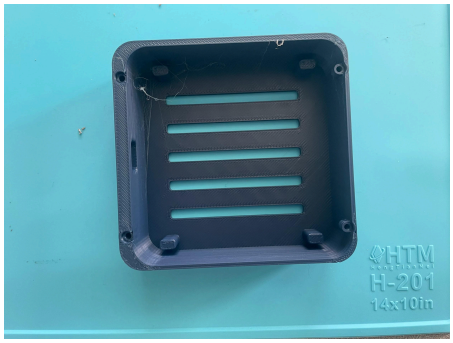
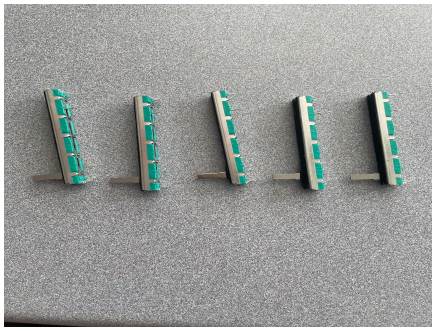
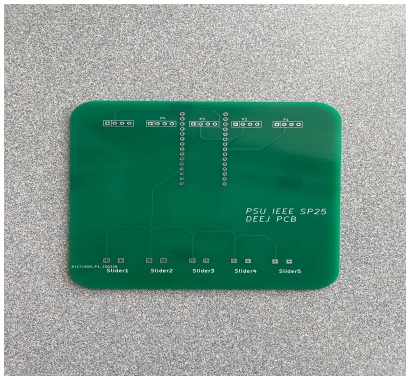
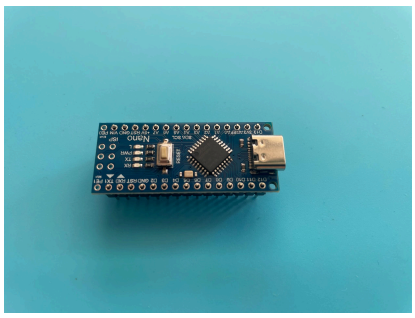
PSU IEEE SPRING 25
Components for DeeJ

Component	**Photo**
[1] Case Cover	
[1] Case Base	
[5] Potentiometers Caps	
[5] Slide Potentiometers	

[1] Printed Circuit Board	
[1] Arduino Nano	
[4] 2.5mm screws	
[4] Rubber Feet	

[1] USB-C Cable	

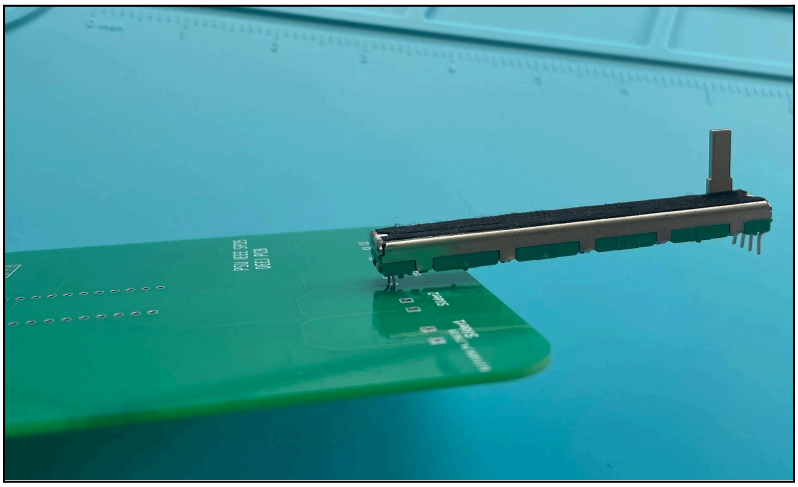
Part 1: Soldering

We'll start by soldering the components. But first, we'll want to align the pins to prep the potentiometers.

