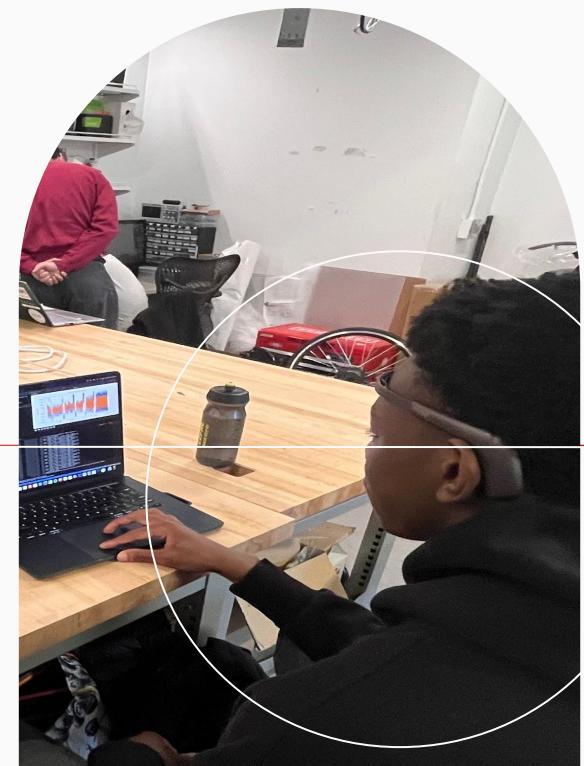


An Extensive Overview of CAT Projects

Andy Chen



Projects *(Alphabetical Order)*

Adapted Dining Chair

Custom Wheelchair Table

Key Guard

Music Touchpad

Sensory Overload Watch

Smart Wheelchair

Tactile Coding Block

Urinary Drainage Bag

Zipper Pull

Adapted Dining Chair



Adapted Dining Chair

(Community Project) *Finished*

This project is requested by a local Ithacan(Dennis) with Parkinson's Disease to adapt a dining chair (rocking) so that it can be mobile, safe and comfortable to use. This is a project that increases the community partner's independence so they can be more self reliant.

This project decided to modified the chair in multiple ways:

- ❖ Cut off the legs so the chair would be straight and more comfortable
- ❖ Connected the legs with wooden planks for stability
- ❖ Drilled holes so they can add compression wheels to the bottom so it is mobile while being able to stop easily



Project Lead: Mae Sliwinski, Fall 2024-Spring 2025



Custom Wheelchair Table

Custom Wheelchair Table

(Community Project) *Finished*

This project worked with the Fingerlakes Independence Center to create a table that interfaces with the user's wheelchair so that he (Ben Basset) would have a better space to do work on.

This project worked mainly with the mechanical side to CAD and dimension a table that would fit well with Ben's custom wheelchair



