

Conductor's Hand

Description

This Arduino project is about building a glove device where each of your five fingers will play different notes and light up each of the LEDs. Each of the notes are in the pentatonic scale which will make it easier to play and sound great at the same time.

Requirements

- [VSCode](#)
- [PlatformIO](#)
- Arduino UNO

Instructions

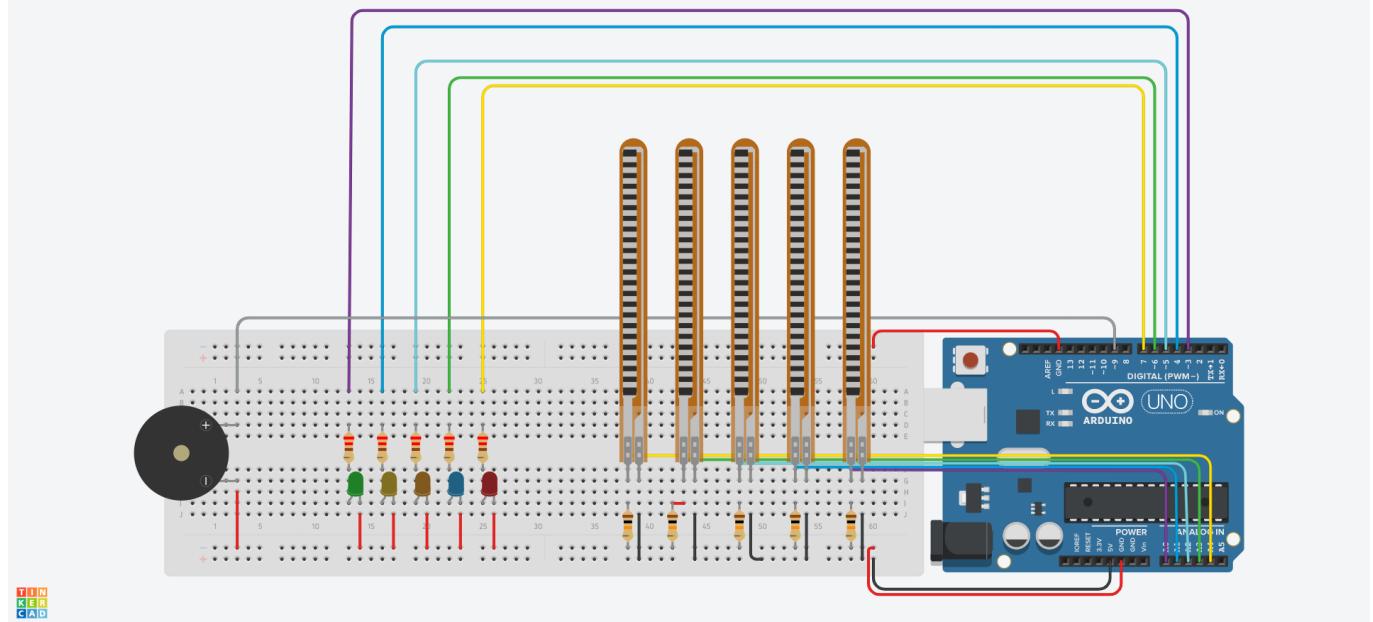
How to use it?

1. Plug in your audio output
2. Plug in your power source
3. Insert your right arm into the strap below
4. Insert your right hand into the glove
5. Move your finger(s) to play the music

Components Used

- Gloves (2x)
- KT Tape
- Copper Wires
- Graphite Colored Paper (5x)
- 3D Printed Wrist Gauntlet
- LEDs (4x)
- Aux Speaker Pin
- 5 Flex Sensors
- Electrical Terminals
- Velcro (Fasteners)