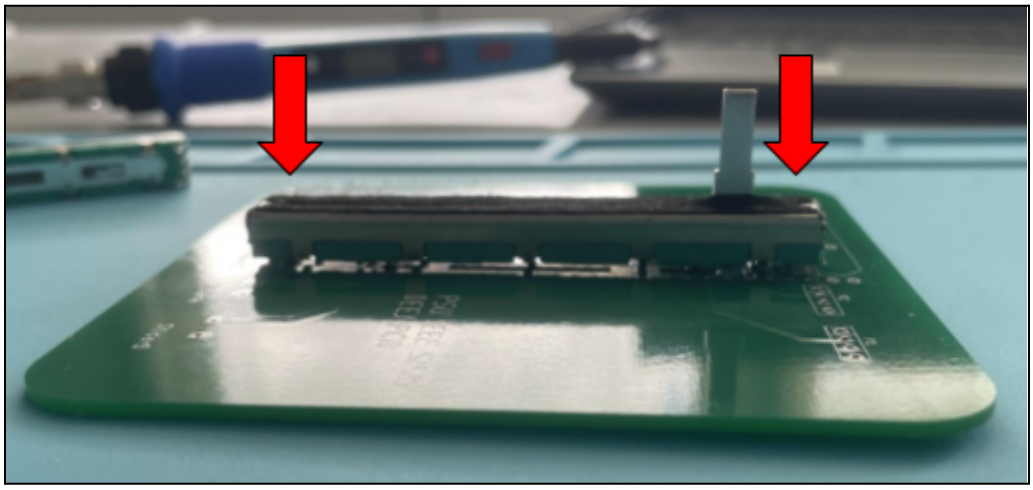
0. Alignment

Aligning the pins at the beginning will simplify the process and also help prevent damage to the potentiometer.

Start by aligning the bottom two pins with the board and (if needed) bending the support pins along the body inside.



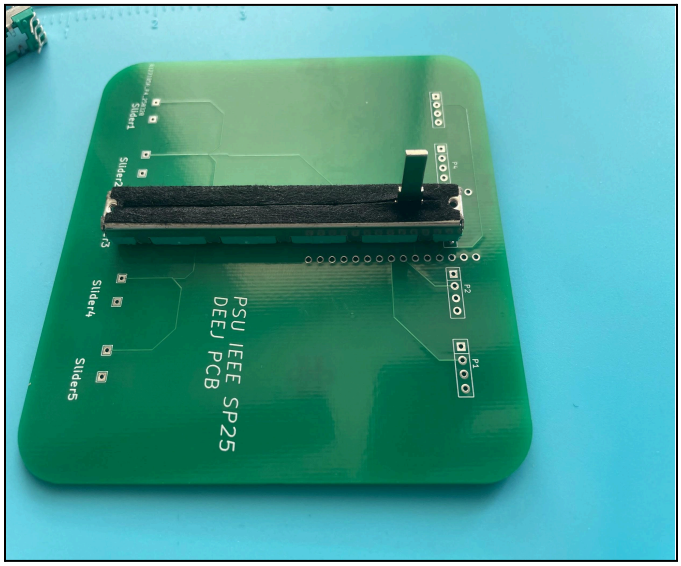
Then, align the four pins with the footprints and gently press the potentiometer into the board, applying even pressure to both sides.