**Key
Guard**

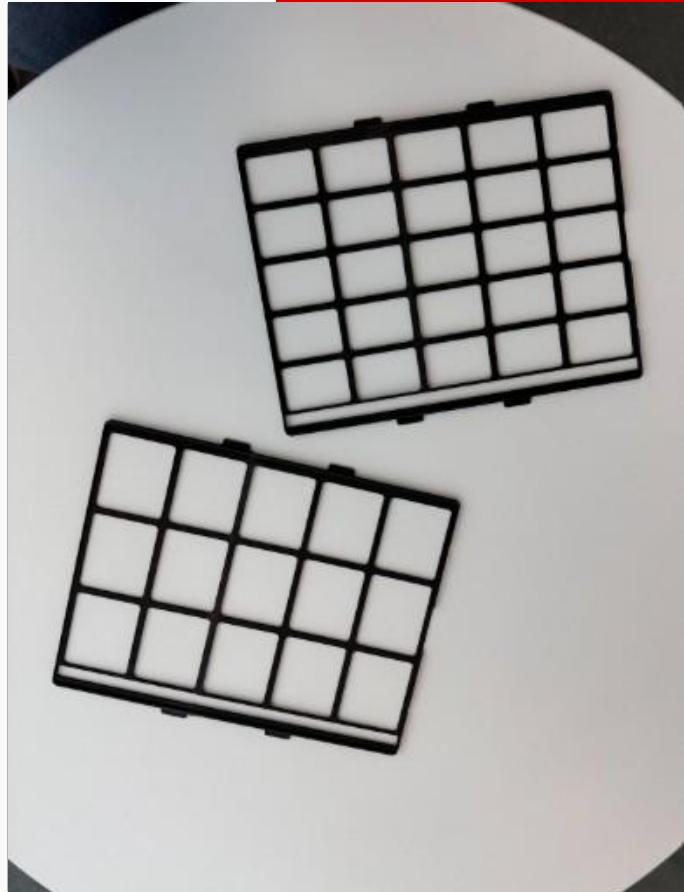


Key Guard

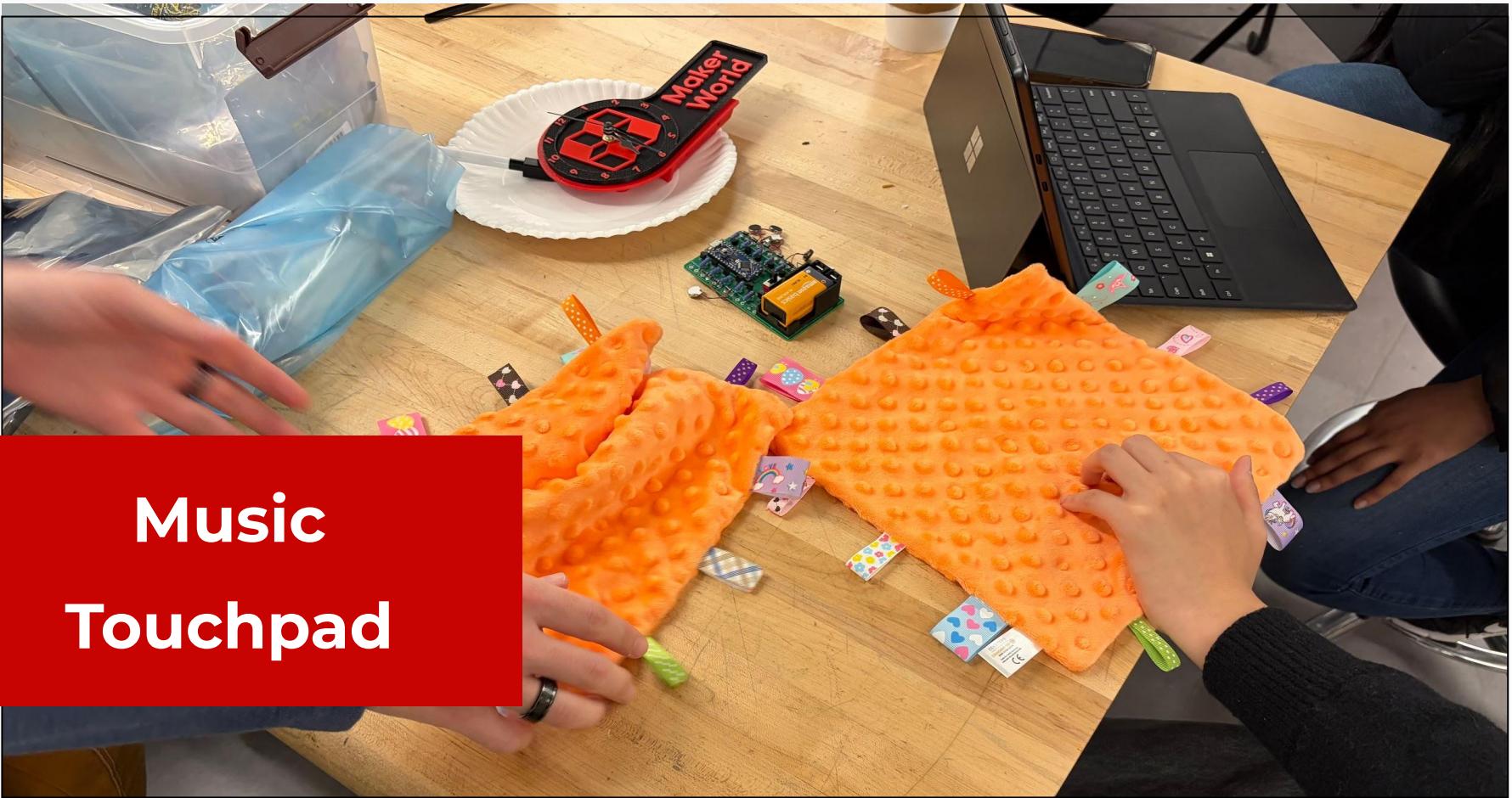
(Community Project) *Finished*

This project works with nonverbal communication for a young Ithacan community partner (Noah, represented by his mother Danielle Jackson) who uses typing aids because he does not have enough motor control to always press the right button. This project works on creating a tool that separates each clickable button to adapt to the poor motor controls.

This project worked mainly with the mechanical side to CAD and dimension the key guard so it would fit Noah's tablet so it would be well fitted and convenient to use.



