ROBO-GUITAR:

Because We're Not Talented Enough to Play an Instrument on Our Own

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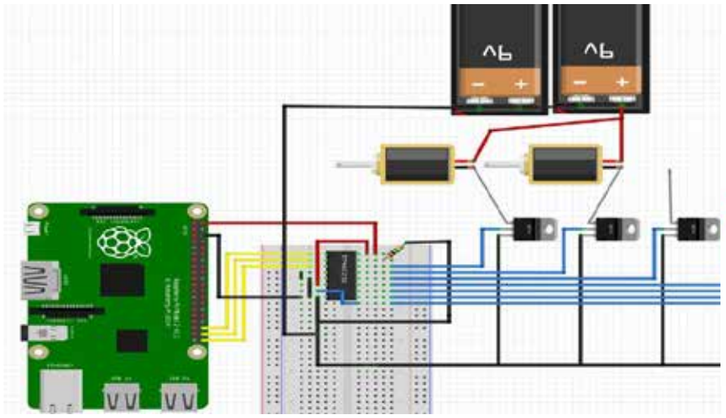
Goals

- Q1: Modify a guitar to play a few seconds of a simple song to display functionality.
- Q2: Modify setup to play multiple songs without hardcoding.

Approach

To implement this project, we are attaching solenoids and servos to an electric guitar. The servos will pluck the strings as the solenoids pitch the strings. The solenoids will use an external power supply, while the servos will directly use the Raspberry Pi output pins.

Implementation



Progress

- Simulated circuitry and design
- Acquired and tested all of our hardware
- Created 2nd prototypes of our 3D prints
- Assembled and soldered circuit

Setbacks

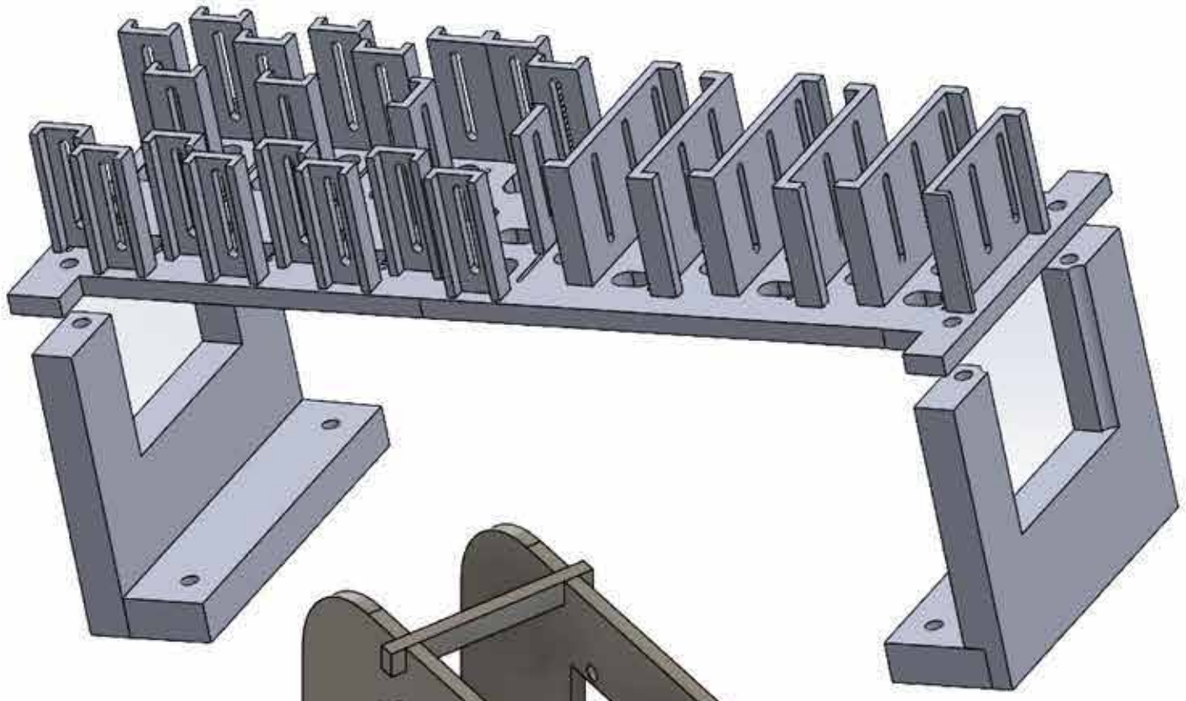
- Difficulty sourcing parts with short delivery times
- Heating from high-current solenoids
- Resourcing the right power supply with desired power output

