Project Deliverable I

2-lines for the judges:

Creating a glove that helps people with gripping onto objects.

Below are the list of materials and content that will be used in the design day:

- Presentation board
- Pictures
- Phrases
- Old prototypes
- Gripmate (the product)

Initial Sketch of GripMate
Demonstrates how the grip will work and how it will sit on the thumb
Physical prototype used to communicate how the switch will work
Representation of how the parts would fit together
Comprehensive design used to test the functionality of the full device.

Sketch:

Front side:

Back side:

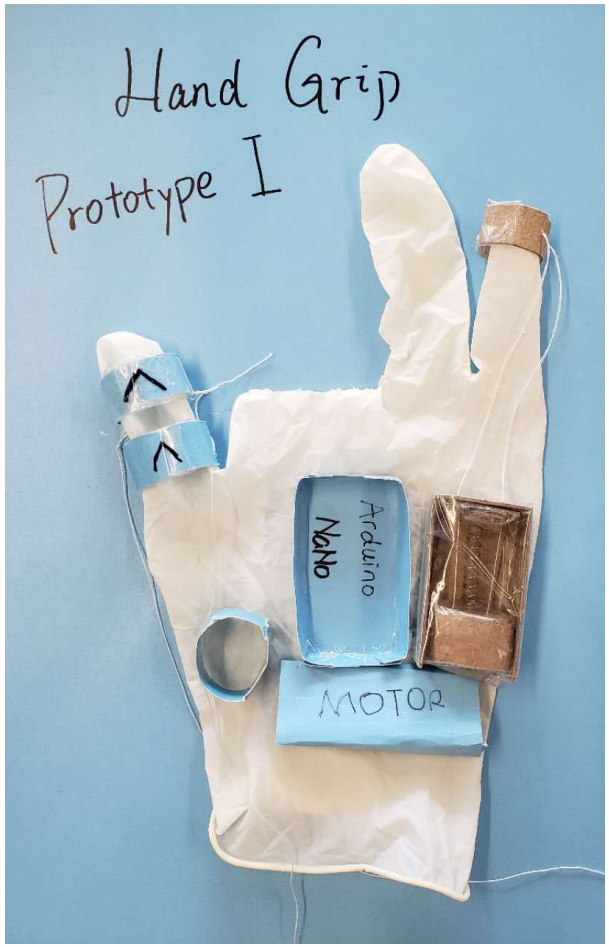
Thumb:

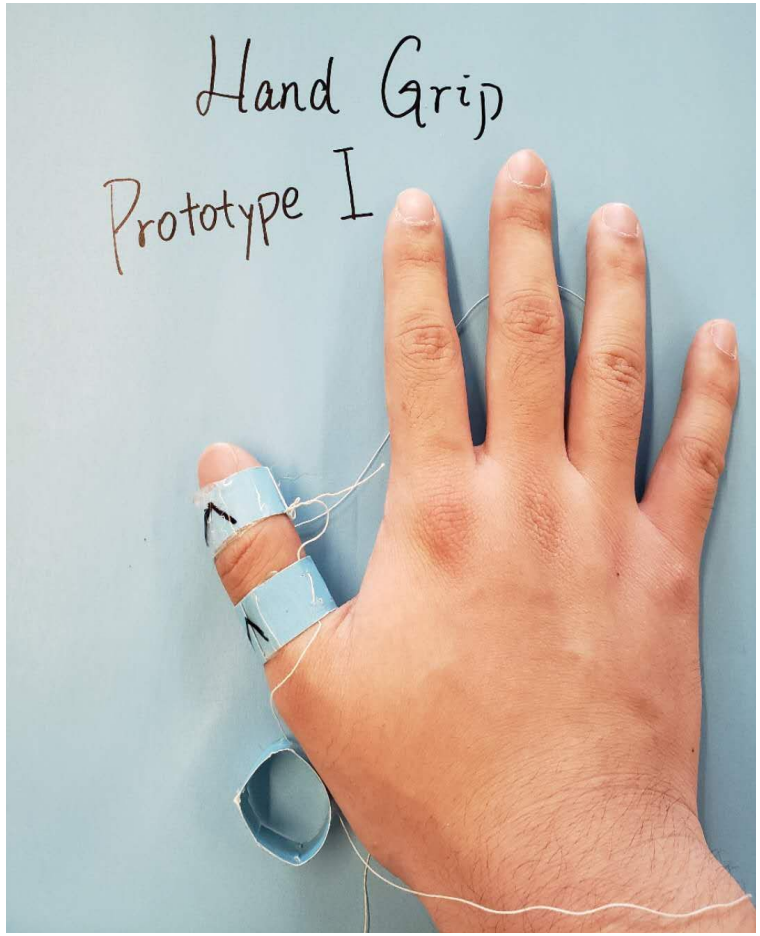
Side view:

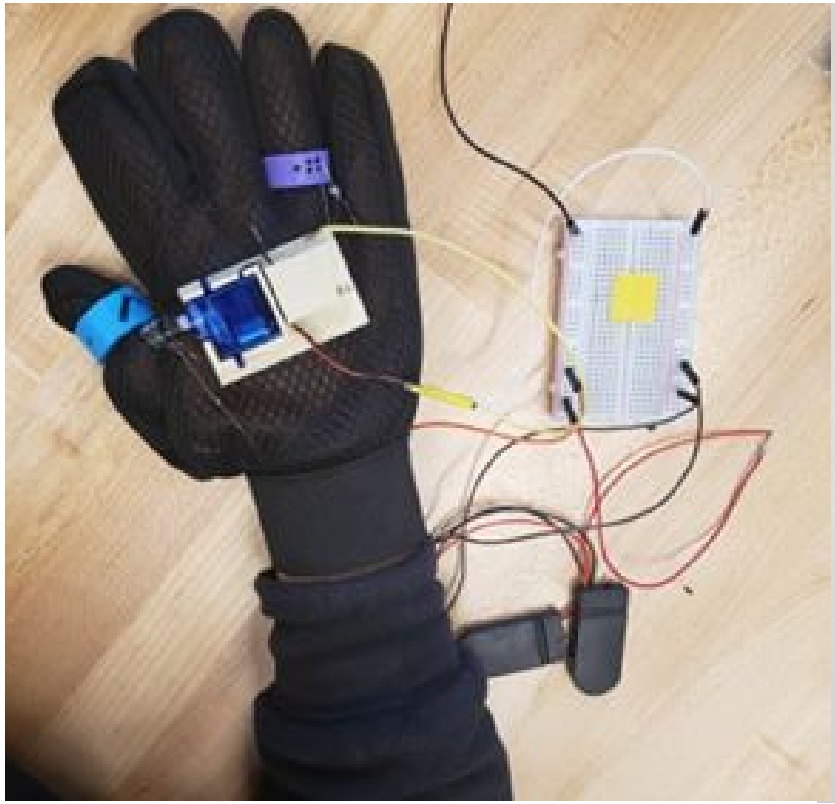
index:

joint •
rubber
motor
plate
string
arduino

battery slot
wire —
spring


Hand Grip
Prototype I
Arduino
NANO
MOTOR


Hand Grip
Prototype I




Hand Grip
Prototype I

Specifications	**Saebo Glove**	**The Third Thumb**	**Gripit**
Product			
Price	$559 CAD	N/A	N/A
Technology	Electrical Stim(NMES)	Bluetooth- pressure sensors	Manually
Target Client	Neurological and orthopedic injuries patients	Everyone	Patients with spinal cord injuries.
Sizing	Small, Medium, Large	One size	Circular Diameter: 30mm Height: 20mm