Music Touchpad

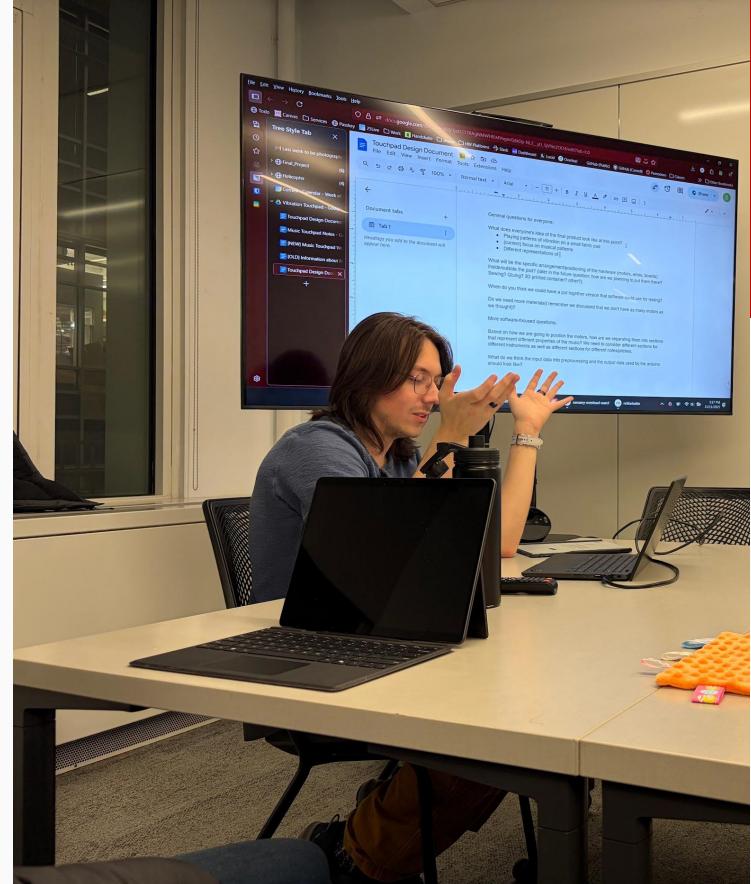


Music Touchpad

(Community Project) *Continued*

This project is requested by a younger community partner with cerebral palsy(due to this, they have hearing impairments). This is an older paused project but now it's recontinued. This is a project that will give a sense of what music is like through different vibrations on a touchpad that the user will most likely have over their lap.

This project will mostly work with the electrical and programming team as they test different pulse patterns on an Arduino.



Project Lead: Chris Parker, Fall 2024(Paused) Fall 2025(Resumption)

Sensory Overload Watch



Sensory Overload Watch

(Main & Community Project) *Paused*

This project is requested by a community partner in Cornell who gets Sensory Overload. The purpose of the watch is to help gather data using various different sensors to help predict what the experience is like to help the user better understand their condition and be better prepared for the attack.

This project works with CAD, electrical and programming to create a comfortable wrist band with various sensors that are programmed to plot and measure all the different data.

This project got restarted as the data received from last year was too unreliable so with the reboot they have a better foundation to start off with