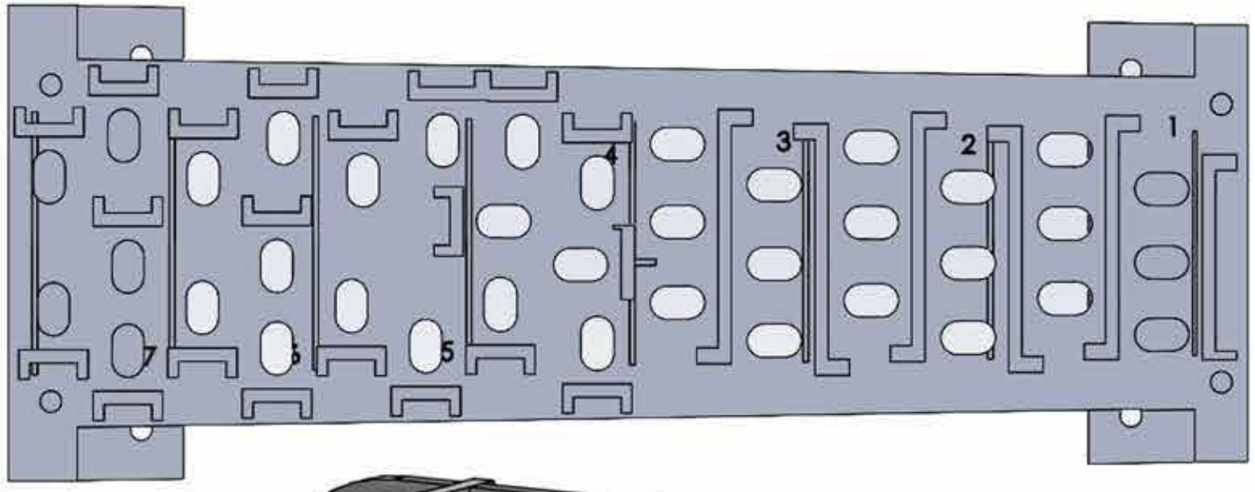
Q2 Goals

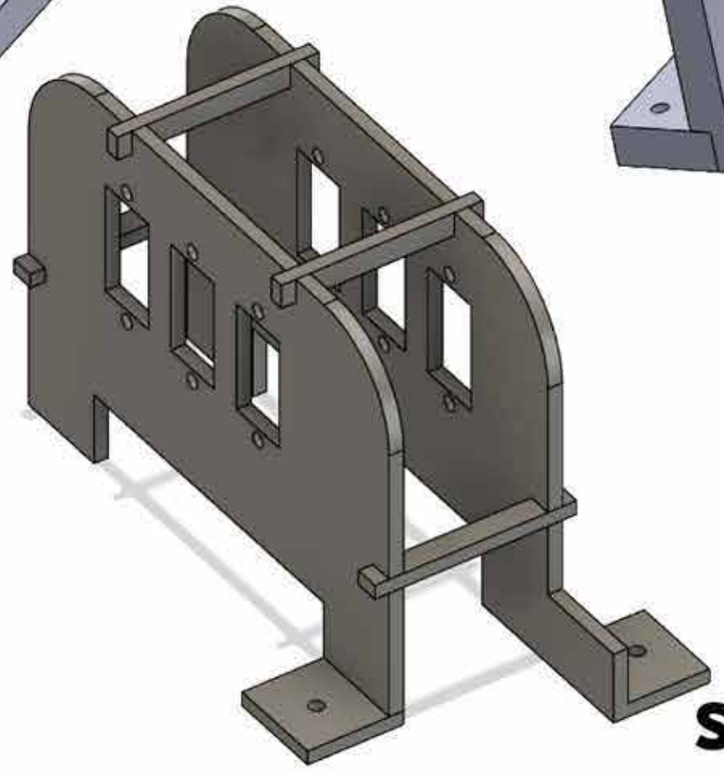
- Improve hardware visuals
- Develop an API to simplify song transcription
- Improve 3D prints
- Graduate