GripMat e

Prototype 1

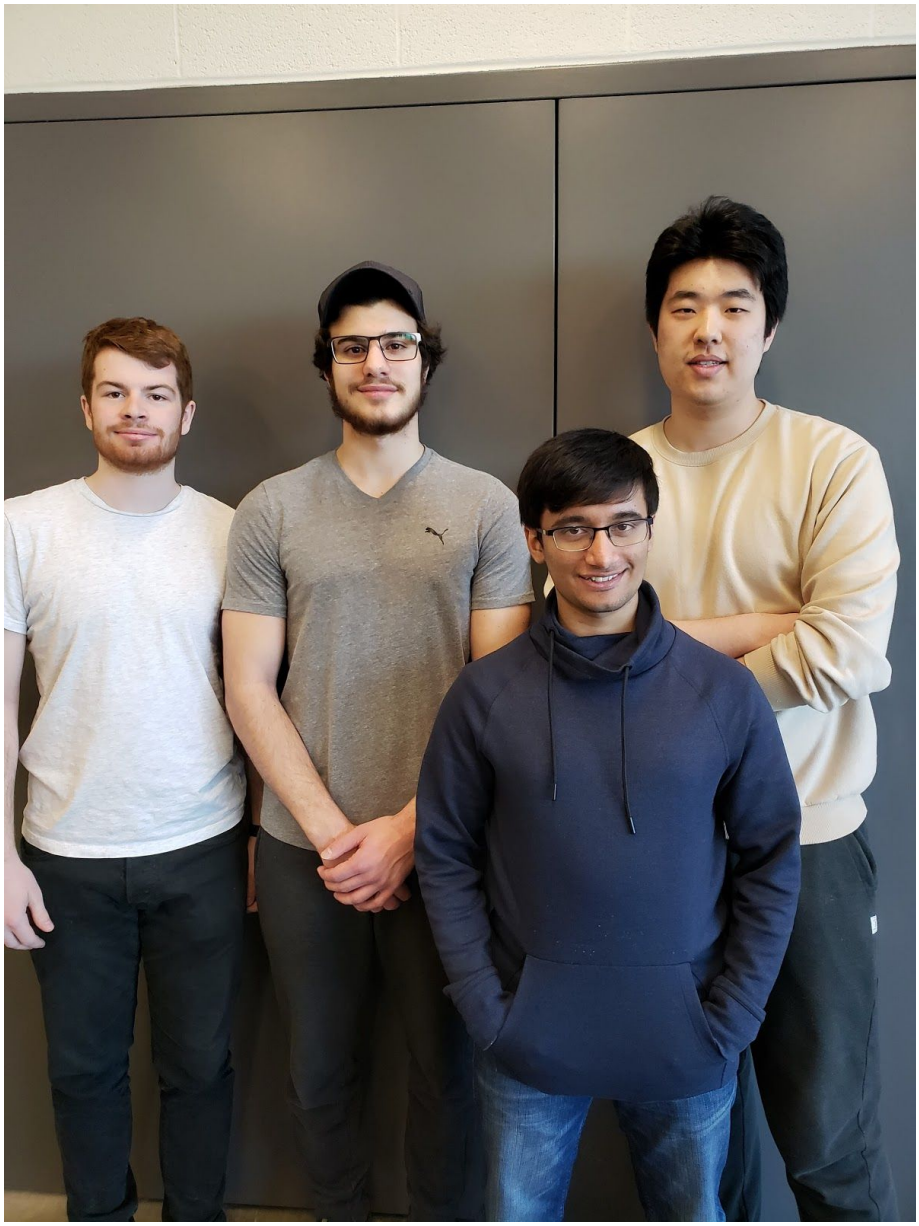
Prototype 2

Final Prototype

Problem?
Importance?

Design a comfortable hand grip device which will help clients with a disability in their thumb to have a more strength in a pinching motion.

- ❖ Provides Independence
- ❖ Boosts Confidence
- ❖ Peace of Mind



Final Prototypes e Benchmarking Target Specifications

I don’t usually grip objects, but when I do I use GripMate!


I DON'T ALWAYS GRIP OBJECTS
BUT WHEN I DO, I USE GRIPMATE

Target Specifications

Metrics	Units	Acceptable Value	Ideal Value
Total mass	g	< 500	< 300
Minimum gripping strength generate by the device	kg	> 15	> 20
Device size for client	Size	=Large Size	=Medium Size
The time device can last	Hour	< 3	< 6
Manufacturing Cost	$ CAD	< 100	< 90
Time for client to take off the device	Minute	< 2	< 1
Instills pride	Subj	A bit	A lot

So What? (Problem)

- Medical conditions such as strokes, brain injuries, arthritis, or thoracic outlet syndrome cause people, such as our client, to have a loss of muscle, or reduced strength or functionality of their muscles in their thumbs
- These people, without muscles in their thumb, cannot grip onto objects properly
- We set out to design a **simple** and **comfortable** device to allow our client, and other people in need to grip objects as well as someone with regular function of their thumbs

Who Cares? (Importance)

- Everybody deserves to be able to have confidence in their grip, and with GripMate, this is possible
- *STATISTICS*
    - *5% of the population suffers from thoracic outlet syndrome, with loss of muscles in their thumbs*
    - *54 million people suffer from arthritis, including 300,000 babies/children*

- These people struggling with improper function of their thumbs are constantly dropping things that people with regular function in their thumbs could easily grip on to. Our device helps our customers have **confidence** in their grip on objects and helps them become **independent** in their everyday lives.

Why Us? (Our solution)

- Inexpensive
- Comfortable
- Customizability
- IT WORKS! ***Show Demo***