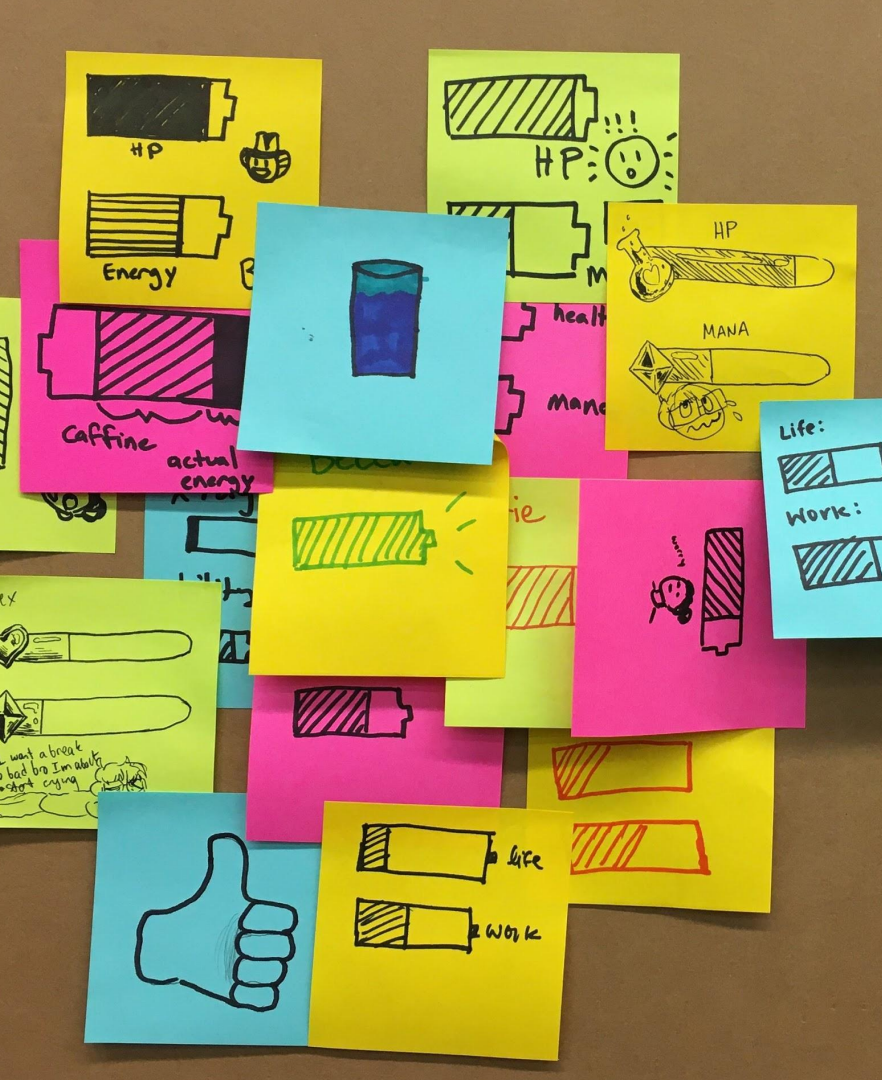
Sprint Review 3

Feedback Form: https://tinyurl.com/tppdnel

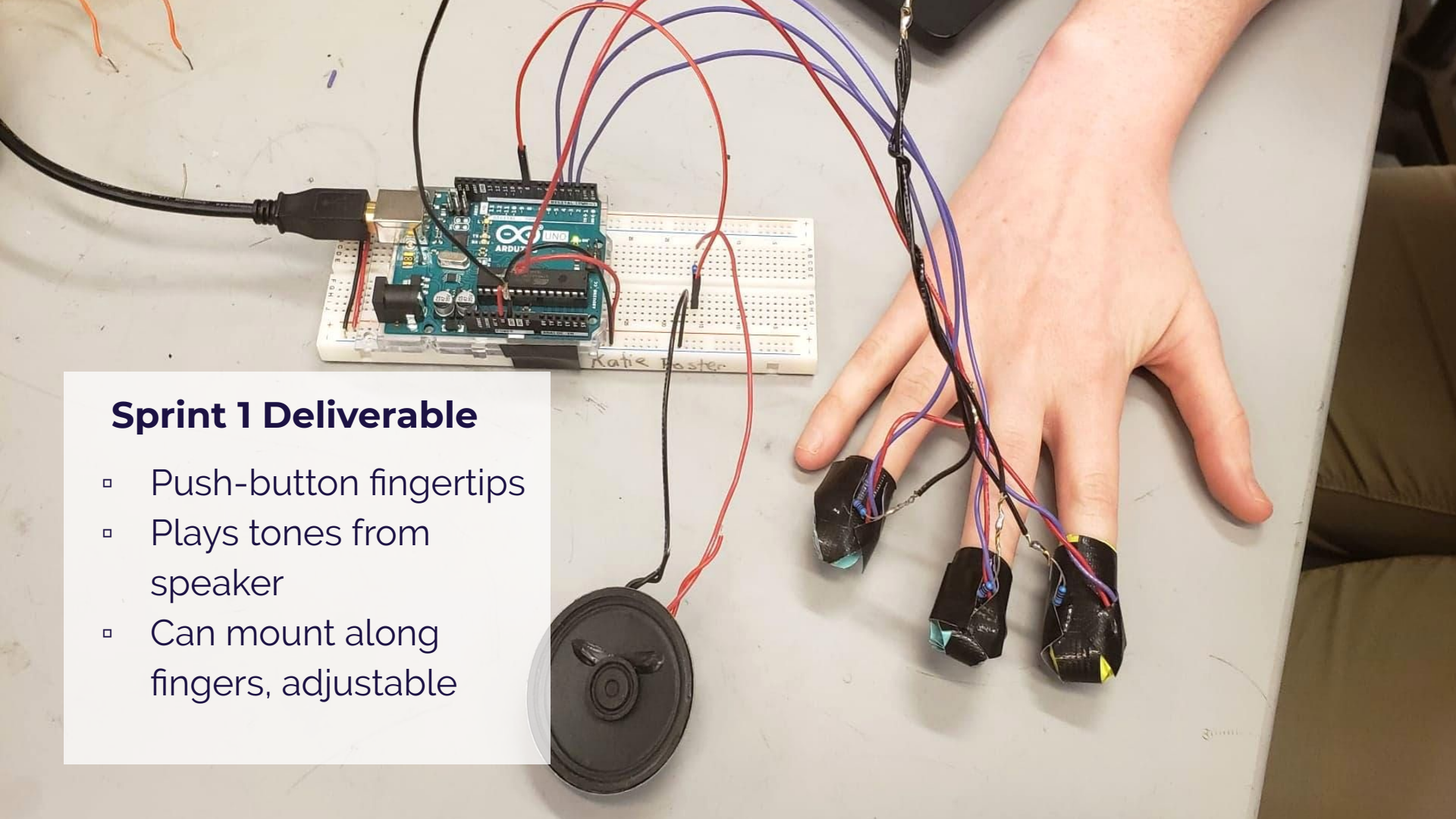
MVP:

An **interactive** device that produces **music** in a way that is **intuitive** for a user to play without any previous musical experience.



