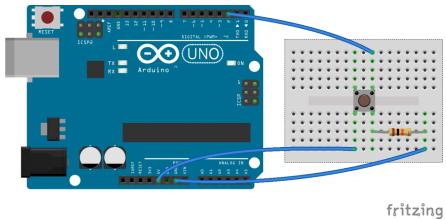


Function Proposal

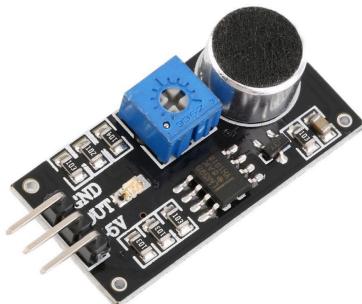
Inputs



- Pushbutton
 - One of the pushbuttons will trigger the harmonic note so that users can hear what they are supposed to be singing.
 - <https://www.arduino.cc/en/tutorial/pushbutton>



- SPST Rocker Switch
 - This will serve as the on/off switch.
 - <https://www.engineersgarage.com/insight/how-rocker-switch-works>



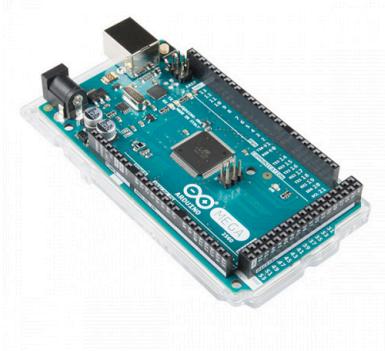
- Sound Sensor
 - The sensor will detect the frequencies of the notes being sung by the user.
 - <http://www.instructables.com/id/Arduino-Sound-Sensor-with-LED/>



- Thumbwheel Potentiometer

- This will control the volume of the melodic note.
- <http://www.schattendesign.com/thumbwheels.htm>
- <https://www.build-electronic-circuits.com/potentiometer/>

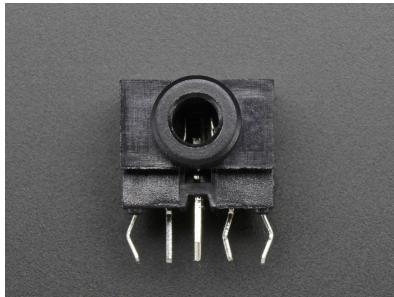
Processing



- Arduino Mega
 - The touch screen takes up every pin on the Arduino Uno board, so to have room for my other I/O this is the next size up
 - Disadvantages is that's it much larger and much more expensive
 - <https://www.sparkfun.com/products/11061>

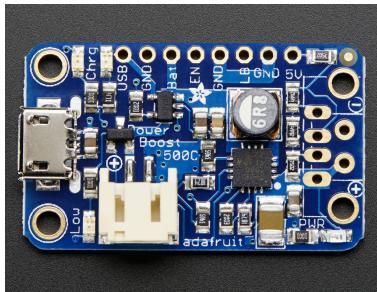


- Elegoo 2.8" TFT Touch Screen
 - This screen will display the chord name, a music staff with a melodic note and a harmonic note, and a scale indicating how in tune the person singing is. It will also feature options for changing the chord type and playing/pausing the melodic note.
 - It is a larger screen which is suitable for being able to display the various components of the design. It allows for multiple colors which will come into play with the tuning aspect of the device as well as indicating what note is the harmony and which is the melody.
 - <https://github.com/dmainmon/myNumberPad>
 - https://www.youtube.com/watch?v=_h4LrQCqj1Y
 - <http://www.instructables.com/id/UNO-R3-28-TFT-Touch-Screen-With-SD-Card-Socket-for/>



- Headphone Port
 - This will provide a place for users to plug in headphones and hear the melodic note. This prevents the device from confusing sounds that are being sung and sounds that are being played.
 - <https://diyhacking.com/arduino-audio-player/>
 - <https://github.com/TMRh20/TMRpcm>
 - <https://www.arduino.cc/en/Tutorial/SimpleAudioPlayer>

Power



- Adafruit PowerBoost 500 Charger
 - This will provide power and allows for recharging LiPo batteries as well as indicating when battery is running low.
 - <https://learn.adafruit.com/adafruit-powerboost-500-plus-charger>

Software

- Arduino IDE
 - This will communicate and store all code to/from the desired inputs and outputs.
 - <https://www.arduino.cc/>