1. Slider 3

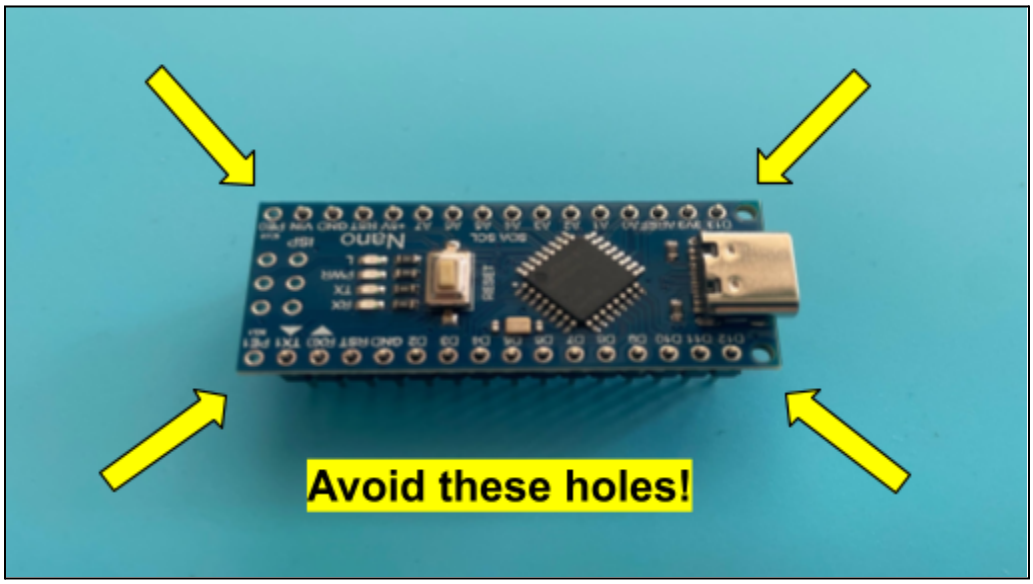
NOTE: THE SOLDERING ORDER MATTERS!!

First, we'll solder the middle potentiometer to the PCB. This will allow us to solder the Arduino without too much effort. Align the bottom two pins before pressing the potentiometer into the board. Ensure even pressure is applied to both sides of the potentiometer.