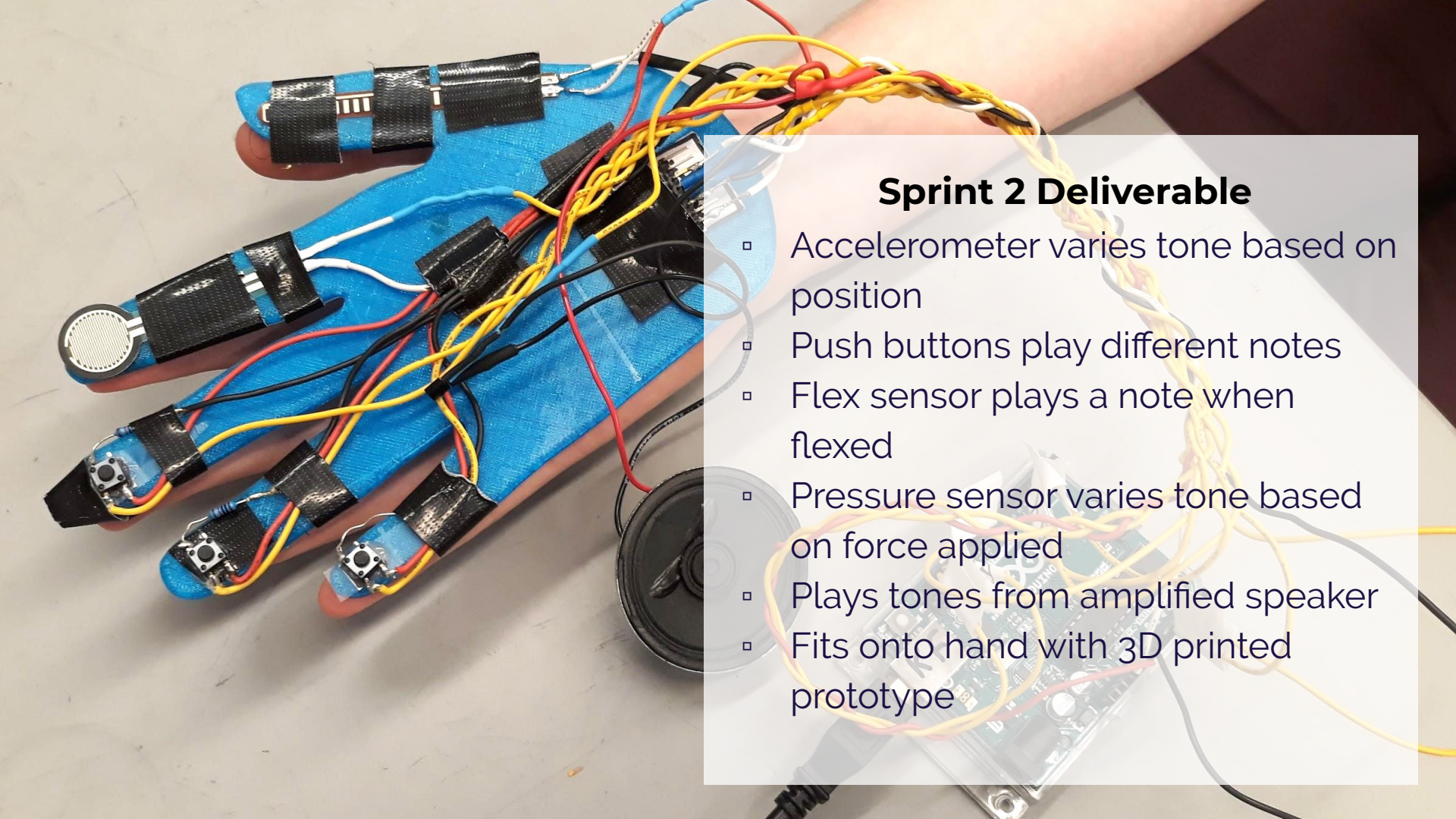
Team Goals

- Pursue individual growth
- Growth in electrical, integration of previous mechanics and software experience
- Impact outside Olin culture
- Whimsical project
- Prioritize team health



Sprint 1 Deliverable

- Push-button fingertips
- Plays tones from speaker
- Can mount along fingers, adjustable



Sprint 2 Deliverable

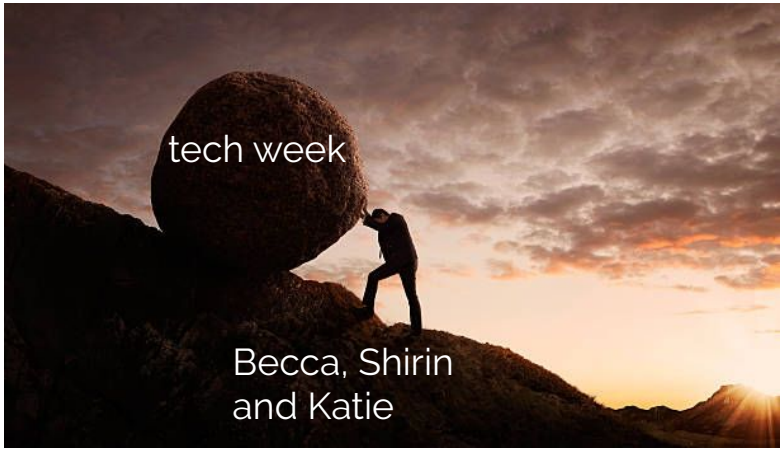
- Accelerometer varies tone based on position
- Push buttons play different notes
- Flex sensor plays a note when flexed
- Pressure sensor varies tone based on force applied
- Plays tones from amplified speaker
- Fits onto hand with 3D printed prototype

