The Assistive Robotic Arm

Weekly Assessment #3
February 7, 2007-February 14, 2007

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The Machine Shop

- Change in gripper material
- PVC panels instead of Aluminum sheet
- Size modifications
### Size Modifications

<table>
<thead>
<tr>
<th>Aluminum</th>
<th>PVC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Old Dimensions</strong></td>
<td><strong>New Dimensions</strong></td>
</tr>
<tr>
<td>Width (in)</td>
<td>Length (in)</td>
</tr>
<tr>
<td>0.5</td>
<td>1.5</td>
</tr>
<tr>
<td>0.5</td>
<td>2.5</td>
</tr>
<tr>
<td>0.5</td>
<td>3.5</td>
</tr>
</tbody>
</table>

These new dimensions correspond to the increased thickness of each panel.

**Aluminum Thickness = .032 inches**

**PVC Thickness = .25 inches**
Grippers

- Individual components were machined
  - Rubber coating will be placed on PVC to create better friction when gripping
  - Band Saw was used to cut template
  - Each piece deburred and smoothed
  - All corners rounded on electric sander - safety for client
Eating Utensils

- Utensils ordered
- Right handed, angled soup spoon
  - 30 degree angle
  - Hollow handle - light weight and creates options for attachment
- Bowl with suction base and high lip
  - Allows for easier scooping
Microcontroller

- Motor Control Subroutine added
  - PWM testing using LEDs
  - Speed/intensity testing

- LCD/Enter Key subroutine
  - LCD testing for messages
  - “Enter key” testing using demo board
## Team 9 Budget

<table>
<thead>
<tr>
<th>Part #</th>
<th>Vendor</th>
<th>Description</th>
<th>Qty</th>
<th>Price of 1</th>
<th>Shipping Cost</th>
<th>Total Cost</th>
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</thead>
<tbody>
<tr>
<td>PCS-03</td>
<td>Lynx Motion</td>
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<td>GDS-3248-01</td>
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**Total Cost Spent**  
$155.45

**Remaining Budget**  
$594.55
Future Work

- Assemble the grippers and joints
- Tension Testing of new PVC gripper material
  - Cantilever testing
  - Calculate Force vs. Displacement, Stress, and Strain
- Order Motors
- Continue working on microcontroller code and circuitry
Questions and Feedback?