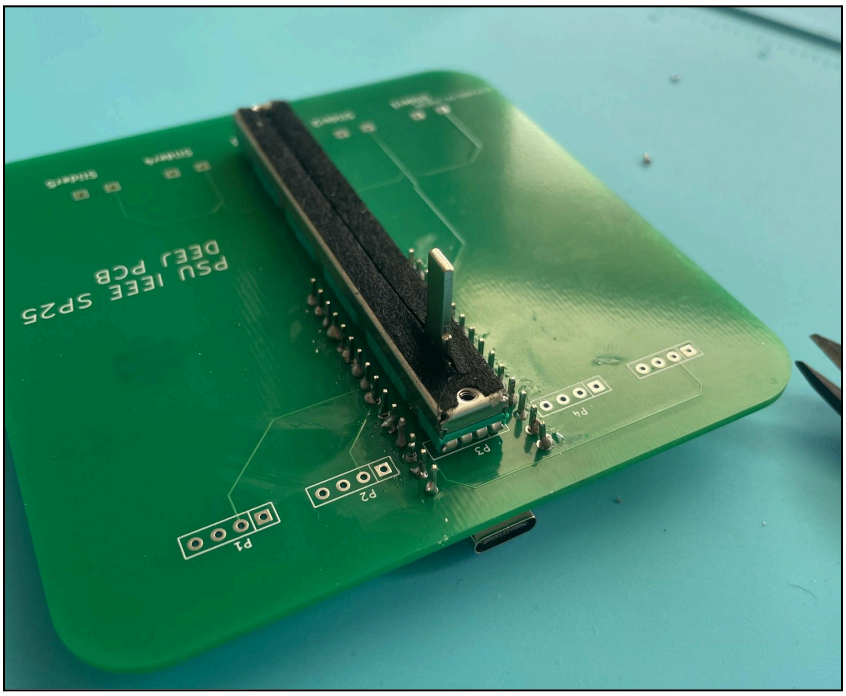


2. **The Arduino Nano**

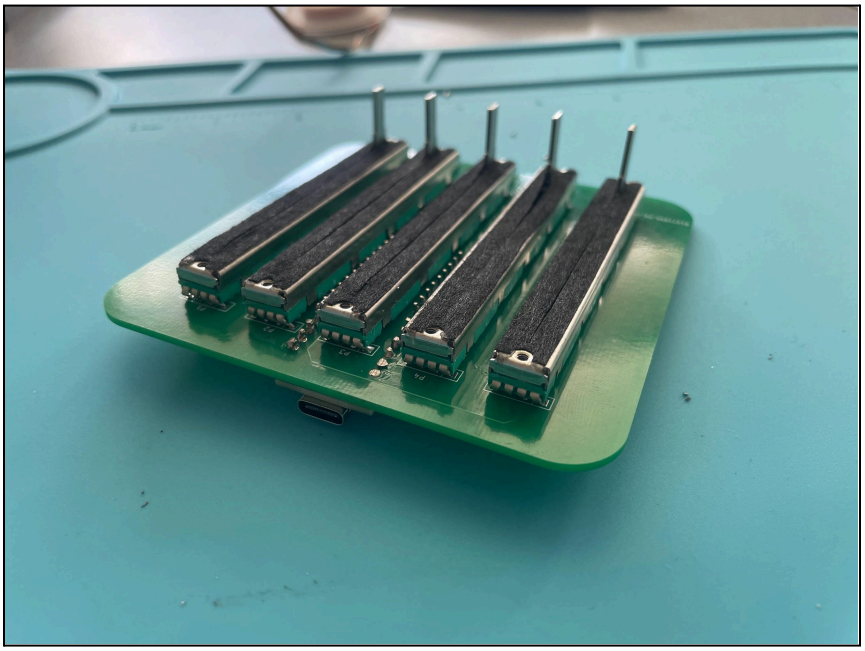
Next, we'll solder the Arduino. First, solder the pin headers to the Arduino. **Make sure you align the pins correctly!**



Then, we will solder the Arduino to the PCB. Make sure the usb port faces out.



3. **The Other Potentiometers:** Finally, we'll solder the rest of the sliders using the same alignment method for each one.

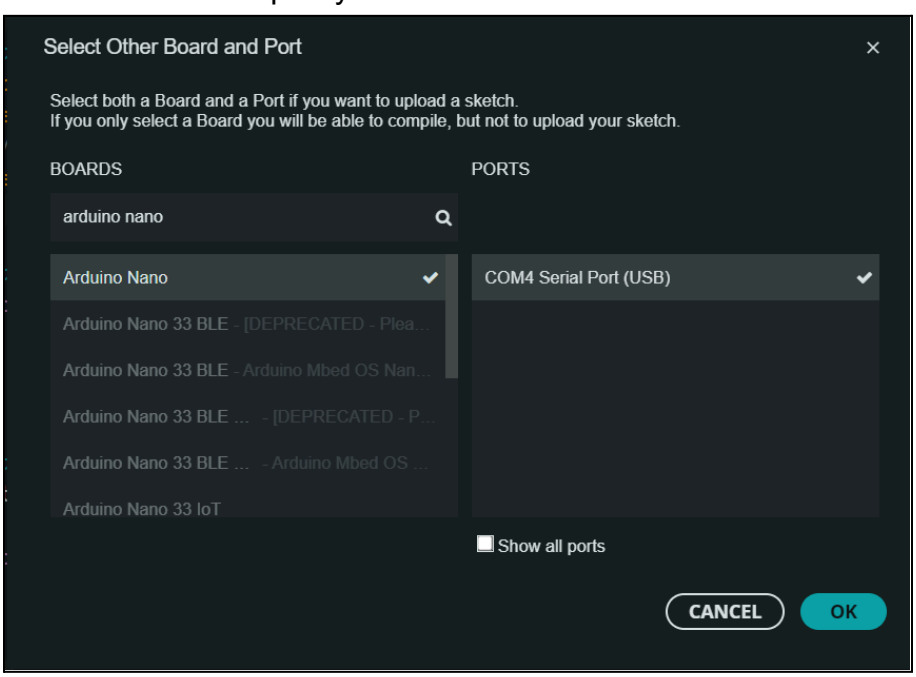


NOTE: It is recommended that you align the wipers using a straight edge like a table or ruler.