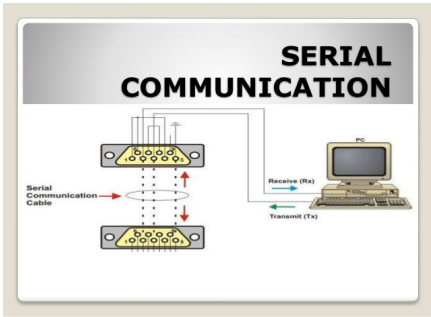
Sprint 3 Initial Goals

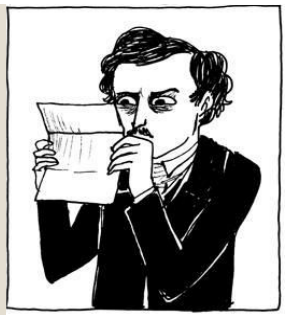
- Wireless/Bluetooth
- More mechanical integration, comfortable glove
- Generate sounds with both Arduino and Max, integrate code
- Sound amplification that works for Arduino and Max

Challenges

- 3/5 team members in Tech Week Crunch
- 3D printers are getting really crowded and people do not always follow the print queue :(
- Serial communications are weird!
- **But despite all these challenges, we were able to get some good work done this sprint**





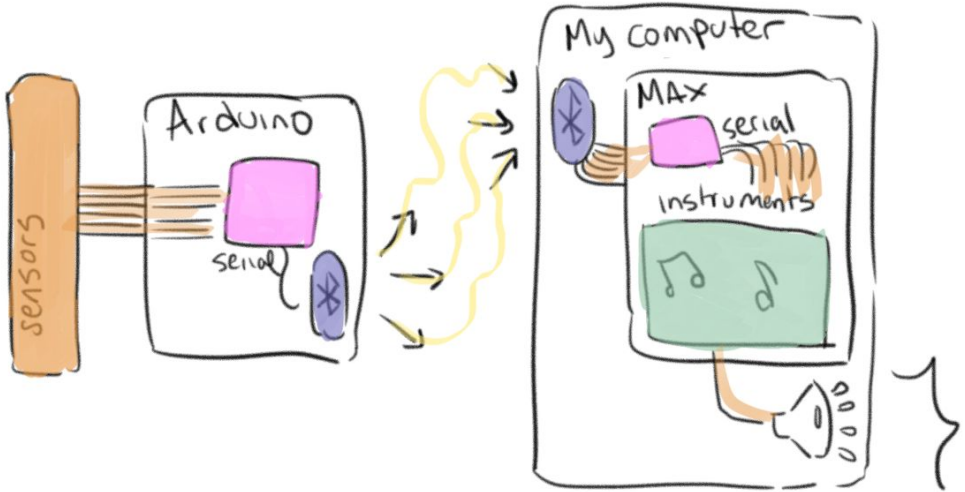


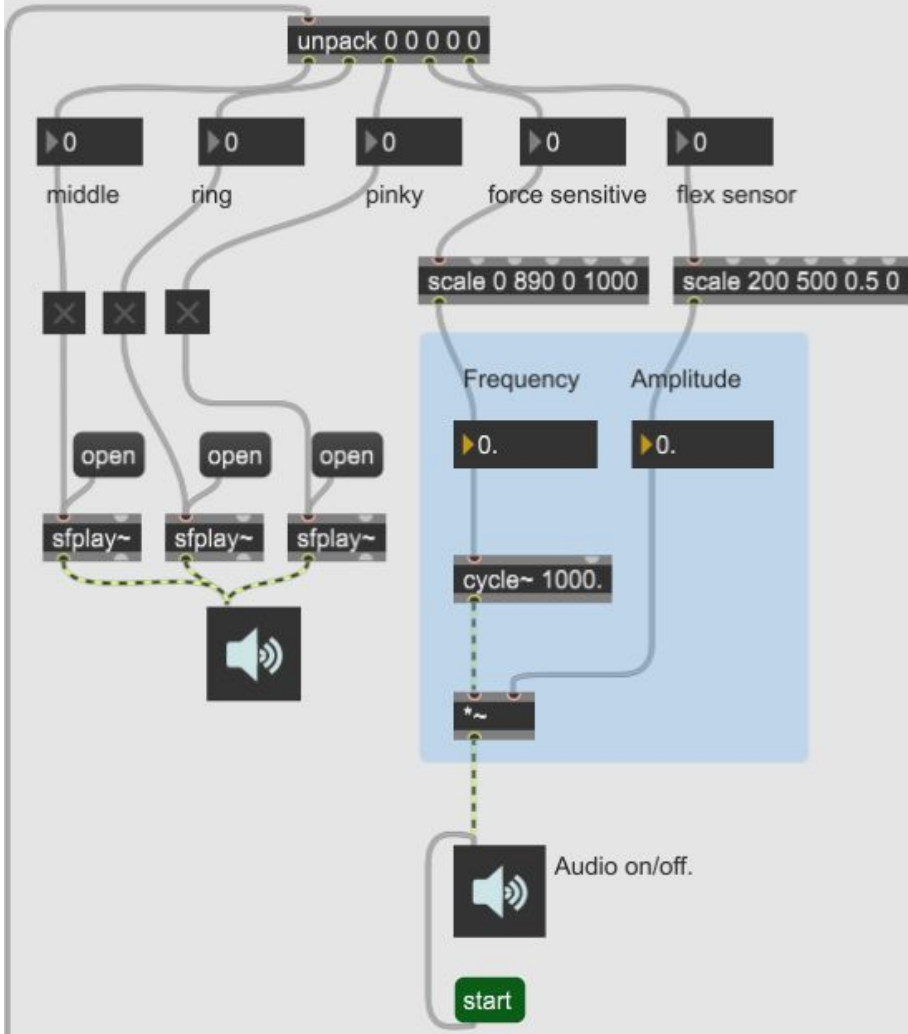
Process

- Pivoted early on to just use MAX for audio generation
- Tasks
  - Team 1: Integrating bluetooth with sensors and then with MAX
  - Team 2: Glove design
  - Team 3: Integrating amplifier chip with speaker
- Collective: Document and present

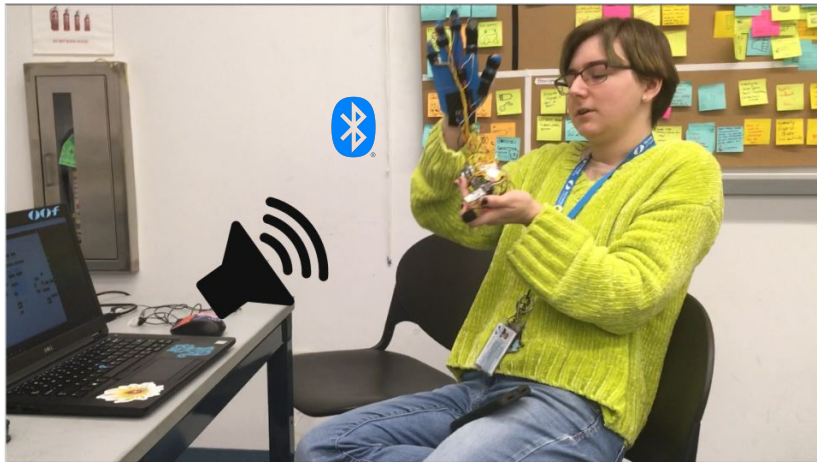
MAX

- No more Maxuino—straight to and from the Serial monitor
- Number values control Max code





