Assistive Toileting Device

Overview
Lydia Swatsworth is a young girl who was born without arms. While she has adapted to some everyday activities with the help of her finger-like appendages, feet and devices made by her care team, she still needs the assistance of a personal care aide to use the restroom. The goal of our project was to create a device that would allow Lydia to use the restroom independently. In particular, this device should allow Lydia to be able to pick up a toileting wipe, use it and sanitarly dispose of it on her own.

Objectives
The objectives of our project were defined through the customer needs that Lydia’s care team gave us. We worked on creating an assistive toileting device that would be safe, easy to use, adjustable and easy to clean.

Approach
• During our first site visit we gained a full understanding of the problem and defined customer needs.
• Different design concepts were developed and one concept was selected to be manufactured.
• After attempts of manufacturing our first prototype, the design was changed in order to increase ease of production.
• A second site visit determined exact sizes and shapes for different components.
• Our first prototype was manufactured.
• A third site visit was made to determine what changes should be made from the first design prototype.
• New materials were selected to modify the design as determined from the third site visit.
• A fourth site visit was made to test the new device.
• A second device was made for use in the back.
• A fifth site visit was made to test the final design of both the front and back devices.
• Eight different devices were manufactured to allow use in the front and back, and device adjustability.

Outcomes
Our team was successful in creating a device that will provide Lydia with a way to use the restroom independently.
• The device allows Lydia to easily pick up a toileting wipe, use it and sanitarly dispose of it on her own.
• The device is safe, easy to use, adjustable and can be easily cleaned.
• A set of devices can be manufactured for only $113.93.
• Eight final devices (2 front, 2 front adjustable, 2 back and 2 back adjustable) and 4 wipe boxes were given to our sponsors along with extra components and supplies.