



Human Integrated Gripping Device

Team 5

Philip Batista

Lyndon Charles

Emily Pribanic



Introduction

- Stroke is the main cause of debilitation in U.S.
 - 700,000 strokes/year
- 15-30% of survivors with permanent disabilities
 - Hemiparesis



Introduction

- Not being able to feel the world around you
- Solution...

Human Gripping Devices!

Current Market

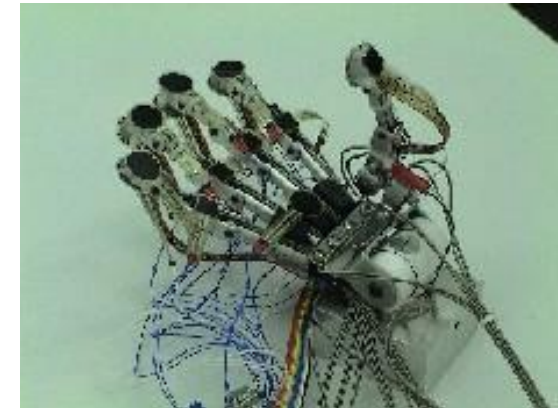
- 10-DOF Robotic Hand
(Patent No. 6,505,870)



- Power Glove



- Complete Artificial Hands





Human Integrated Gripping Device

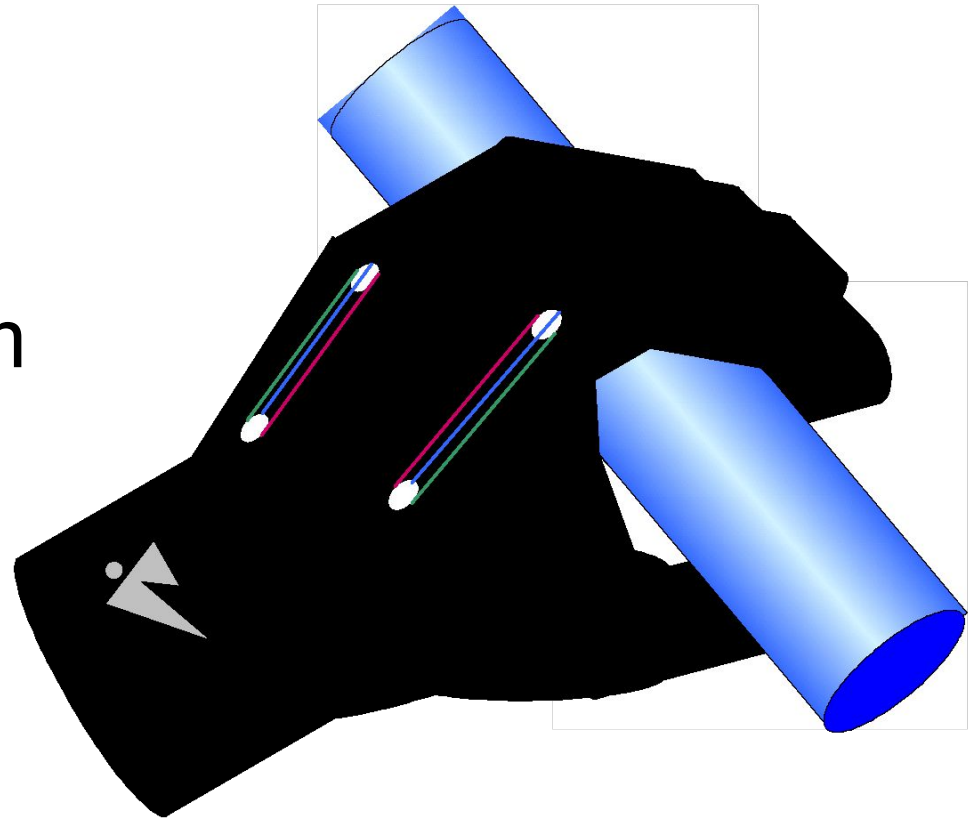
Goals:

