

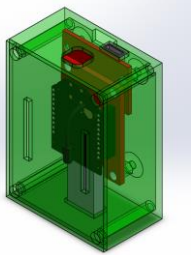
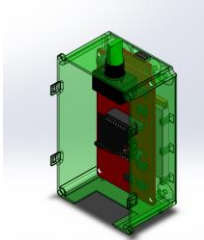
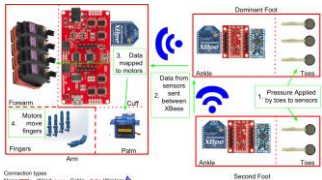
ACTION ITEMS

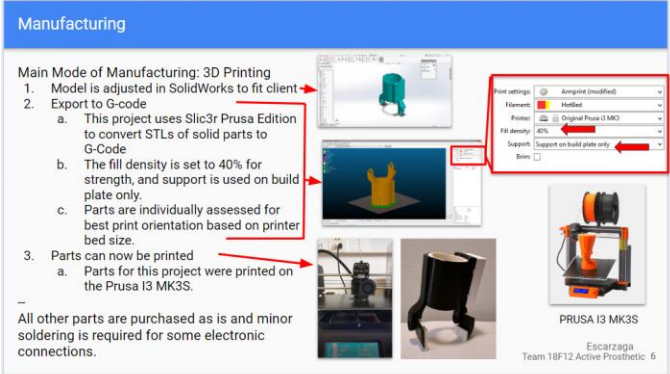
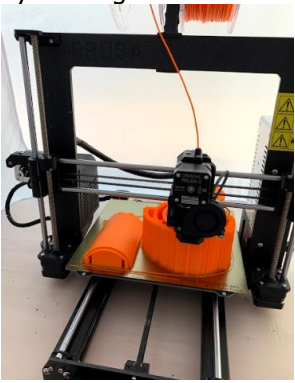
TEAM 12: Active Prosthetic Arm

Due Date:
Wednesday, April 17, 2019 5:30pm

The following are the Action Items from last week:

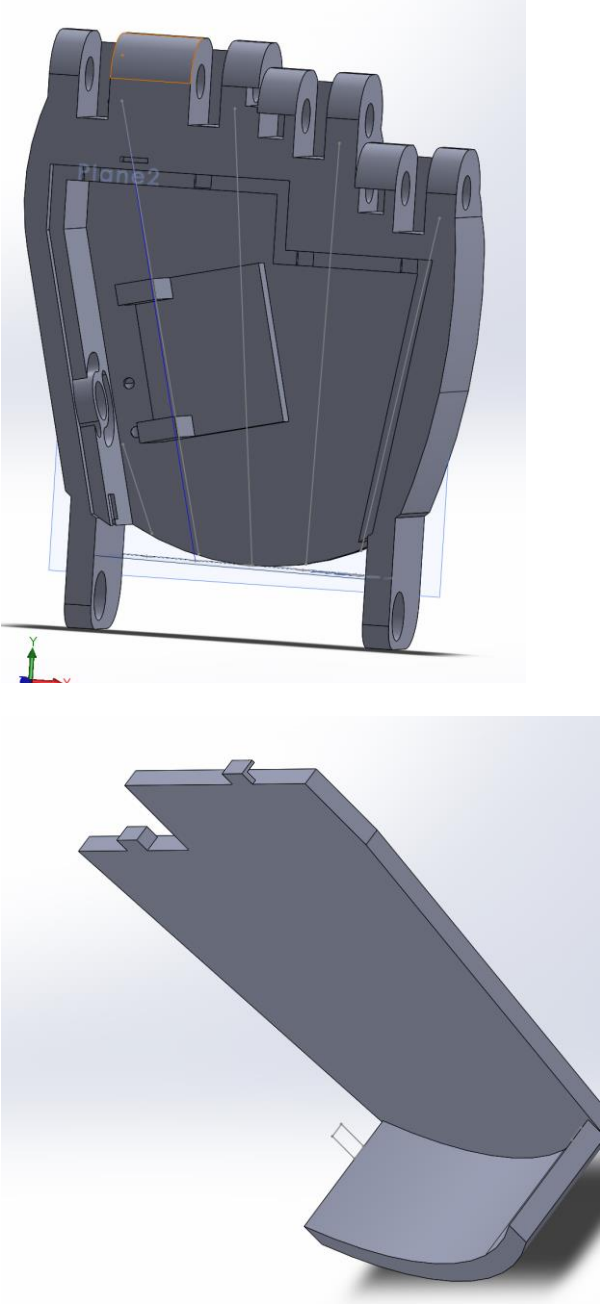
Team Member: Felicity Escarzaga

Action Item	Date Due	Date Completed	Result/Proof of Completion
Make final adjustments to foot case	4/17	4/14	Attachment to ankle added. Ports for on/off switch added. 
Make final adjustments to electronics case			Length increased for perf board. Ports for on/off switch and walking/not walking switched added. 
Code vibration motors	4/17	NA	Possibly fried redbot board need to borrow EE team's board. Not finished.
Dr. Winfree meeting	4/17	4/15	<ul style="list-style-type: none"> Discussed what needs to be done to finish arm Suggested adding data logger at a later date Continued to print Forearm prototype since machine stopped when filament ran out
Created visual process for actuation	4/19	4/16	Visual will be used in UGrads poster to help explain actuation process 

Complete Assigned Slides	4/17	4/17	<p>Assigned slide not finished was manufacturing. Slide is updated for practice presentation.</p>  <p>The slide content includes:</p> <ul style="list-style-type: none"> Manufacturing Main Mode of Manufacturing: 3D Printing 1. Model is adjusted in SolidWorks to fit client 2. Export to G-code <ul style="list-style-type: none"> a. This project uses Slic3r Prusa Edition to convert STLs of solid parts to G-Code b. The fill density is set to 40% for strength, and support is used on build plate only. c. Parts are individually assessed for best print orientation based on printer bed size. 3. Parts can now be printed <ul style="list-style-type: none"> a. Parts for this project were printed on the Prusa 13 MK3S. <p>Additional text on the slide: "All other parts are purchased as is and minor soldering is required for some electronic connections."</p> <p>Printer settings shown in the screenshot: <ul style="list-style-type: none"> Print settings: Atoprint (modified) Filament: Hablet Printer: Original Prusa 13 MK3 Fill density: 40% Support: Support on build plate only Save: [] </p> <p>Printer model: PRUSA 13 MK3S EscarZaga Team 18F12 Active Prosthetic 6</p>
Set Allison forearm to print	4/17	4/13	<p>Met with group and showed members how to set prints by starting Allison's forearm print.</p> 

Team Member: Antoinette Goss

Action Item	Date Due	Date Completed	Result/Proof of Completion
Complete final palm	4/17/2019	4/12/2019	Made additions to the finger placement as well as improved the security of palm and palm top

			
<p>Edit slides for flow, grammar, and additional content</p>	<p>4/17/2019</p>	<p>4/17/2019</p>	<p>Added conclusion and helped with testing result slides.</p>

Conclusion of Design

- Success of sensors and connections- proven that these connections are doable.
- Electrical engineering team will provide additional necessary support
- Successful design- durable, aesthetically pleasing, and user friendly
- Final parts will be reprinted by the end of the week (most pieces faced some damage upon impact)



Toni
Team 18F12 Active Prosthetic 12

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Testing Results

1. Scalable Size (6-18 in)
2. Weight (<2 lbs)
3. Budget (~ \$500)
4. Durability (<10 lbs)
5. Force to Actuate (< 5 lbf)
6. Force of Grip (<2 lbs)
7. Number of Parts (<100)

T.

Part	Scalable? (black/c)	Range in Length (in)	Range in Width (in)	Range in Height (in)
Cuff	Yes	N/A	2.5-6	2.5-6
Forearm-Back half	Yes	3-6	2.5-6	2.5-6
Palm	Yes	2-4	N/A	2-4
Fingers	Yes (weight)	1.5-4 (in)	N/A	N/A

2. Weight was 2 lbs

3. Budget for one full working prosthetic is ~\$400



Team 18F12 Active Prosthetic

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4. Dropped from shoulder height (right) and down stairs (bottom)

