The Assistive Robotic Arm

Weekly Assessment #1

Asma Ali, Megan Madariaga, and Danielle McGeary
## Budget

<table>
<thead>
<tr>
<th>Part #</th>
<th>Vendor</th>
<th>Description</th>
<th>Qty</th>
<th>Price of 1</th>
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<td>Lynx Motion</td>
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<tr>
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</table>

**Total Cost Spent**: $123.60  
**Remaining Budget**: $626.40
Hampton Elementary School

- Spoke with Assessment Team
  - Perpendicular Utensils
- Monthly updates and visits
- Questions and Feedback from School
- Parent Contact?
The Wheelchair

- Examined chair to find a place of attachment for the device
Pulleys

- Larger outside diameter then planned
- Timing belt too short
- Considered new pulleys or larger PVC tubing
- ACME Auto Parts - Idler Puller – Large/strong
- Will keep original pulley
- Avoid Slipping
PVC Tubing/Home Depot

- Then: Purchase 10ft of each diameter from internet
- Now: Visited Home Depot and found 2ft sections – not available on-line
- Increased diameter of upper arm to 2inches to compensate for large pulley
- Danielle and Megan in Machine Shop
Assembly Language

Precise and predictable timing for multiple operations

Initial program created

Interrupt subroutines - will correspond to specific joints
Position Sensor

- Will stop the device in the case of a malfunction
- Op-amp was added to increase sensitivity
Future Work – Mechanics

- All Machine Shop work for PVC is to be completed this week.
- Construct outside of arm
- Measure length need for pulley belt and purchase
- Get all Mechanical Parts working ASAP so motors can be purchased
**Future Work - Circuitry**

- Implement subroutines into program
- Update program based on mechanics
- Implement circuitry needed to run the arm and microcontroller
- Testing

*Abstract for the Bioengineering Conference was completed and submitted this past week*
Questions and Feedback?