Circuit Schema

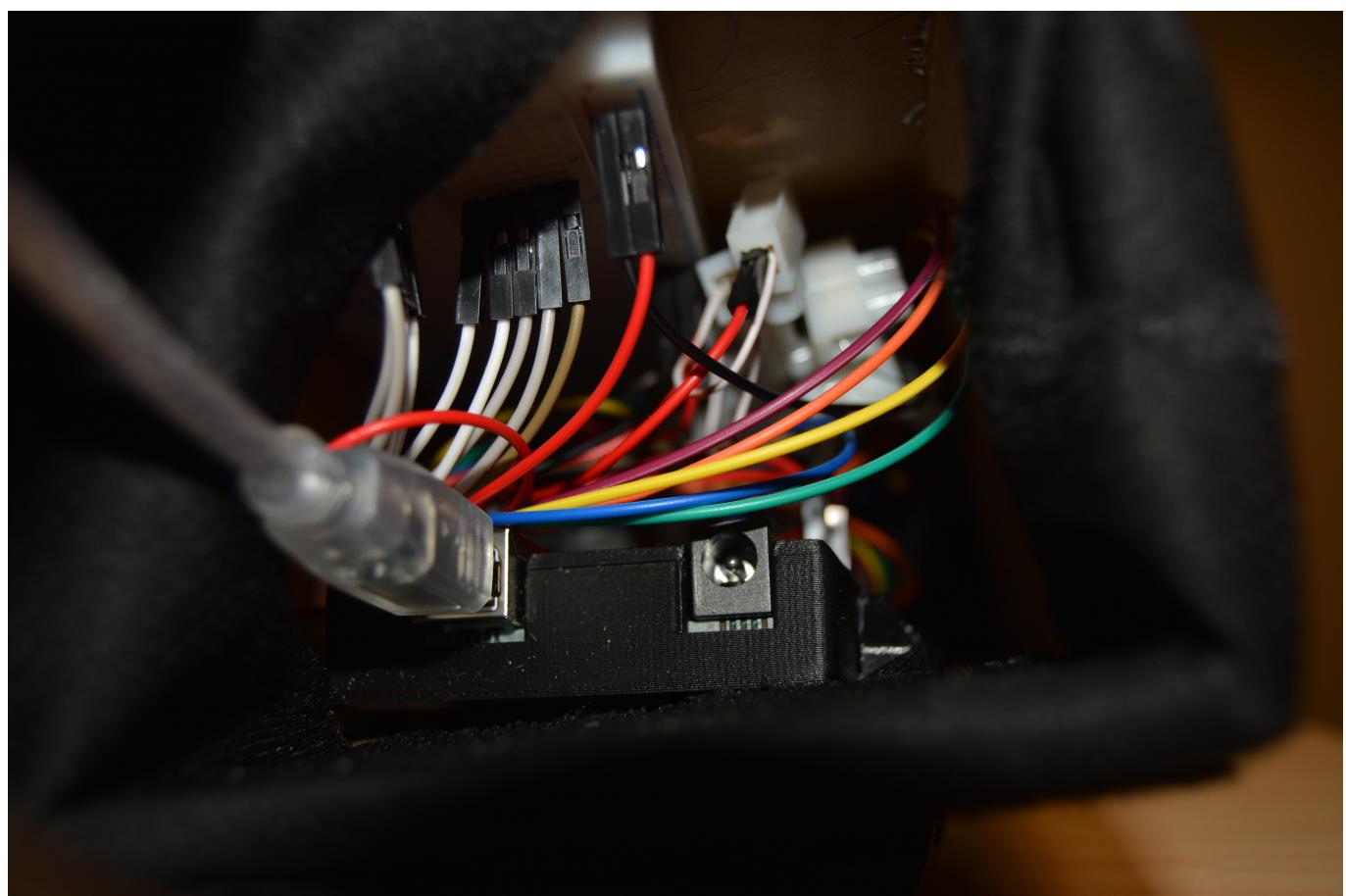


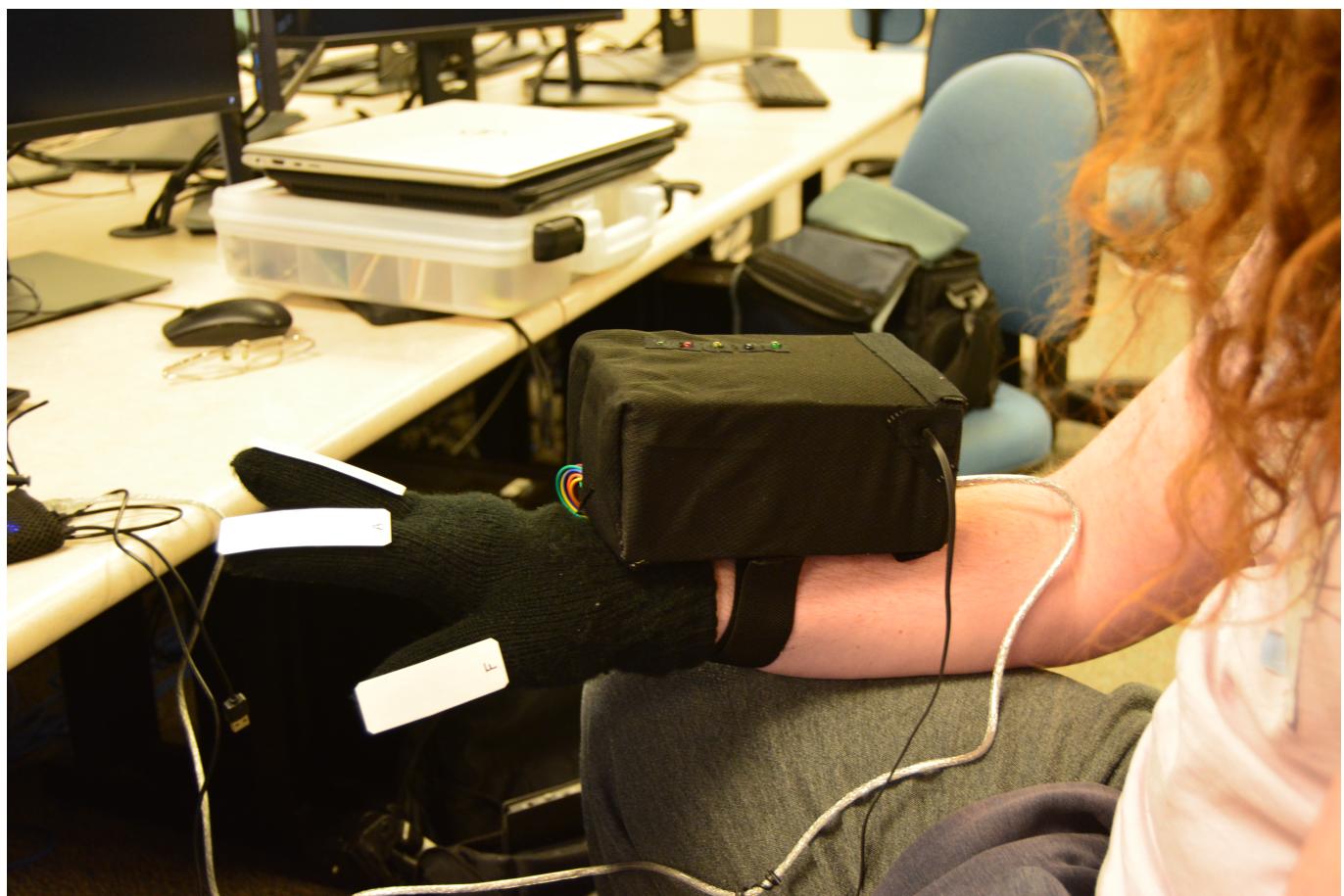