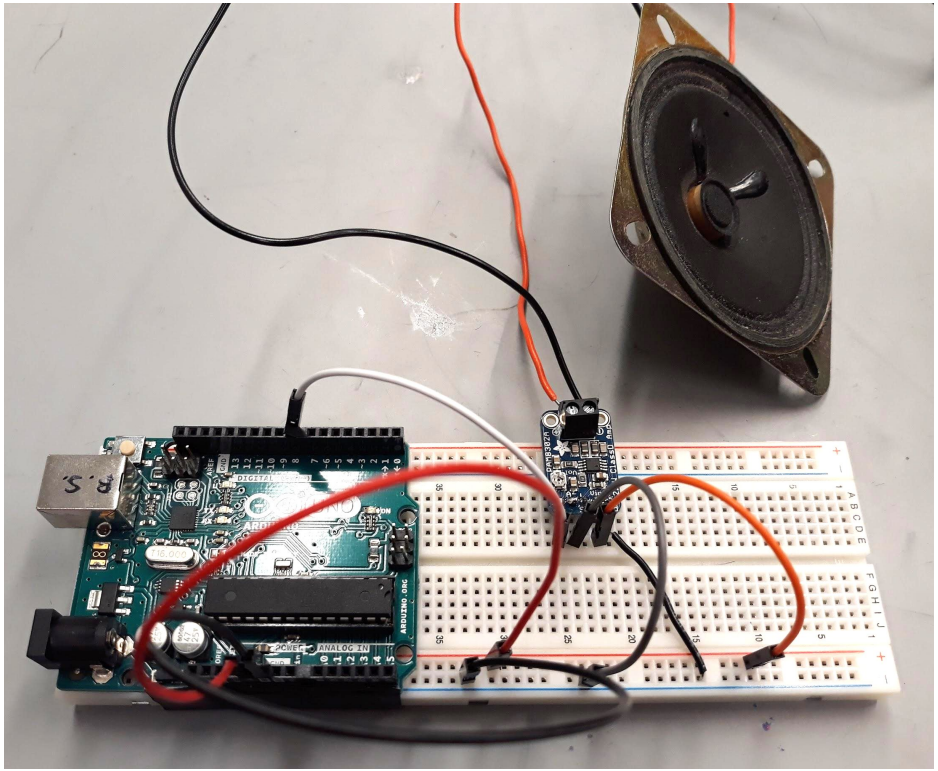
Bluetooth



- Used a bluetooth chip, and were able to connect with computer and serial print over bluetooth
- Eventually we managed to get all the sensors except the accelerometer to print to the serial monitor and work with MAX to play noises through the computer
- “Look mom, no wires!”

“Hey, let’s name our new computational technology after a Viking named Harald!”
- Somebody

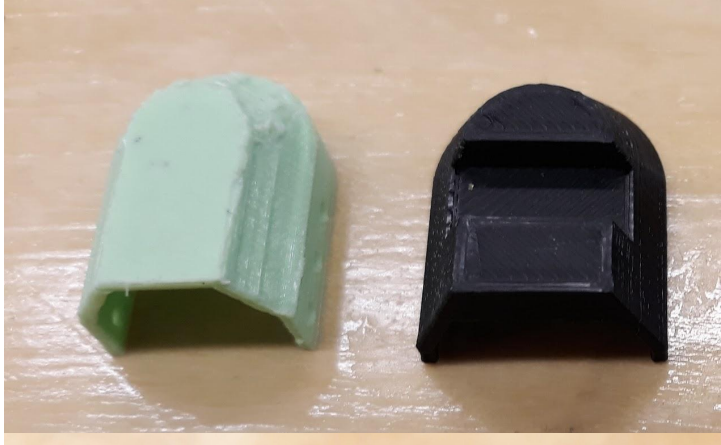
Speaker Amplification



- The 2.5W audio amplifier chip works better than all our previous amplification circuit attempts!
- We are currently working on getting MAX to send data back to the Arduino to get it to play out of the speaker