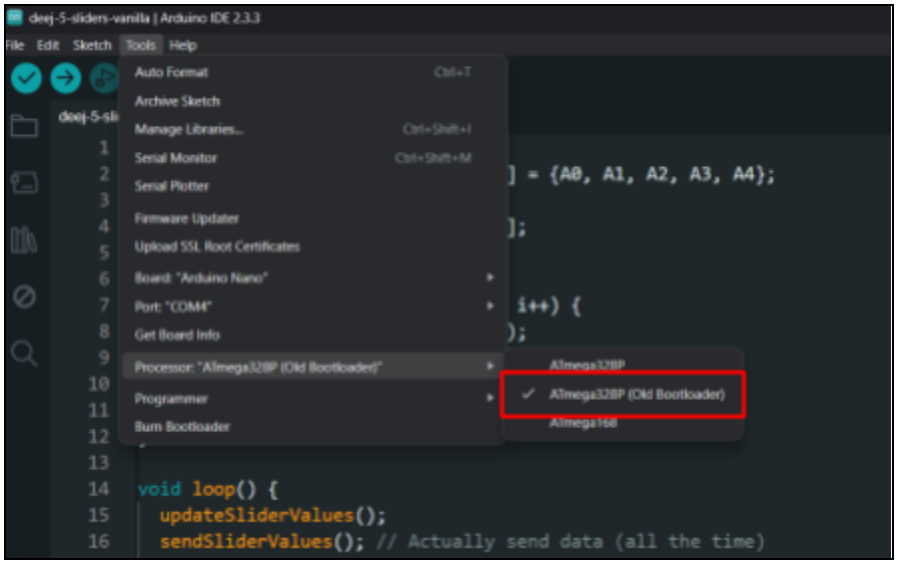
Part 2: Arduino Code

1. **Download the code:** Download and open `deej-5-sliders-vanilla.ino` in Arduino IDE. You can find it in the README of the Github repository.

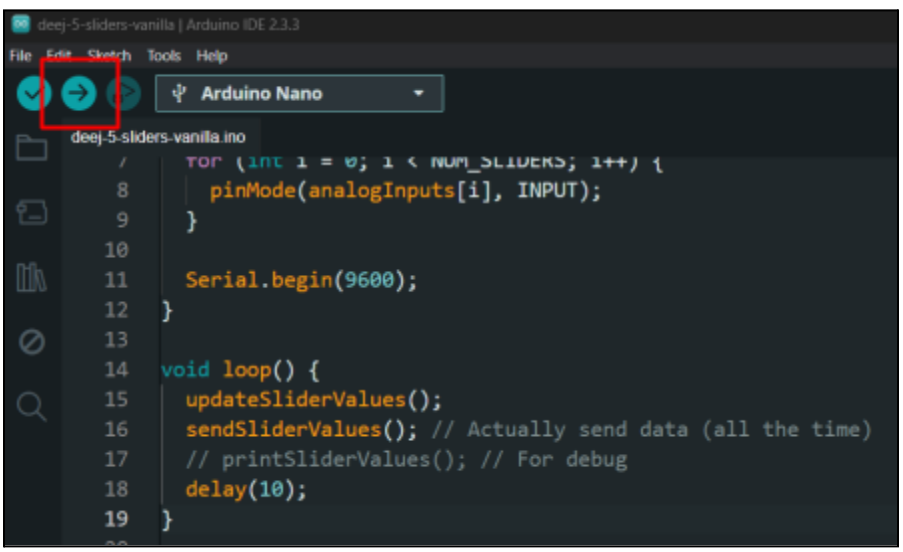
2. **Select your board:** With the usb connected to your computer, click the “Select Board” dropdown -> “Select other board and port…” then search and select “Arduino Nano” and your COM port (for example “COM4”), then press “OK”. Remember which COM port you chose for later.