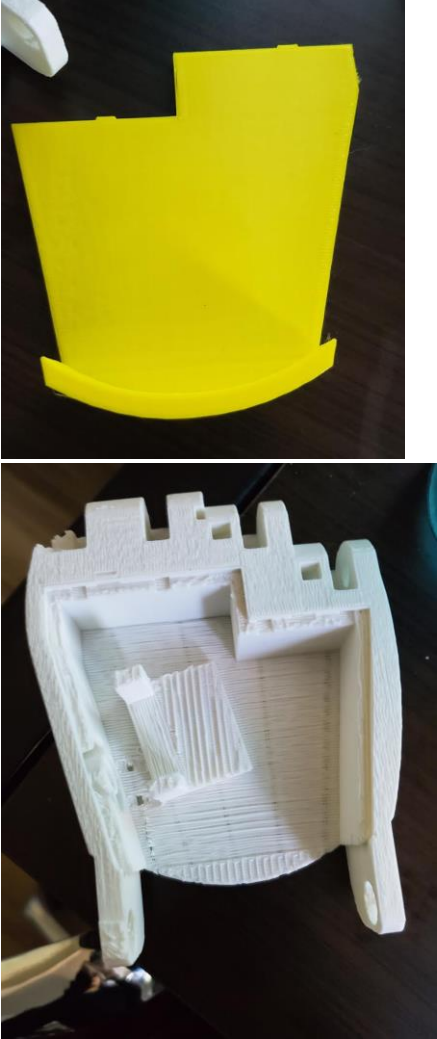

pins and attachments broke, walls intact



5. Force sensors in insoles only measure up to 1 lbf, thus this is all that is necessary to actuate

Team 18F12 Active Prosthetic

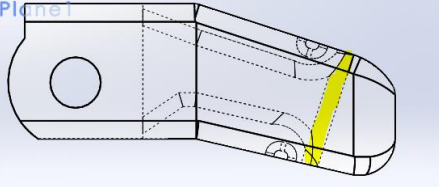
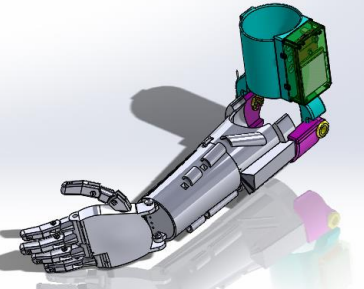
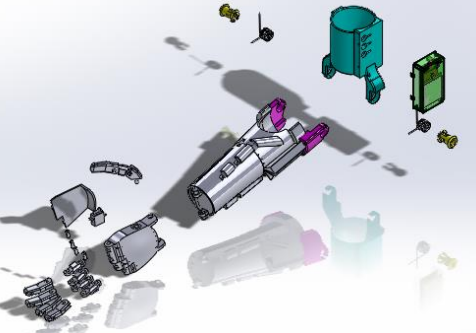
Edited slides and added additional content to conclusion and

<p>Print palm for final testing prototype</p>	<p>4/12/2019</p>	<p>4/12/2019</p>	 <p>Printing went really well with no issues</p>
<p>Test palm with assembly to make sure it meets engineering requirements.</p>	<p>4/12/2019</p>	<p>4/12/2019</p>	 <ul style="list-style-type: none"> • tested durability, scalability, weight, budget, number of parts, and forces


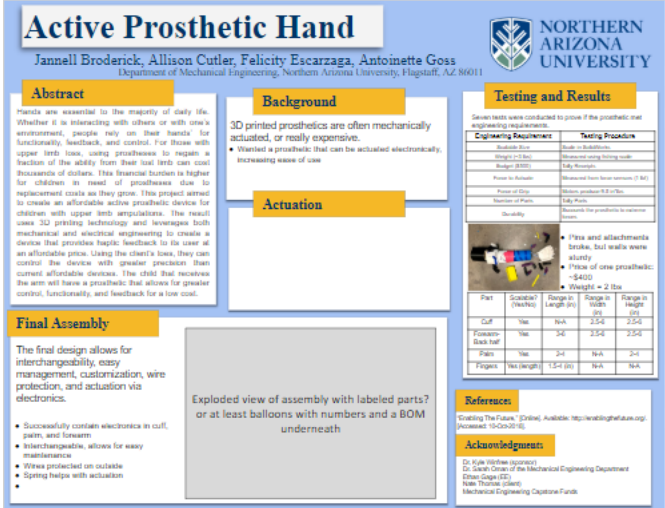
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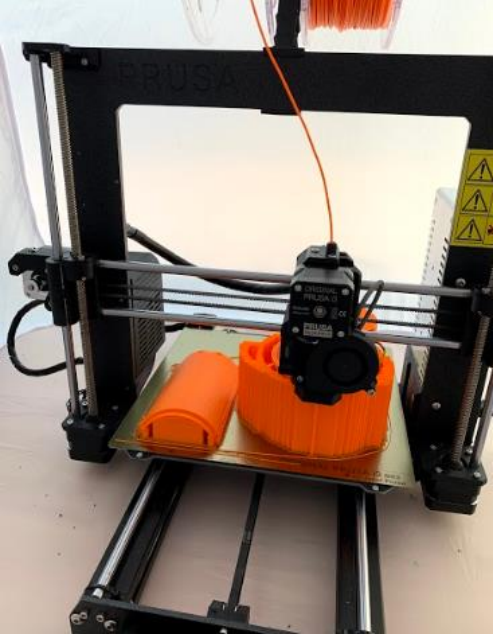
Team Member: Jannell Broderick