Project Lead: Chris Parker, Fall 2024-Spring 2025

Smart Wheelchair



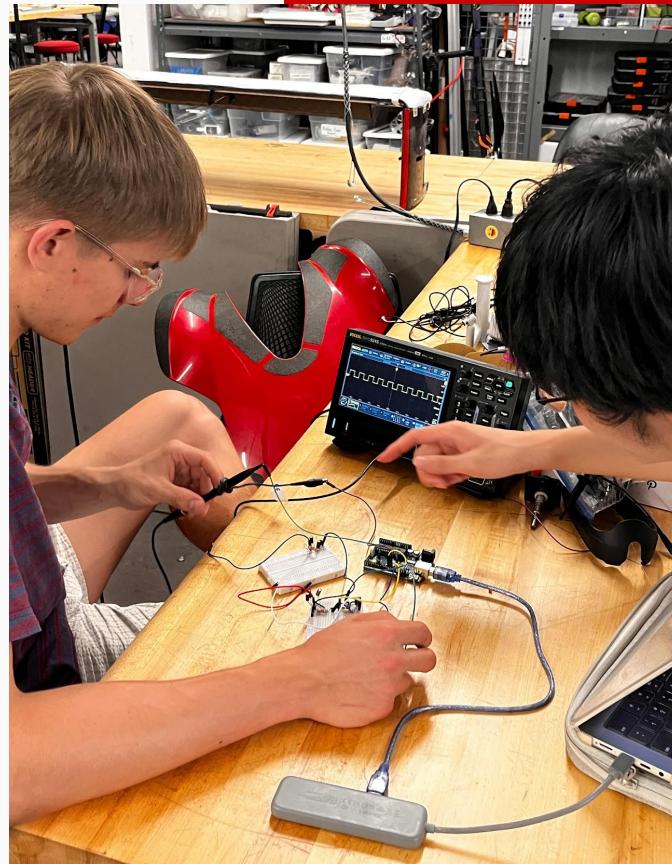
Smart Wheelchair

(Main Project) *In Progress*

This project is created to make wheelchairs an even more comfortable experience by making the controls for the wheelchair detectable by mind control.

This project works in majority with Electrical and Programming components with the Muse headband.

- ❖ Last semester, they reached a smaller deliverable to controlling a small car with mind signals to turn and move the car
- ❖ This semester, they will fine tune the controls and connect the headband to the actual wheelchair



Project Lead: Angelica, Alan, Fall 2024-Spring 2025



Tactile Coding Block

Tactile Coding Block

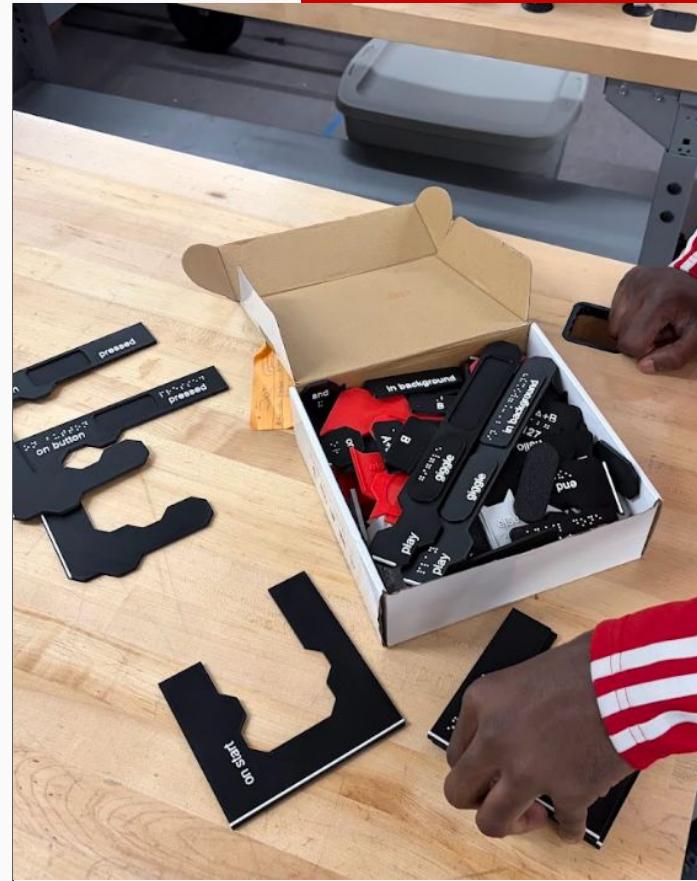
(Main Project) **In Progress**

This project was started by Savaas before Cornell to create an affordable, accessible and tactile way of learning coding for the visually impaired.

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This project was presented at the Princeton Island Conference. It has also been in contact and working with two major companies:

- ❖ Blockly (Google)
- ❖ Micro:Bit (Microsoft)



Project Lead: Savaas Iqbal, Spring 2024-Present

Tactile Coding Block (Continued)

(Main Project) **In Progress**

This project has two components:

- ❖ Programming
 - *Creating a ADA compliant website that will share the project purpose, create an ordering form for the coding block sets and allow people to drag and create coding blocks that can be printed out from a tray*
- ❖ Mechanical
 - *Modeling the 3D prints (Moved from PLA -> TPU) and tests the tolerances for product testing and demonstrations*
 - *Currently standardizing measurements onto new designs*