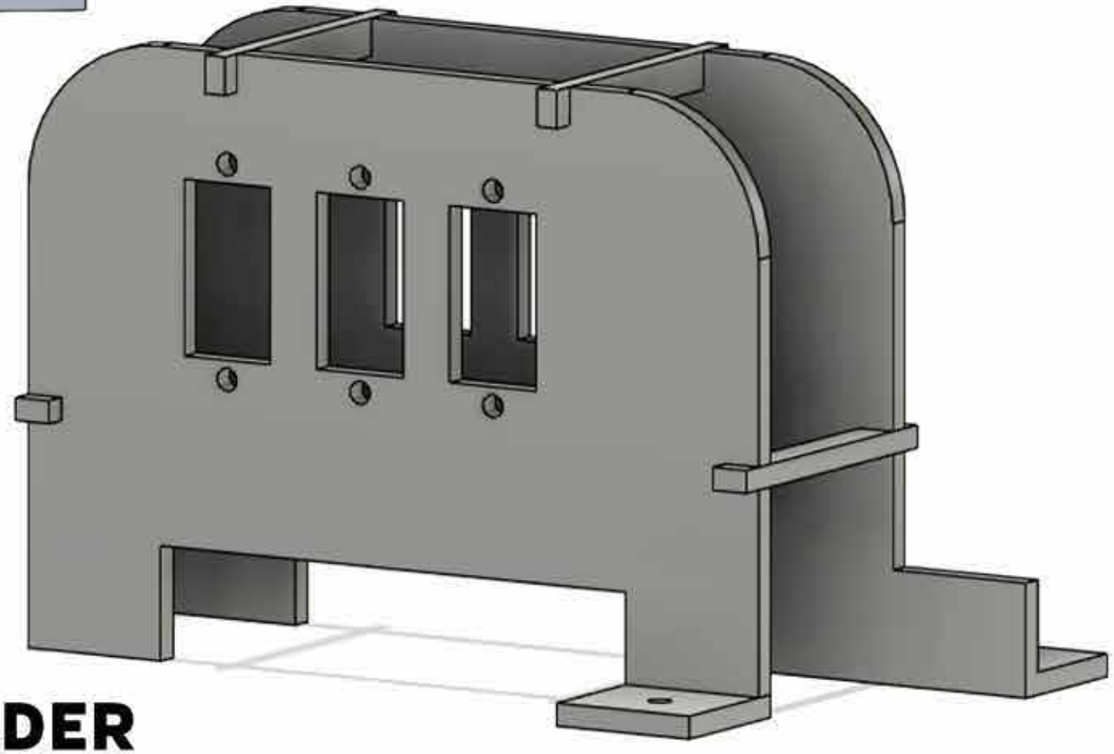
Citations:
1."Deep Learning Could Bring the Concert Experience Home," IEEE Spectrum, Sep. 10, 2022. https://spectrum.ieee.org/3d-audio
2."Video Friday: Robots as Musical Instruments," IEEE Spectrum, Jul. 08, 2022. https://spectrum.ieee.org/video-friday-robots-musical-instruments
3.*Ti.com*, 2022. https://www.ti.com/general/docs/suppproductinfo.tsp?distId=26&gotoUrl=https://www.ti.com/lit/gpn/cd54hc238

SOLENOID HOLDER









SERVO HOLDER