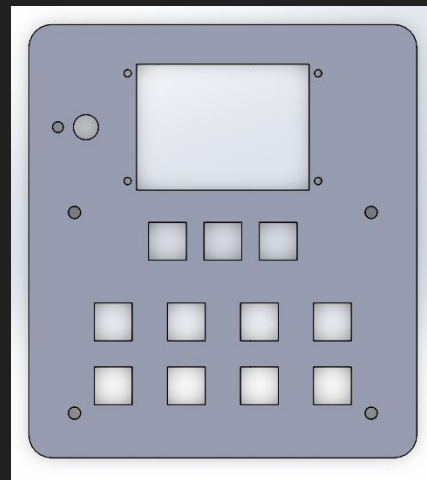# SquidBox

Riff Riders

Project Goals:
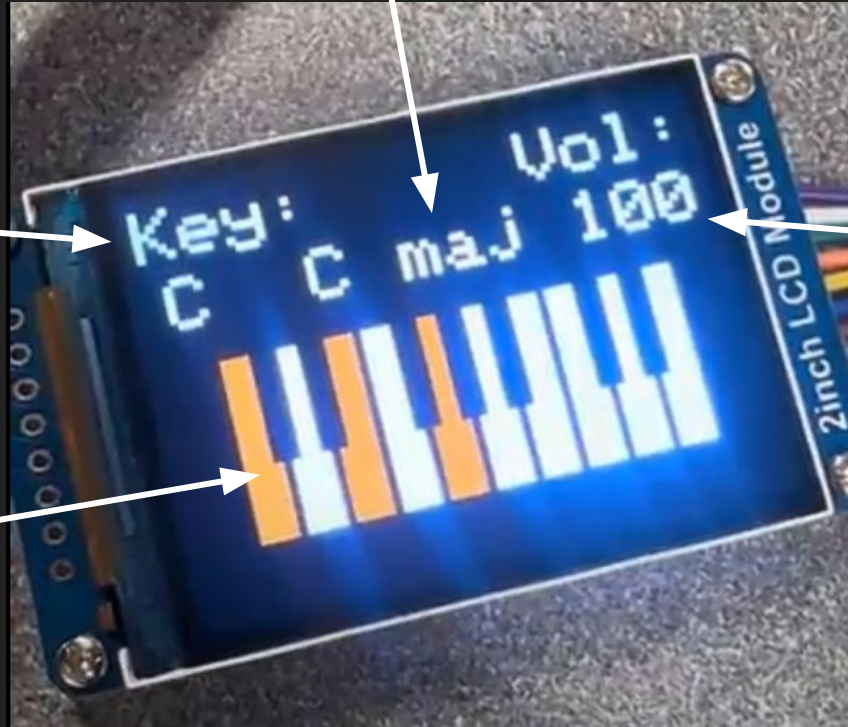
- Create a UI design for chord visualization