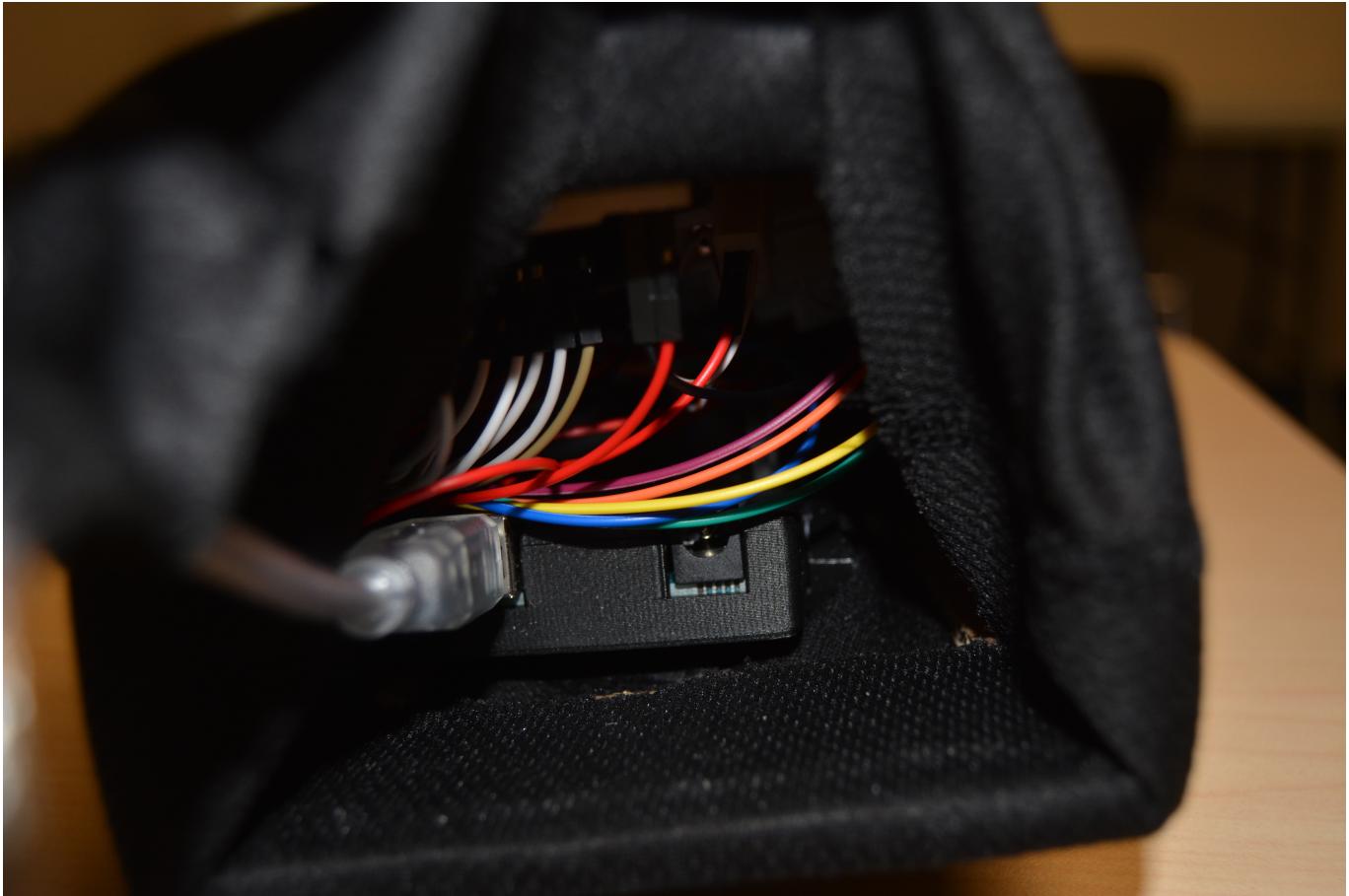
[Wiring Schema PDF](#)

