Work Completed

Week 9 involved most of our prototype building. The first task I accomplished this week was building and cutting the casing for the mechanics. Once this was complete, our group worked together to finish the mechanics, test the mechanics, test the release mechanism, and put them together on the glove.

The casing was complete by taking the welded stainless steel case to the machine shop. There, Lyndon and I cut down the segment of casing into 4 small pieces measuring sizes of \( \frac{1}{4}'' \) and \( \frac{9}{16}'' \). Once the pieces were cut, I hammered out the aluminum insert used to maintain the structural form of the casing while welding. Finally, the pieces were all sanded and filed to remove excess material and rough edges. The pieces were now complete for attachment to the interface.

Figure 1. Casing Segment

The latter part of the week involved getting the mechanics together and working the interface design. We all helped out in getting the final mechanics of the index finger together by assembling each of the individual pawl, spring, ratchet and casing segments with the cut out rivets. Once complete, we attached the index mechanics system to a glove on my hand with tape. We did this to test out the possibilities of the mechanics and there actual strength. They withheld all attempts to break out of the mechanics without the use of the release mechanism. This led to the concept of attaching the mechanisms directly to the glove in a sewn tight fashion and then providing a contact area via rings for the hand to act against and allow for closure of the hand. Also, we devised a release mechanism that would work off of using Kevlar string in tubing for each individual pawl. The string would then all meet at the at a loop at the top of the hand which could be flipped over to put tension on the strings and release the pawls.
Project Review

We had anticipated to have the prototype complete by the end of this week but we have not. We are well underway and have about 20% left to finish the prototype. I believe that it will be complete in the upcoming days and be testing the interface by Friday. This will allow us time all next week to make any minor adjustments to the interface for proper hand gripping.

Future Work

The next week as mentioned above will involve finishing up the prototype build. All we have left to complete is the pinky side attachment and the release mechanism. This can all be completed in the early part of this week and allow us to being testing the interface by Friday. Some other minor interface attachments will also be complete such as Velcro thumb attachment, grip tie, and high friction grip stops.

Table 1. Week 9 Timeline

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attach rings to pinky side</td>
<td>1 day</td>
<td>Tue 3/28/06</td>
<td>Tue 3/28/06</td>
</tr>
<tr>
<td>Attach ratchet to pinky side</td>
<td>1 day</td>
<td>Tue 3/28/06</td>
<td>Tue 3/28/06</td>
</tr>
<tr>
<td>Sew in tubing for release m</td>
<td>1 day</td>
<td>Wed 3/29/06</td>
<td>Wed 3/29/06</td>
</tr>
</tbody>
</table>

Hours Worked:
Phil- 7 hours