- Add a working volume knob

- Make an accessible and ergonomic casing

The UI was designed to be easy to understand

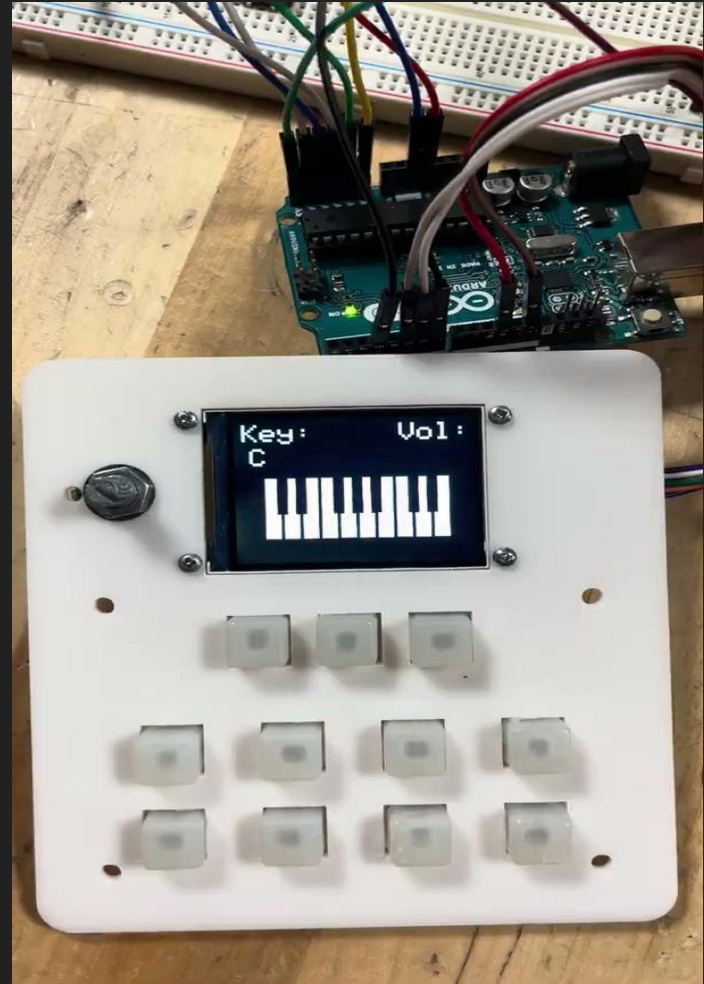Chord being played

Key chord is in

Volume visual

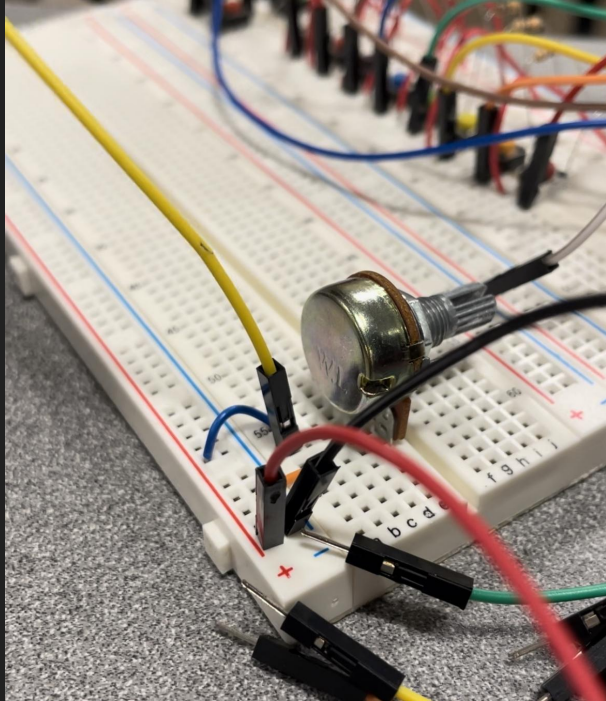Highlighted notes in chord

Early tests showed promising results but still needed development

- Volume button is not wired yet

- Only three chord buttons are wired

- Wired buttons are not attached to the case yet

Volume knob and buttons were connected using +, ground and analog pins (for variable inputs)

- Wired and coded volume potentiometer and 7 buttons
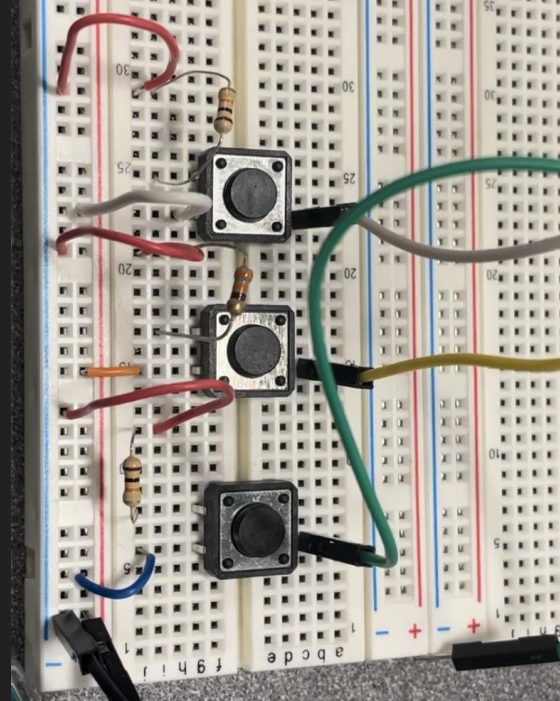
# The code had multiple functions that organized

