

INTRODUCTION / BACKGROUND

Imagine being a child and not being able to move around or play freely like your peers. For many children with mobility challenges, something as simple as riding a toy car can be life-changing. Go Baby Go is a national program that modifies electric ride-on cars to support the mobility needs of children with disabilities. Our Glendale College team took part in this initiative through an internship that allowed us to directly impact a child's life. Our client, is a 4-year-old girl with cerebral palsy. She has limited mobility and lacks trunk and neck control. This project gave us the chance to design a car that would help her move more independently and engage in daily activities. Over several weeks, we researched our client's needs, communicated with her family and physical therapists, and collaborated as a team to design and build a custom car tailored to her physical abilities and preferences. This poster highlights our journey working with Go Baby Go, the process of designing for a specific child's needs, and the teamwork it took to create an adaptive solution that empowers mobility and independence.

PROCESS

STEP 1: Client Research

As a team, we began by familiarizing ourselves with our client's needs and preferences. This included both practical considerations, such as mobility limitations and support needs, and personal touches, like preferred car decorations and colors. We researched her diagnosis and commonly associated challenges to ensure our design would provide safety and comfort. Using this information, we collaborated to combine our ideas into a unified plan that addressed our client's specific needs.

STEP 2: Interview and Brainstorming

Next, we contacted our client's family and arranged a virtual interview. We created a respectful and inclusive space for them to share additional insights beyond what we had gathered through research. We had the meaningful opportunity to meet our client during the meeting, which helped us better understand her personality and needs. After the interview, we brainstormed ideas as a team—such as adjusting the seat for improved posture, adding back and head support, and 3D printing a personalized nameplate as a decorative touch. Every idea was developed to make the car both functional and inviting.

STEP 3: Design & Modifications

With our ideas in place, we explored multiple solutions for implementing the necessary modifications. This included adapting the car's seating, controls, and support systems to suit better our client's physical needs, comfort, and abilities. Every decision centered on making the car safe, secure, and easy for her.

STEP 4: Customization & Build

Customization was both a creative and technical challenge. We refined the car's layout to incorporate back and head support while ensuring everything functioned properly. Based on the client's preferences, we chose a pink and blue color scheme and designed the theme around something she enjoys—Ms. Rachel. We prioritized quality and durability throughout the process to ensure the car would hold up to real-world use.

