

# ENGINEERING FOR GOOD



Polytechnic Institute

## OVERVIEW

Engineering for Good is an innovative project dedicated to helping little explorers. Mobility impairment is very difficult for adults, even more for children. Even though society works on inclusivity for mobility impairment, there is still a long way to go when it comes to infants. Using a wheelchair is not usually a viable option for little children, but what if we could change their world by providing them the mobility necessary to move to different places without necessarily needing a wheelchair or walker. In Engineering for Good, it is our goal to bring modified bumper cars to make this dream come true.

## OUR PURPOSE

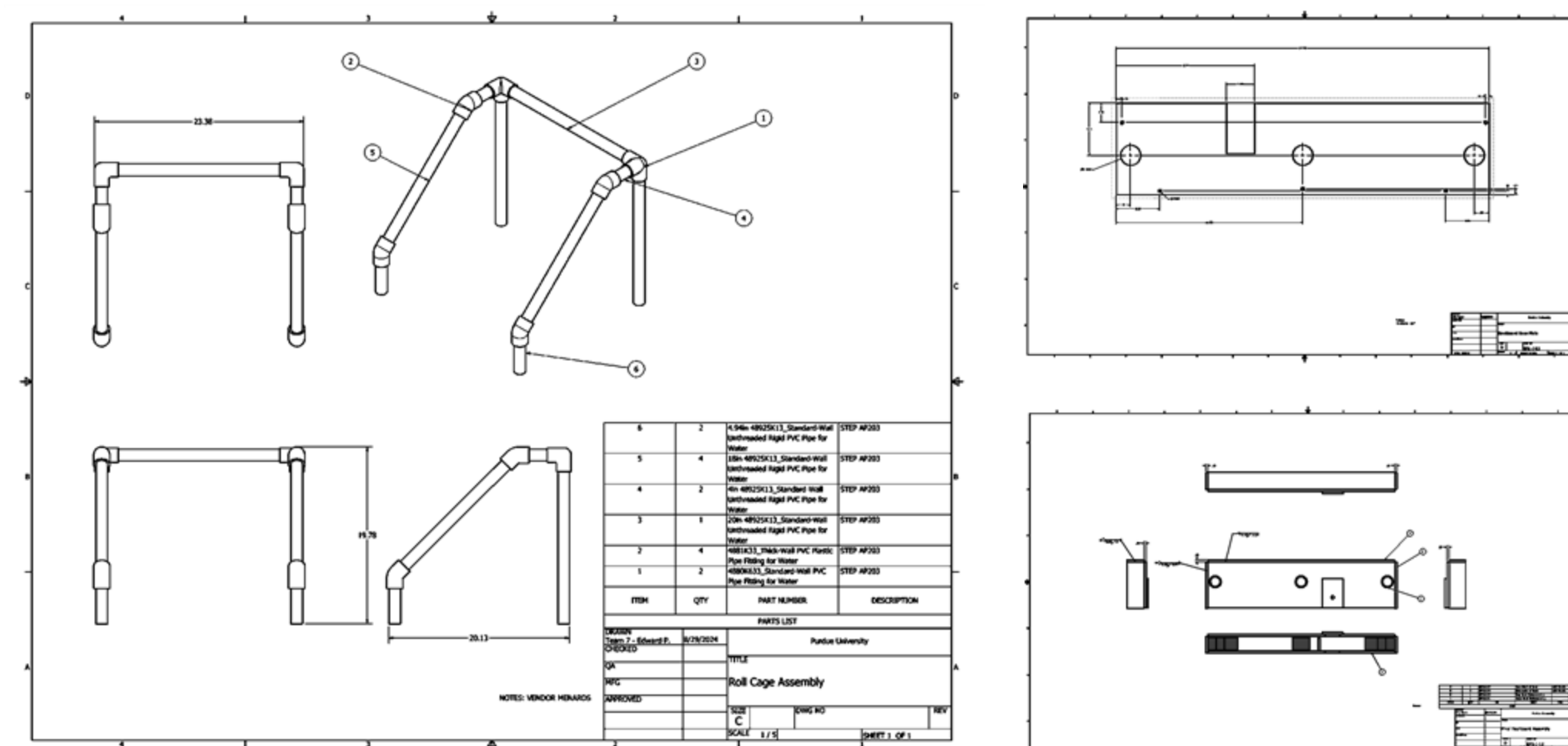
Through the GoBabyGo program, that was established by Dr. Cole Galloway (University of Delaware), we worked on modifying kid's battery powered toys to be used by kids as a low-cost powered wheelchair. We are modifying kid's battery powered toys to be wheelchairs because there are more than 1.5 million children just in the United States that have trouble with mobility. There are wheelchairs that are made for children, but they can cost up to \$25,000 and most of the time are not covered by insurance until the children are the age of five.

We are also modifying battery powered toys for children because there are over 10,000 toy vehicles that only target 1% of the target population, not children with mobility problems. Since wheelchairs are so expensive most children do not get them until later in life, this is very limiting to children's exploration.

Since GoBabyGo is already working with families, our first task of this project was to modify a Power Wheels Jeep for a four-year-old child that is in town. Our second task was modifying the 360-degree toy bumper cars that kids can drive inside and outside. We are modifying the bumper car so there is only one controller, a way to always keep kids safe and for all kids to play with. Our project makes it so everyone can use the products, and no one will be left out and miss experiences!