- Light-weight
- Integrated
- User friendly
- Low cost

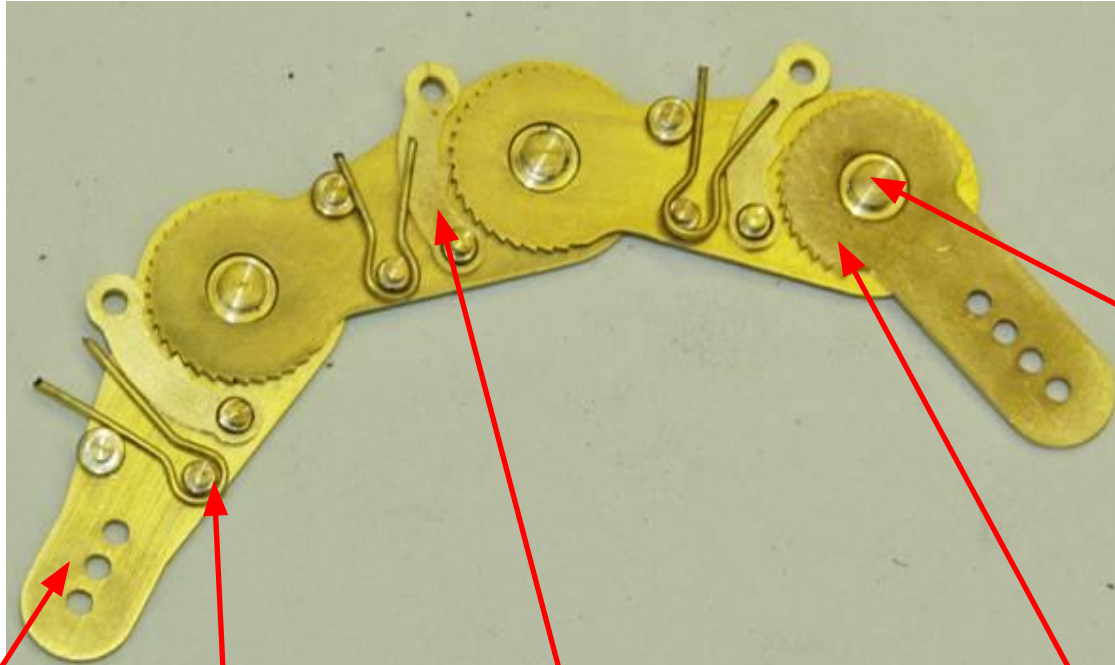
While still being able to experience the benefits of assisted gripping...

