Tandem Bicycle for 16 Year Old Abby Miller (CP)

Team 12
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Project for Abby Miller
Overview of Project

- The Client
- Project Proposal
- Previous Products and Designs
- Potential Ideas
- Budget
- Current Status of Project
- Future Work
The Client

- Abby Miller and family (Scott and Julie)
- 16 Year old female 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
- Expresses the desire to ride/enjoy the experience of riding a bicycle
Project Proposal

- To design a sidecar device that will attach to the frame of the bicycle that the family uses
  - Sidecar frame will allow for a wheelchair type seat to be implemented into the design
  - Head/Neck/Torso support will be made in order to adapt to Abby’s physical needs
  - Frame will be lightweight and detachable for easy transport and ease in riding
Previous Products and Designs

- **Chariot SideCarrier™**
  - Allows for easy communication between child and adult
  - Hitch design allows for easy attachment
  - Lacks wheelchair accessibility and body support
Previous Products and Designs

- JENKEL-HEIMER Design
  - Allows for wheelchair accessibility
  - Allows for child and adult to communicate
  - Lightweight frame
  - Safe frame design for a handicapped person
  - No attachable/detachable hitch
Potential Ideas

- Our team has expressed the idea to incorporate a similar wheelchair type seat that Abby uses throughout her day
  - Allows for a more familiar, comfortable feeling
  - Adequate support for head, neck, and torso
    - X-strap for torso support
- An attachable/detachable hitch design
  - Allows for the transport of device when not in use
  - Parents will still have ability to ride bicycle without sidecar attachment
## Budget

<table>
<thead>
<tr>
<th>Parts List</th>
<th>Estimated Price</th>
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<tbody>
<tr>
<td>Aluminum Stock</td>
<td>$150.00-$200.00</td>
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<tr>
<td>Wheelchair-Type Seat</td>
<td>$300.00-$400.00</td>
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<tr>
<td>Torso/Neck/Head Supports</td>
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<td>20” Tire for Sidecar</td>
<td>$30.00-$50.00</td>
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<td>Attachable Hitch (2)</td>
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<tr>
<td>Miscellaneous Hardware</td>
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**Approximately $1000.00 for total budget**
Current Status of Project

- We are currently in the stages of discussing our ideas with the client in order to receive feedback
- Still in the process of researching the different materials we could incorporate into our designs for greatest efficiency
- Still brainstorming design ideas
- Client has recently sent us two videos of Abby, allowing us to see how she moves and interacts with her family
Future Work

- Finalization of alternate designs and starting to work on our optimal design
- We will begin to start designing our prototypes using CAD software
- Stay in contact with client to discuss designs and types of parts being used
Questions?