Action Item	Date Due	Date Completed	Result/Proof of Completion
Complete Assigned Slides	4/17	4/17	<p>Customer/ Engineering requirements slide</p> <div data-bbox="906 688 1365 951"> </div> <div data-bbox="906 989 1365 1245"> </div>
Test Fingers with assembly to make sure it meets engineering requirements	4/12/19	4/12/19	<div data-bbox="906 1304 1276 1812"> </div> <ul style="list-style-type: none"> • Tested durability, scalability, weight, budget, number of parts, and forces

Write Final Testing Proof	4/12/19	4/12/19	<ul style="list-style-type: none"> Wrote analysis of tests including number of parts and scalability <div data-bbox="906 302 1534 359" style="border: 1px solid #ccc; padding: 5px;"> <p>Final Product Testing Proof Apr 12, 2019 9:26 PM</p> <p>DUE: APR 12, 2019 SUBMITTED</p> <p>Assignment -</p> </div>
If minor changes need to be made to fingers after testing, make them	4/17/19	4/10/19	<ul style="list-style-type: none"> Added a through hole for the tendons. To allow the tendons to loop around finger. This decreases the number of parts needed for the prosthetic. <div data-bbox="906 573 1360 779" style="border: 1px solid #ccc; padding: 5px;">  </div>
Created assemble final prosthetic	4/17/19	4/10/19	<div data-bbox="948 835 1321 1150" style="border: 1px solid #ccc; padding: 5px;">  </div> <ul style="list-style-type: none"> Assembled all updated parts and made an exploded view of assembly <div data-bbox="906 1283 1398 1633" style="border: 1px solid #ccc; padding: 5px;">  </div>

Team Member: Allison Cutler

Action Item	Date Due	Date Completed	Result/Proof of Completion
Test Forearm with assembly to make sure it meets engineering requirements	4/12/19	4/12/19	 <ul style="list-style-type: none"> • Tested durability, scalability, weight, budget, number of parts, and forces
Write Final Testing Proof	4/12/19	4/12/19	<ul style="list-style-type: none"> • Created document • Wrote introduction and results of most tests <p>Final Product Testing Proof DUE: APR 12, 2019 Assignment</p> <p>Apr 12, 2019 9:26 PM SUBMITTED</p>
If minor changes need to be made to forearm after testing, make them	4/17/19	4/10/19	
Work on UGRADS Poster	4/17/19	4/17/19	 <ul style="list-style-type: none"> • Added testing/ results section, background section, final assembly text, updated abstract,

			introduction sentences to sections, and rearranged acknowledgments
Work on UGRADS Oral Presentation for practice presentation next class	4/17/19	4/14/17	<p>7</p>  <p>8</p>  <p>9</p>  <ul style="list-style-type: none"> Added testing proof sections and Budget section
Print new forearm	Unassigned	In Progress	 <ul style="list-style-type: none"> Felicity taught me how to use the 3D printer and we began printing the forearm

The following are the Action Items for next week:

Team Member	Action Items	Date Due
Felicity	<ol style="list-style-type: none"> 1. Print final cuff 2. Print final ecase 3. Print final fcase 4. Check all code 	<ol style="list-style-type: none"> 1. 4/23 2. 4/23 3. 4/23 4. 4/23
Antoinette	<ol style="list-style-type: none"> 1. Print final palm 2. Print final palm top 3. Complete user manual 4. Assemble prosthetic with team 5. Finalise poster 	<ol style="list-style-type: none"> 1. 4/23/2019 2. 4/23/2019 3. 4/23/2019 4. 4/24/2019 5. 4/19/2019
Jannell	<ol style="list-style-type: none"> 1. Print new fingers for final design 2. Finalize Poster and Presentation 3. Complete user manual 4. Assemble final prosthetic with team 	<ol style="list-style-type: none"> 1. 4/24/2019 2. 4/24/2019 3. 4/24/2019 4. 4/24/2019
Allison	<ol style="list-style-type: none"> 1. Finalize UGRADS Poster 2. Finalize UGRAD Presentation 3. Print final forearm 4. Assemble final prosthetic with team 	<ol style="list-style-type: none"> 1. 4/19/19 2. 4/24/19 3. 4/24/19 4. 4/24/19 5. 4/24/19