3. **Change the bootloader:** Go to “Tools” -> “Processor:” and select “ATmega328P (Old Bootloader)”



4. **Upload:** Press “upload” and wait until completed.



5. **Check it is working:** “Tools” -> “Serial monitor” and make sure you are on 9600 baud. You should see all the potentiometer values printed in the monitor. Move the sliders and see them change! If everything is working, you can now close Arduino IDE.

Output Serial Monitor

Message (Enter to send message to 'Arduino Nano' on 'COM4')

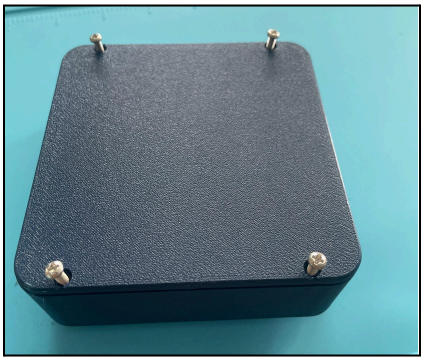
New Line | 9600 baud

```
80|1008|354|605|0
80|1009|354|605|0
80|1008|353|605|0
80|1009|354|605|0
80|1009|354|605|0
80|1009|354|605|0
80|1008|353|605|0
81|1009|354|605|0
80|1008|354|605|0
80|1009|354|605|0
80|1009|353|605|0
80|1009|353|605|0
80|1009|354|605|0
80|1008|354|605|0
80|1009|354|605|0
80|1009|353|605|0
80|1009|354|605|0
80|1009|354|605|0
81|1009|354|605|0
80|1009|354|605|0
79|1009|354|605|0
80|1009|354|605|0
80|1008|353|605|0
80|1008|354|605|0
80|1009|354|605|0
```

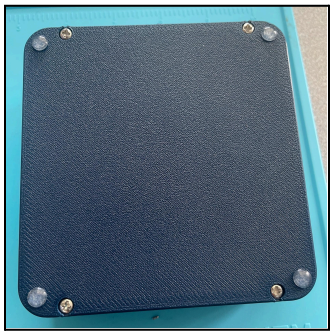
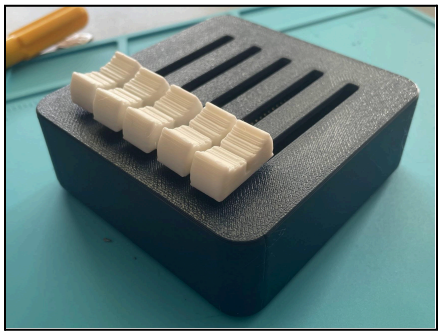
Part 3: The Case

1. **Place the PCB:** Now, place the PCB into the case. Make sure the sliders are aligned and move smoothly.

2. **Screw it in:** Next, we'll screw the case in. To make this easier, use a screwdriver to widen the screw holes before pressing the screws into place. Then, simply screw the bottom in.