- `void startupAnimation();`

- `void printMenu();`

- `void printKeyboard(int rootNote, int chordKey);`

- `void diatonic(int key);`

- `void printVolume(int volume);`

- `void printKey(int key);`

- `String intToChordLetter(int chordNumber);`

- `String intToChordType(int chordNumber);`

Also used 2 state machines to iterate through the code

```
void loop() {
    switch(menu) {
        case 0: //default menu
        printMenu(); //prints out the starting menu on the display
            switch(menu_select){
                case 1: //play
```
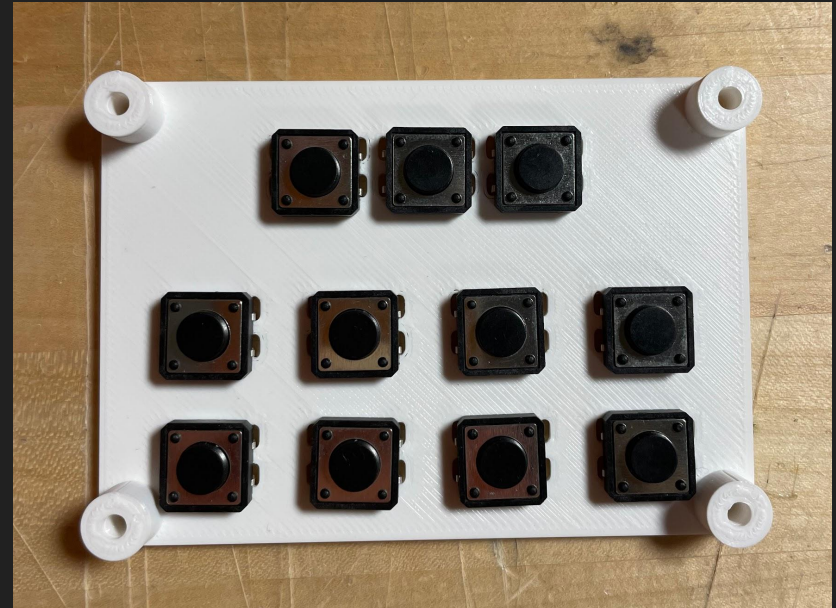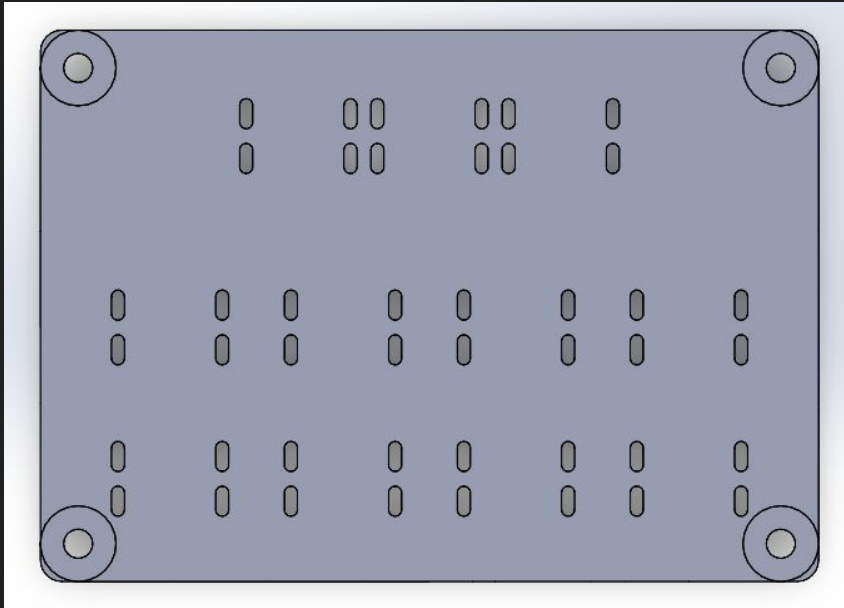
Created a aesthetically pleasing and functional casing

