

Team 32

Go Baby Go B

UGRADS Presentation



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Overview

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Introduction

- The Go Baby Go Universal Control project goal is to modify a DIY Ride-On for children with limited mobility in their arms and/or legs.
- The client is Dr. Sarah Oman a lecturer at NAU.



Project Goals

- 1- Design, manufacture and test a steering mechanism for children with limited mobility with their hands.
- 2- Create an assembly manual/ operation manual.



Research

Existing Designs:

- 1- Frozen car.
- 2- Frozen car with a joy stick.
- 3- Barbie car.



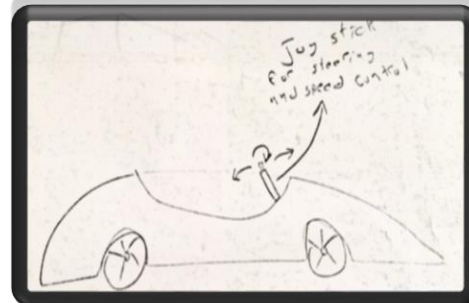
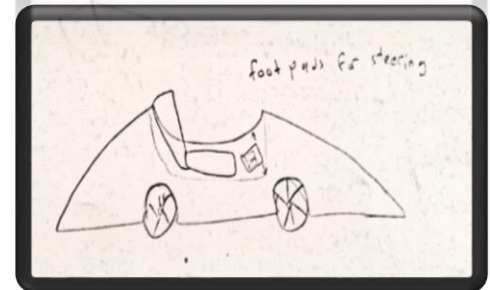
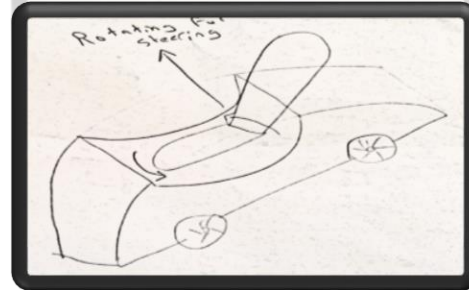
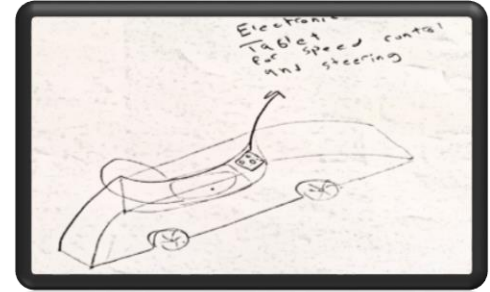
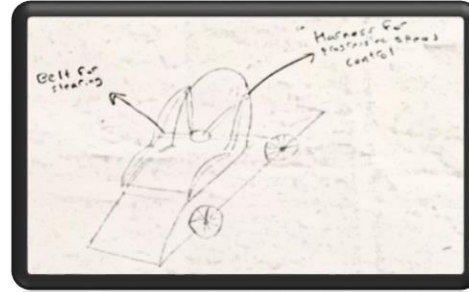
Customer Requirements

- Easy instruction manual.
- Easy to build.
- Safe.
- Easy to use.
- Life span.
- Steering for upper body limited mobility.
- Low cost.
- Aesthetic appearance.