STEP 5: Delivery & Impact

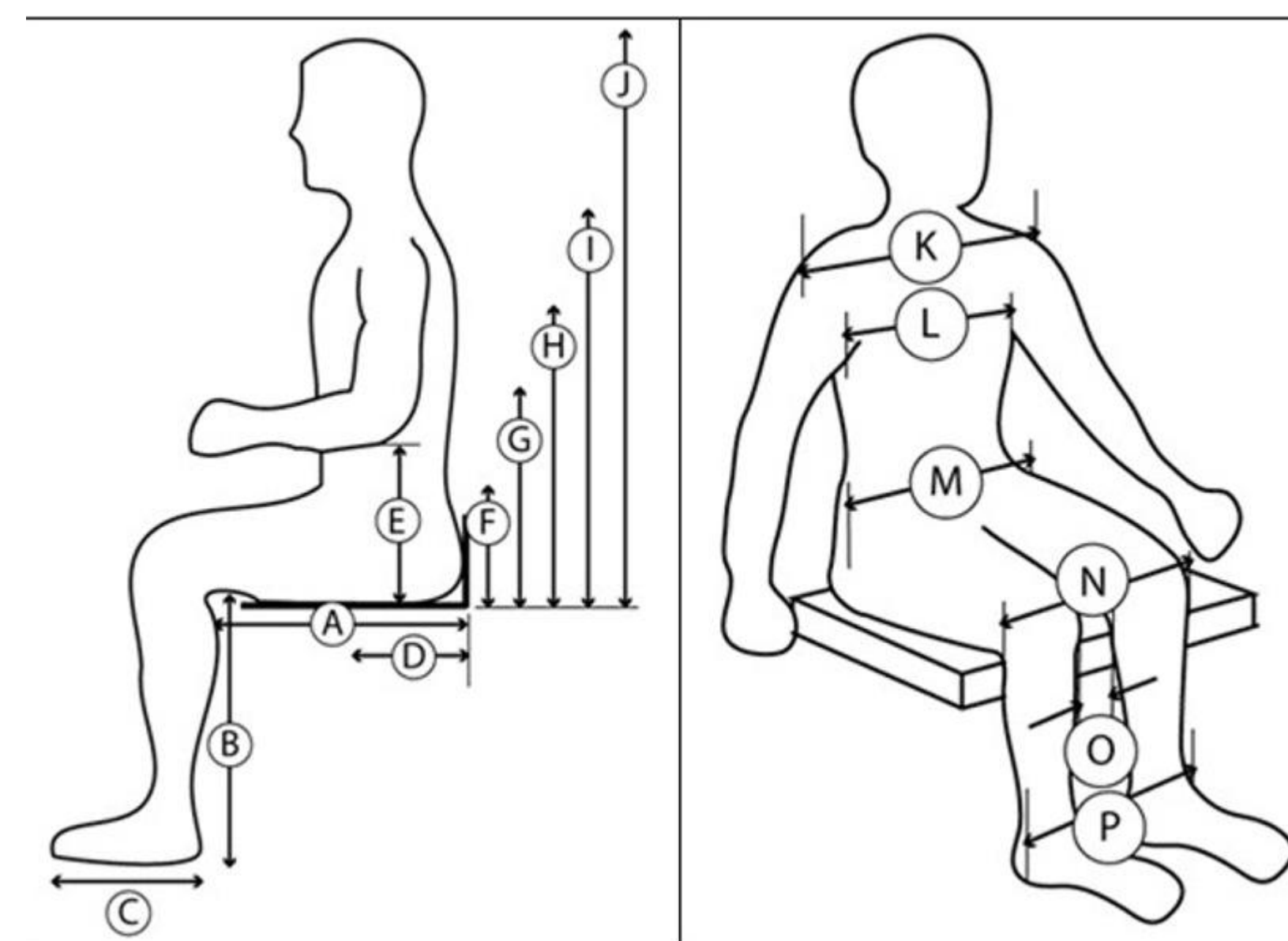
The car was delivered to our client on May 9, 2025. We met with her and her family to present the final product. It was a powerful moment for them and us as a team. This experience allowed us to positively impact a child's life while learning valuable real-world problem-solving and collaboration skills that we will carry into our future careers and communities.

MODIFICATIONS

BIG RED BUTTON: The Big Red Button allows our client to independently control forward and backward movement in the vehicle. Combined with the steering wheel, it enables her to navigate left and right, supporting both mobility and engagement with her environment.

TOGGLE SWITCH: The toggle switch provides the client's family with an emergency stop function. If the vehicle starts moving in an unsafe direction, they can quickly intervene. This feature enhances safety and gives caregivers greater control over the car's operation.

SEAT SUPPORT SAFETY: The seat was carefully modified to provide upper body and head support, helping our client maintain a comfortable and secure posture. This design also makes it easier for her to get in and out of the vehicle while ensuring stability during movement.



TECHNICAL INFORMATION

To meet our client's needs, we implemented a range of engineering and fabrication techniques throughout the build.

- **Structural Modifications:**
For physical support, we designed and modeled custom seating components in Onshape, ensuring a secure and ergonomic fit for the client. We used PVC pipe to reinforce structural elements and fabricated custom metal brackets to mount added components. We used dremel saws, drills, and wire strippers during the modification process.
- **Aesthetic & Comfort Enhancements:**
We 3D printed a custom license plate for personalization and sewed custom upholstery for improved comfort and visual appeal. The seating system was modified to provide proper trunk and head support while maintaining ease of access.



CONCLUSION

We were able to design and build a custom ride-on car that meets our client's unique mobility and comfort needs. Through research, collaboration, and hands-on problem-solving, our team created a safe, functional, and personalized vehicle that promotes independence and joy. This project not only made a difference in our client's life but also gave us valuable experience working as a team to solve real-world challenges with empathy and innovation.

ACKNOWLEDGMENTS

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