- Laser cut front face of case, screwed in screen and potentiometer
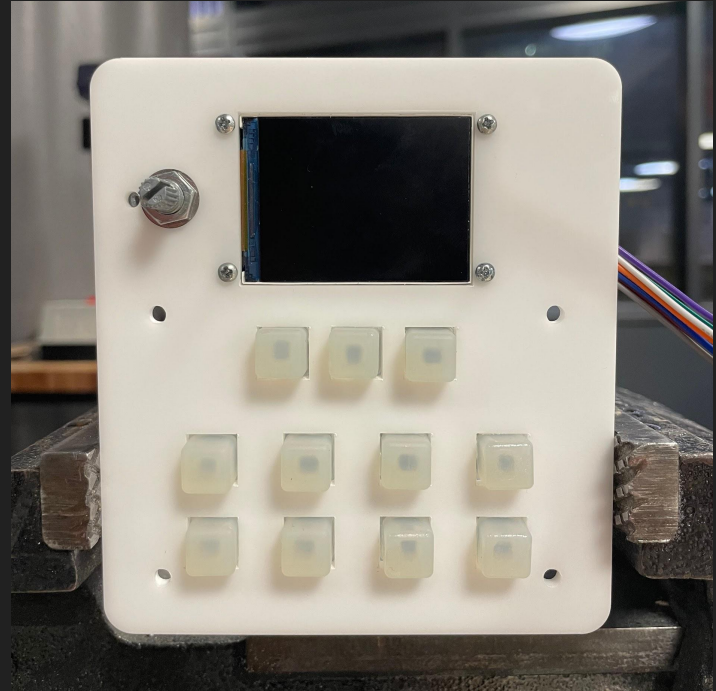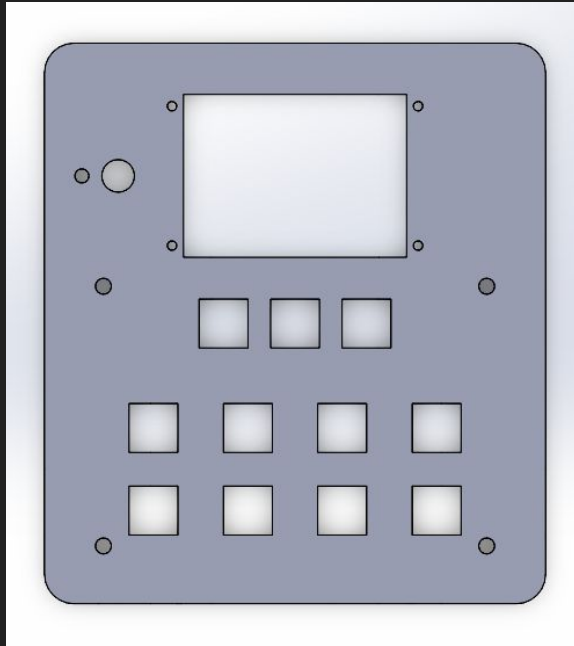
# Inside of the casing was unable to align to a normal beadboard

- 3D printed custom breadboard for buttons and attached to case front
- 3D printed a stand for the normal breadboard

Problems that we overcame and some we didn't

- Some of the pins in the arduino were not working
- The old buttons didn't work well
- Previous code unreadable and unexplained
- Previous electronics sometimes wrong
- 3D printing problems at the prototyping lab
- Finding hardware like buzzers, screws, wires, etc.
- Wiring the final assembly
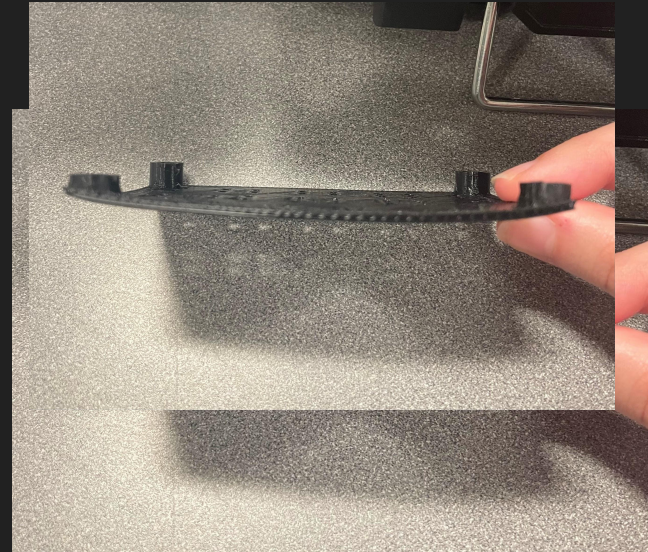
Final Product

- Assembled buttons onto button board and case face

- Soldered buttons

- Attached breadboard to support and taped support to button board

- Wired chord buttons to breadboard and arduino

- Wired volume potent to breadboard and arduino

For Future Groups:

- Design and fabricate a case backing
- Add buzzer
- Speed up UI
- Add more and varying scales
- Add bluetooth MIDI
- Allow for more inputs (Arduino Mega)
- Combine SquidBox 1 and 2 to make a new product