Design

- Mechanics
- Release Mechanism
- Glove Interface



Mechanics



Case

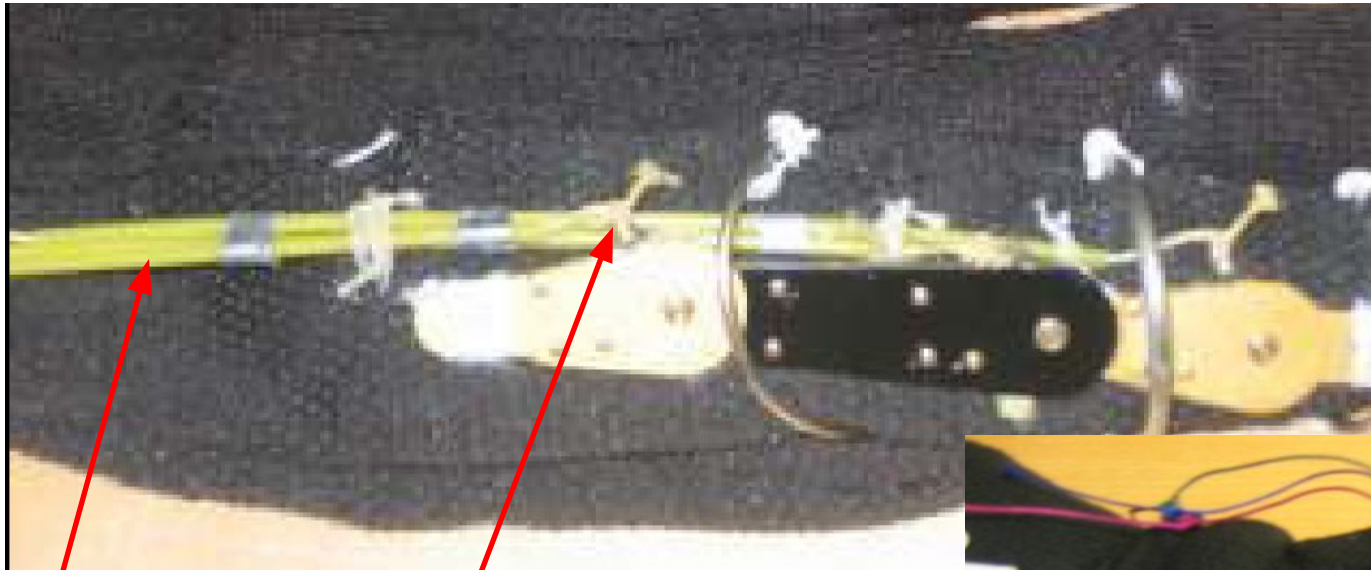
Spring

Pawl

Ratchet

Rivets

Release Mechanism



Plastic
Tubular
Casing

Kevlar
String



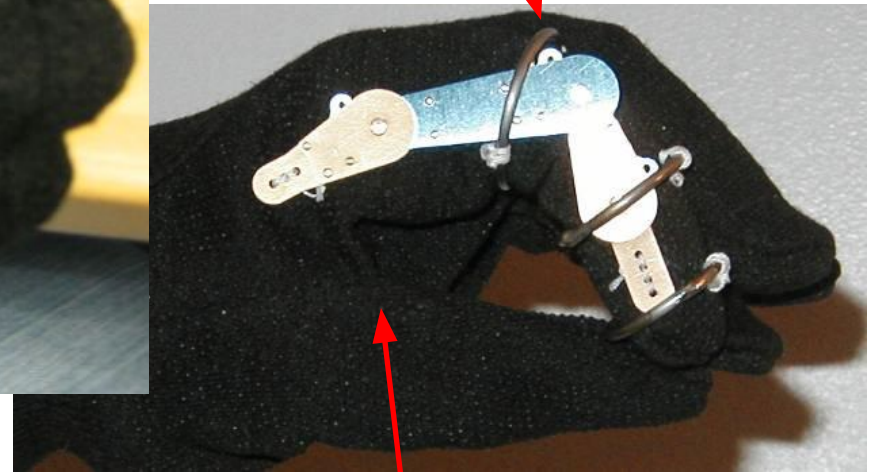
User Release Strings

Glove Interface



Outer Glove

Velcro



Rings

Inner Glove

Budget

Team 5 Expense Report

| Item | Vendor | Quantity | Price | Total Cost |
|-----------------------------------|--------------------|----------|-------|---------------|
| EMS inner lining glove | Eastern Mt. Sports | 1 | 20.83 | 20.83 |
| Mesh lining glove material | AHH | 1 | 21.18 | 21.18 |
| Velcro Straps | Office Max | 1 | 2.87 | 2.87 |
| 20lb. Fishing Wire | Sports Authority | 1 | 13.78 | 13.78 |
| Cordura Fabric | Beacon Fabrics | 1 | 22.99 | 22.99 |
| Stainless Steel blue shim metal | Fastenal | 1 | 27.62 | 27.62 |
| Stainless Steel 314L | Metals Depot | 1 | 20.50 | 20.50 |
| Gears | MSC Direct | 1 | 5.27 | 5.27 |
| 24 pin SOIC to 24 pin DIP adapter | Jameco | 1 | 10.94 | 10.94 |
| High Density Polyethylene sheets | US Plastic | 1 | 33.32 | 33.32 |
| TOTAL | | | | 179.30 |
| Allotted Budget | | | | 750.00 |
| Expendable Budget | | | | 570.70 |



Advantages/Comparisons

- Mechanically
 - Small, Compact, Lightweight
 - **Simple** yet **Efficient**
- Ergonomically
 - User Friendly
 - Appealing
- Economically
 - Best Benefit/Cost ratio



Conclusion

- The Human Integrated Gripping Device fulfills the needs of an ever present market with a highly functional yet cost effective product.



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