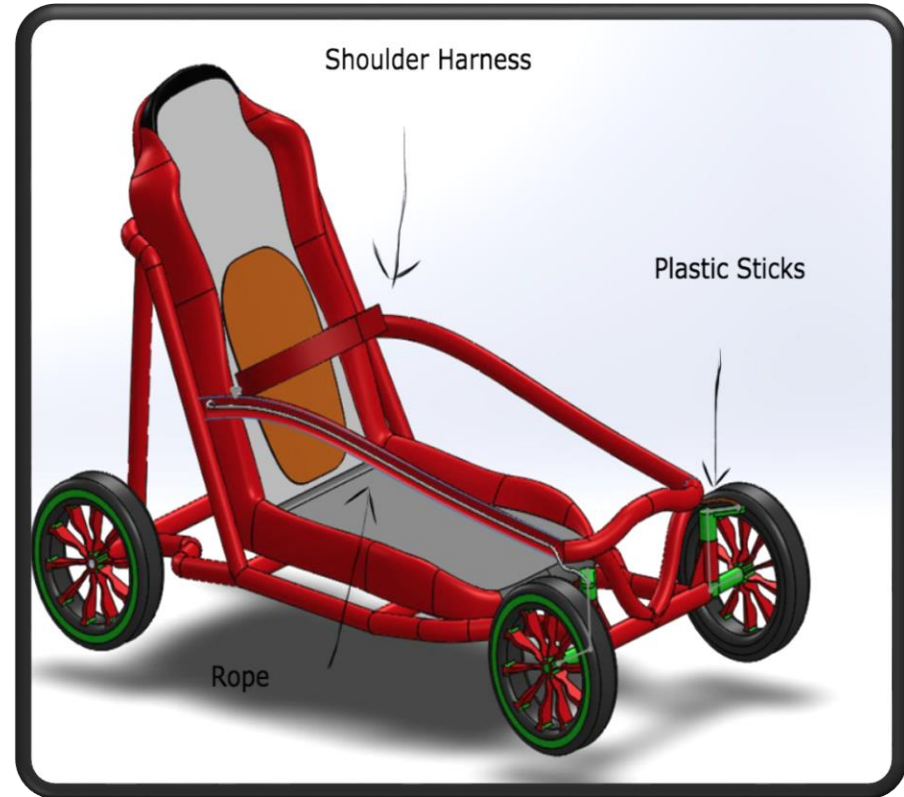
Design Considered

- 1- Harness design.
- 2- Electronic tablet design.
- 3- Rotating chair design.
- 4- Foot pads design.
- 5- Joystick design



First Design

- Plastic sticks attached to the front wheels.
- Shoulder harness attached by rope to the plastic sticks.
- The design has failed due to a weak mechanism.



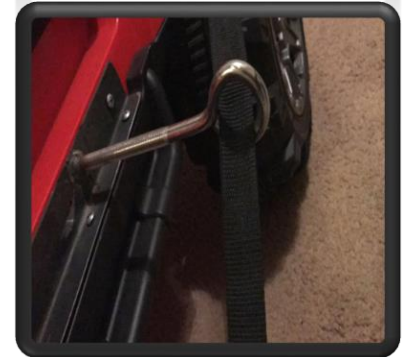
Final Design

- Based on the Decision Matrix and the Pugh Chart the final design is the Harness Design.
- A harness attached by strap to the front wheels is a solution to steer the wheels with limited hands mobility.



Design Components

- Two steel rod attached to two steel circular plate attached to the front plastic tires.
- Two nylon strap attached to the steel rods by a swivel hook.
- Two strap adjuster to adjust the length of the strap.
- Two shoulder harness & Two eye bolts



Manufacturing

- 1- Drill three holes in each tire.
- 2- Attach a steel plate to the tires by screws and washers.
- 3- Attach a U shaped rod to each plate by welding it.
- 3- Attach a hook to each U shaped rod.
- 4- Attach a strap to each hook by glue.
- 5- Attach the strap to the harness.
- 6- Use a strap adjuster to adjust the strap.
- 7- Attach two eye bolts to the sides of the frame for safety.



Testing

- Force needed to steer the wheels and that was accomplished by using a push pull force meter.
- The durability of the mechanism and that was accomplished by pulling the harness several times.



Results

- 5 pounds of force needed to steer the wheels.
- The mechanism is strong and durable.
- The strap adjusters make the mechanism more comfortable.



Obstacles

- The size of the group.
- The requirements were different.
- Simple solutions.
- Writing skills.
- Managing time in the workshop.



Cost

- Walmart
<https://www.walmart.com>
- The Home Depot
<http://www.homedepot.com>
- Amazon
<https://www.amazon.com>
- Jo-Ann Fabric And Craft Stores
<http://www.joann.com>

Materials	Quantity	Cost
Steel Rods	2	\$5.77
Bolts & Screws	6	\$2.97
Steel Plate	2	\$16.99
Ride-on Car	1	\$239.94
Shoulder Harness	2	\$14.99
Fabric Strap	12 Yards	\$25.34
Swivel Hook	2	\$8
Plastic Glue	1	\$3.12
	Total:	\$317.12

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Comments and Questions