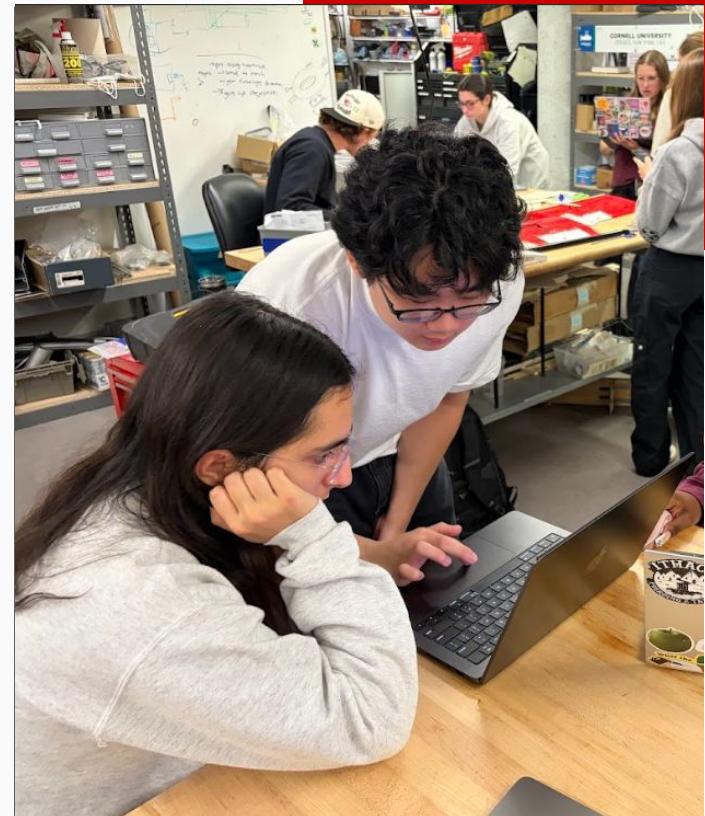
Urinary Drainage Bag

Urinary Drainage Bag Clamp

(Community Project) **In Progress**

This project is requested by a Cornell Alumni (Randall) who had a gymnastics accident. Due to the accident, he has to rely on a urinary drainage bag to help urinate normally. However, the current market for these bags come with really inconvenient and difficult to use sealing mechanisms for the urine and forces the user

This project mainly works with the Mechanical side as they create mechanisms to drive a rotational motion into a linear motion with a device called the Fingerbot.



Project Lead: Mae, Spring ; Natalie Shepherd, Fall
2025 - Present

**Zipper
Pull**

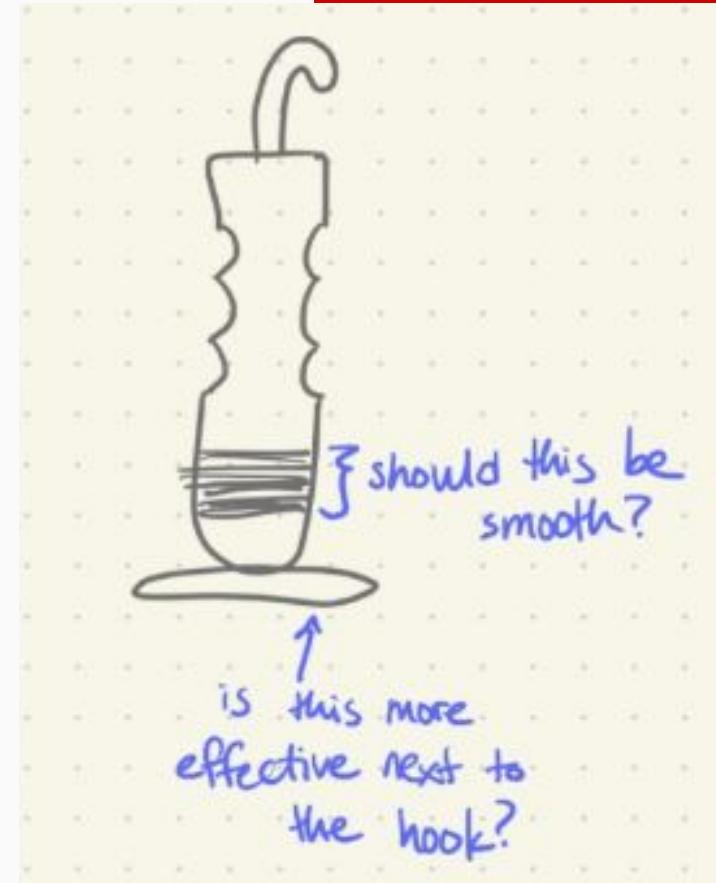


Zipper Pull

(Community Project) *Finished*

This project works with nonverbal communication for a young Ithacan community partner (Noah, represented by his mother Danielle Jackson) who needs assistance in zipping and unzipping their clothings (and other belongings). This project produces an omnidirectional wide-handle pull grip that can be hooked onto any zipper.

This project worked mainly with the mechanical side to CAD and dimension the zipper so it would fit onto any article of clothing. This project was in conjunction with the previously mentioned key guard project.



Thank You

