



# Project 19: Wheelchair Adaptive Stand-Up Paddleboard

Team Adaptive Flow: Brandon Do, Charles Malnar, Chris Tran Rojas, Lambert Soto

## Project Overview

### Problem Statement / Need



Quality of Life's Challenger Adaptive Freedom Foundation used an existing fleet of Wheelchair Adaptive Stand Up Paddleboards (WASUP) for 5 years and needed updating

A new WASUP is needed which accommodates: various wheelchair sizes, maneuverability, buoyancy, stability, and ease of transportability



### Adaptive Flow Members



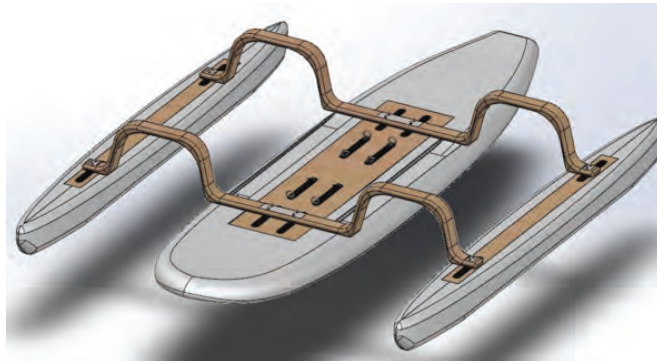
Left to right: Brandon Do, Charles Malnar, Chris Tran Rojas, Lambert Soto  
 Chris Tran Rojas: Project Manager/Team lead, Systems Engineer, Integration and Test  
 Charles Malnar: Production Manager, Design Lead, Subject Matter Expert  
 Lambert Soto: Product Integration Team Manager, Graphic Design Lead  
 Brandon Do: Supply Chain Manager, Co-Project Manager

## Acknowledgements

Advisors: Annemarie Orr, Amy Lagera, Micheal Lester, Scott Shaffar, SDSU  
 Mentors: Dr. Shaffar, Mr. Lester, Chuck Malnar, Annemarie Orr, David Gins  
 Challenger: Adaptive Freedom Foundation  
 Sponsor: Quality of Life Plus

## Project Design

### Final Design



### Manufacturing

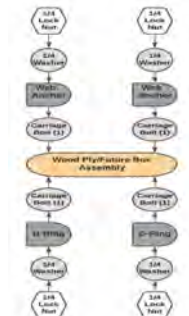
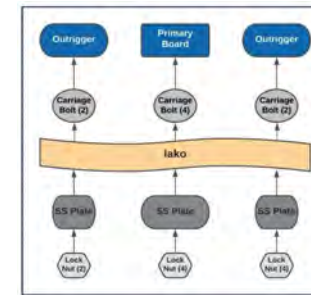


### Testing

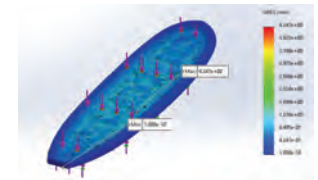
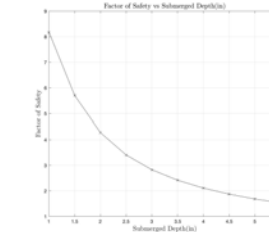
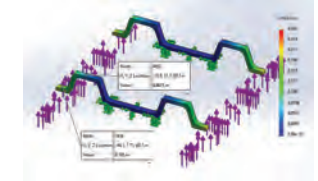


- Buoyancy and Stability: Buoyant enough for 800lb verified with 1/14 scale models
- Strength: Normal loading on sample board

## Design Assembly



## Design Analysis



## Advantages

- Maneuverability: Arched Iako's allow for a greater paddle stroke length for each rider so all can have less interference while paddling
- Modular wheelchair channels accommodating standard wheelchair or custom wheelchair
- Transportation of the system via roof rack or truck bed
- Supports 800 lb load
- Sporty Aesthetic