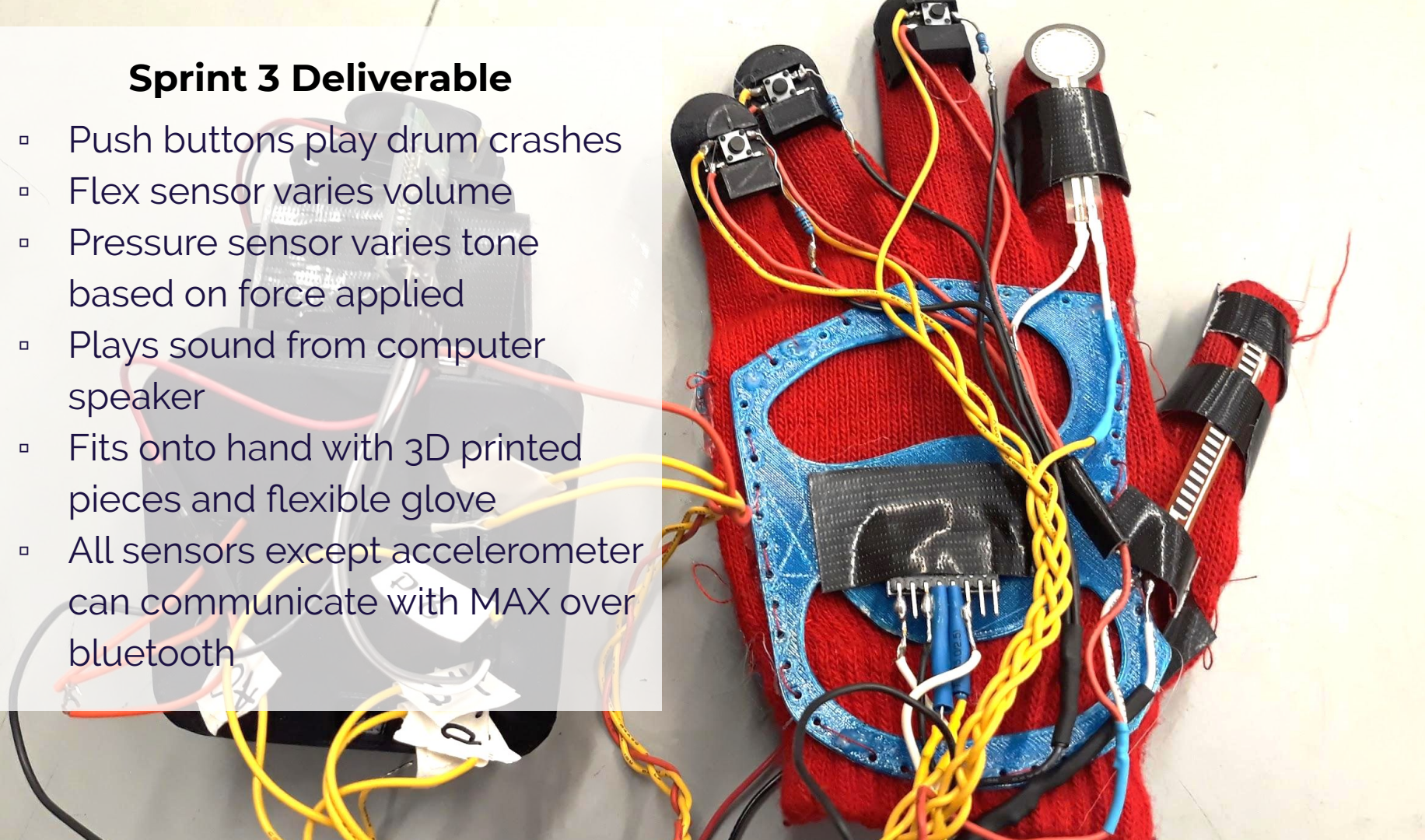
Glove Design

- Pivoted to fabric glove + 3D printed pieces
- Designed new finger caps and front/back of glove structure
- 3D printed Arduino and battery holder



Sprint 3 Deliverable

- Push buttons play drum crashes
- Flex sensor varies volume
- Pressure sensor varies tone based on force applied
- Plays sound from computer speaker
- Fits onto hand with 3D printed pieces and flexible glove
- All sensors except accelerometer can communicate with MAX over bluetooth



Risks	Steps to Address
Having hard components attached to a glove that is supposed to be flexible	Using flexible filament, being aware of joint movement
Getting MAX to work with accelerometer and speaker	Solicit help from online forums and experts
Integrating many sensors in a small area	Keeping an up-to-date schematic of current sensors and their connections

End Goals

Next “Sprint” Goals:

- Accelerometer + Bluetooth
- Arduino speaker
- Replace bulky buttons
- Finish up glove

End Goals from beginning of project ideation:

- Comfortable, adjustable glove
- Pressure/flex sensors
- Customizable sounds
- Wireless connection to speaker

Stretch Goal:

- 2 gloves

End. And cookies from our team bonding.