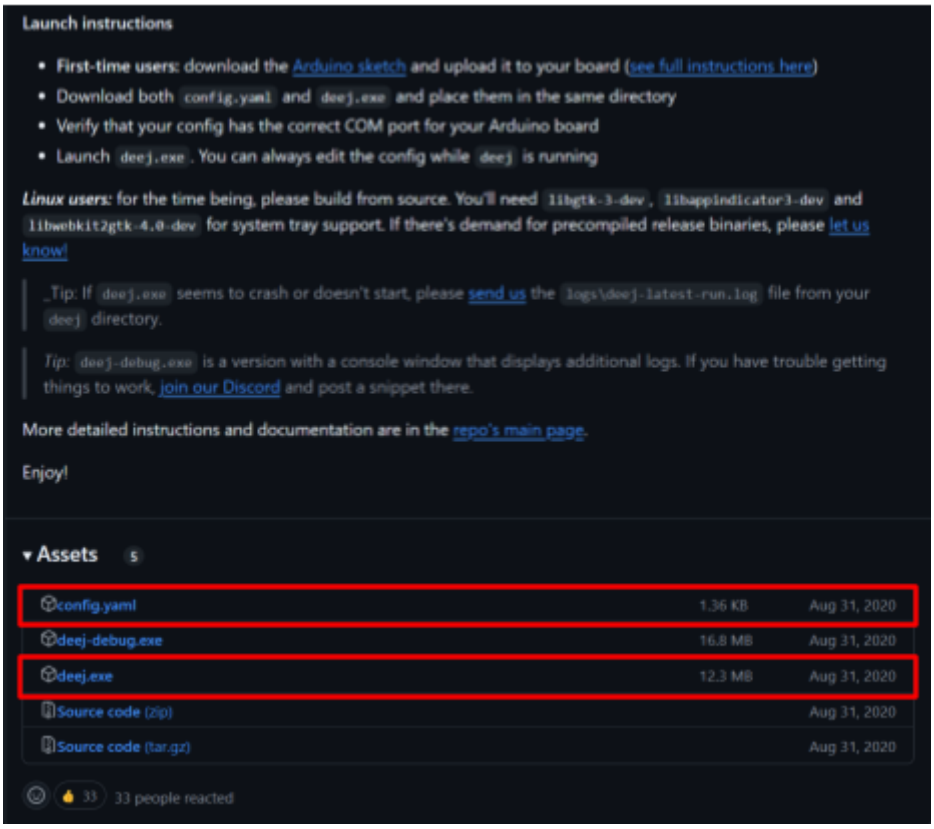


3. **Add the bits:** Next, we will add the feet to the base of the DeeJ along with the caps.

Part 4: Deej software

1. **Download the executable:** Go to the deej releases page (also listed in the README), scroll down and install `deej.exe` and `config.yaml`. It is highly recommended to put these files in their own folder and move them to a different directory (such as “Documents\Deej”). Note: if you are on Linux, you will have to build from source.



2. **Set the config:** Open up `config.yaml` and set your slider mappings. The comments describe options for slider mappings. Also be sure to change the com_port to your respective com port.

```yaml
# process names are case-insensitive
# you can use 'master' to indicate the master channel, or a list of process names to create
# you can use 'mic' to control your mic input level (uses the default recording device)
# you can use 'deej.unmapped' to control all apps that aren't bound to any slider (this ign
# windows only - you can use 'deej.current' to control the currently active app (whether fu
# windows only - you can use a device's full name, i.e. "Speakers (Realtek High Definition
# windows only - you can use 'system' to control the "system sounds" volume
# important: slider indexes start at 0, regardless of which analog pins you're using!
slider_mapping:
  0: master
  1: chrome.exe
  2: spotify.exe
  3: discord.exe
  4: deej.current

# set this to true if you want the controls inverted (i.e. top is 0%, bottom is 100%)
invert_sliders: false

# settings for connecting to the arduino board
com_port: COM4
baud_rate: 9600

# adjust the amount of signal noise reduction depending on your hardware quality
# supported values are "low" (excellent hardware), "default" (regular hardware) or "high" (
noise_reduction: default
```

3. **Run the executable:** Find `deej.exe` in your file explorer and run it with the volume mixer plugged into your computer. You will know it is running when it appears in your system tray. If it does not start, be sure that your config file is correct and in the same directory as the executable. Enjoy your new volume mixer!
4. **(Optional) Autostart Deej**: In file explorer, right click `deej.exe` -> “Show more options” -> “Create shortcut”. Then press “Windows Key + R” and type “shell:startup” into the prompt to bring up the startup folder. Move the deej shortcut into the startup folder.

Your finished product should look something like this!