Images









Video

[Demo Video {/docs/video/conductors_hand-demo.mp4}](#)

Contributions

- Aldrin Azucena
- Sophia Mai
- Xavier Brooks

Resources

Arduino

- [*PlatformIO: Convert .ino -> .cpp file*](#)

3D Print Parts

- [Arduino Holder](#)
- [Forearm Split 1](#)
- [Strap Adjuster](#)
- [Arduino Top Case](#)
- [Hinges](#)

References

- <https://sensorium.github.io/Mozzi/examples>
- <https://learn.sparkfun.com/tutorials/flex-sensor-hookup-guide/example-program>
- <https://www.instructables.com/Arduino-Flex-Sensor-Glove/>
- https://github.com/JonathanCates/Flex_Sensor_Glove/blob/master/Flex_Sensor_Glove.ino
- [https://lastminuteengineers.com/flex-sensor-arduino-tutorial/#:~:text=The%20resistance%20of%20the%20flex,Rflex\)%20%2B%20%22%20ohms%22\)%3B](https://lastminuteengineers.com/flex-sensor-arduino-tutorial/#:~:text=The%20resistance%20of%20the%20flex,Rflex)%20%2B%20%22%20ohms%22)%3B)
- <https://circuitdigest.com/microcontroller-projects/interfacing-flex-sensor-with-arduino>
- <https://quod.lib.umich.edu/cgi/p/pod/dod-idx/mozzi-interactive-sound-synthesis-on-the-open-source-arduino.pdf?c=icmc;idno=bbp2372.2013.002>
- <https://pages.mtu.edu/~suits/notefreqs.html>
- https://www.inspiredacoustics.com/en/MIDI_note_numbers_and_center_frequencies