BICYCLE SIDECAR FOR ABBY MILLER

Team 12:
Michael Wieczerzak
Nicholas Ouellette
Elida Babollah
OVERVIEW

- Client
- Proposal
- Current Products on the Market
- Project Design
- Budget
- Completed Work
- Current Work
- Upcoming Work
- Division of Labor
CLIENTS

The Miller Family
- Julie, Scott and Abby

Abby Miller
- 17 Year old girl with cerebral palsy
- Underdeveloped motor skills
- Requires full support of the head, neck, and torso
- Very limited ability to walk; needs help from family to do so. Uses a wheelchair.
- Expresses the desire to enjoy the experience of riding a bicycle.
PROPOSAL

- Design and create a sidecar for a bicycle that will allow Abby to ride along side her parents.
  - The design will incorporate enough support for Abby and keep her safe while she is riding it.
  - The frame will be created as light as possible for transport from the Miller home to the park
    - Will also be detachable from the bike for easy transportation.
  - The seat will have full head, neck and body support to ensure Abby’s safety.
CURRENT PRODUCTS ON THE MARKET

- Chariot SideCarrier™
  - Allows for easy communication between child and adult
  - Hitch design allows for easy attachment
  - Lacks wheelchair accessibility and body support
PROJECT DESIGN

- Sidecar Frame
  - Lightweight, high strength aluminum will be used for ease in transportation
  - Will have the ability to attach and detach from the bicycle
  - Has an area for sidecar tire attachment and allows for easy seat attachment as well
Project Design

- Sidecar Hitch
  - Using the Chariot hitch attachment
  - Easy to attach to bicycle
  - Will allow for Abby’s parents to easily attach and detach the sidecar when transporting
PROJECT DESIGN

Carrie Tumble Form Seat

- Optimally designed for comfort and support, which the client has specified is needed
- Lightweight seat allows for easy transport
- Similar design to the wheelchair seat that Abby currently uses
**PROJECT DESIGN**

- Footrests for Seat
  - Will be using footrests found at NEAT marketplace
  - The footrests are comfortable and safe to use
  - Straps will be used to secure Abby’s legs into the footrests to prevent any injury
Completed Design
Allotted budget = $1,750.00
- Currently Projecting to be under budget

<table>
<thead>
<tr>
<th>Part</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrie Tumble Form Seat</td>
<td>$967.95</td>
</tr>
<tr>
<td>NEAT Marketplace Footrests</td>
<td>$15.00</td>
</tr>
<tr>
<td>Chariot SideCarrier Hitch</td>
<td>$60.00</td>
</tr>
<tr>
<td>Bike Tire</td>
<td>$9.00</td>
</tr>
<tr>
<td>6061-T6 Aluminum Stock</td>
<td>$85.00</td>
</tr>
<tr>
<td>Half Sheet Neoprene Foam (1&quot; Thick)</td>
<td>$45.99</td>
</tr>
<tr>
<td>20&quot; Bicycle Fender</td>
<td>$14.99</td>
</tr>
<tr>
<td>Miscellaneous Expenses</td>
<td>$100.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1297.93</strong></td>
</tr>
</tbody>
</table>
**COMPLETED WORK**

- A working SolidWorks model, which has been updated to match how the project has evolved.
- Placed a seat, leg supports and head supports on reserve at NEAT marketplace for pick up.
- Placed order for some parts such as the chariot hitch.
CURRENT WORK

- Researching any possible fabrication obstacles for the spring.
- Constantly updating and modifying the SolidWorks design to allow for as close of a resemblance as possible to optimal design.
- Ordering the remaining parts/supplies within the next week.
UPCOMING WORK

- Welding the sidecar frame.
- Assembling the leg/foot rests.
- Fabrication of the wheel and side fenders.
- Total assembly of the sidecar.
- Hope to have troubleshooting of the sidecar begin by March 14\textsuperscript{th}.
- Goal is to complete the project in the first two weeks of April.
DIVISION OF LABOR

- **Michael**
  - Updating and detailing Solid Works Design
  - Research seat housing/assembling to sidecar frame

- **Nick**
  - Research of possible hitch attachment designs
  - Purchasing/Investigating best aluminum for frame

- **Elida**
  - Research/Design of fenders
  - Attachment of Neoprene padding
QUESTIONS?