## HOW DID WE MAKE THIS HAPPEN?

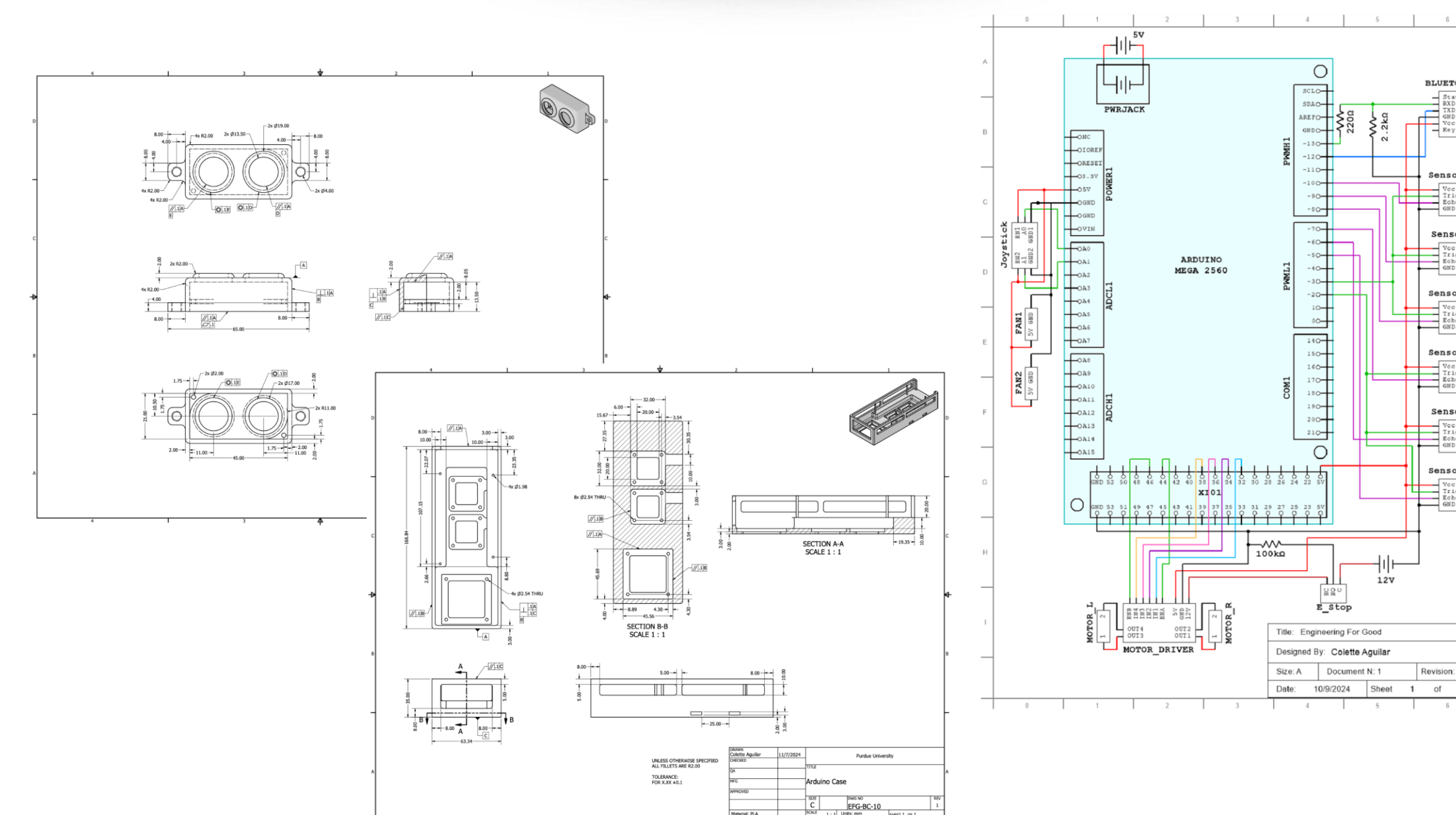
Prototype A



Prototype B



In partnership with the Go Baby Go! Foundation we provided a 4-year-old with a modified Fisher-Price Jeep for him to be able to move around. This car had a child-proof chassis, with a tailor-made pedal and a change in the door for easier entrance and exit of the car. This was known as Prototype A which we planned on building in 4-6 weeks time. This prototype was used as a base for Prototype B.



- We created the template and base of a bumper car to be able to easily manufacture the changes of a premade car.
- We used our knowledge and improvements from Prototype A to B.
- We added new mechanical parts for improved ergonomics
- We implemented ultrasonic sensors for motor speed control and boundary mapping.

## MEET THE TEAM!



Comprised by five extraordinary students, our backgrounds mesh perfectly to achieve the same goal; to make a kid's dream come true. Our majors are comprised of Mechanical Eng Tech, Robotics Eng Tech, Supply Chain & Sales Eng.

## OUR FINAL PRODUCT



From all of us: Colette Aguilar, Lillian Egan, Aiden McNicholas, Jacob Peddycord & Edward Prentice