

## PROJECT TEAM



## DESIGN TEAM MEMBERS

Isabelle Bishop  
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Mandy Kiger  
Jamie Leinen

## PROJECT SPONSOR

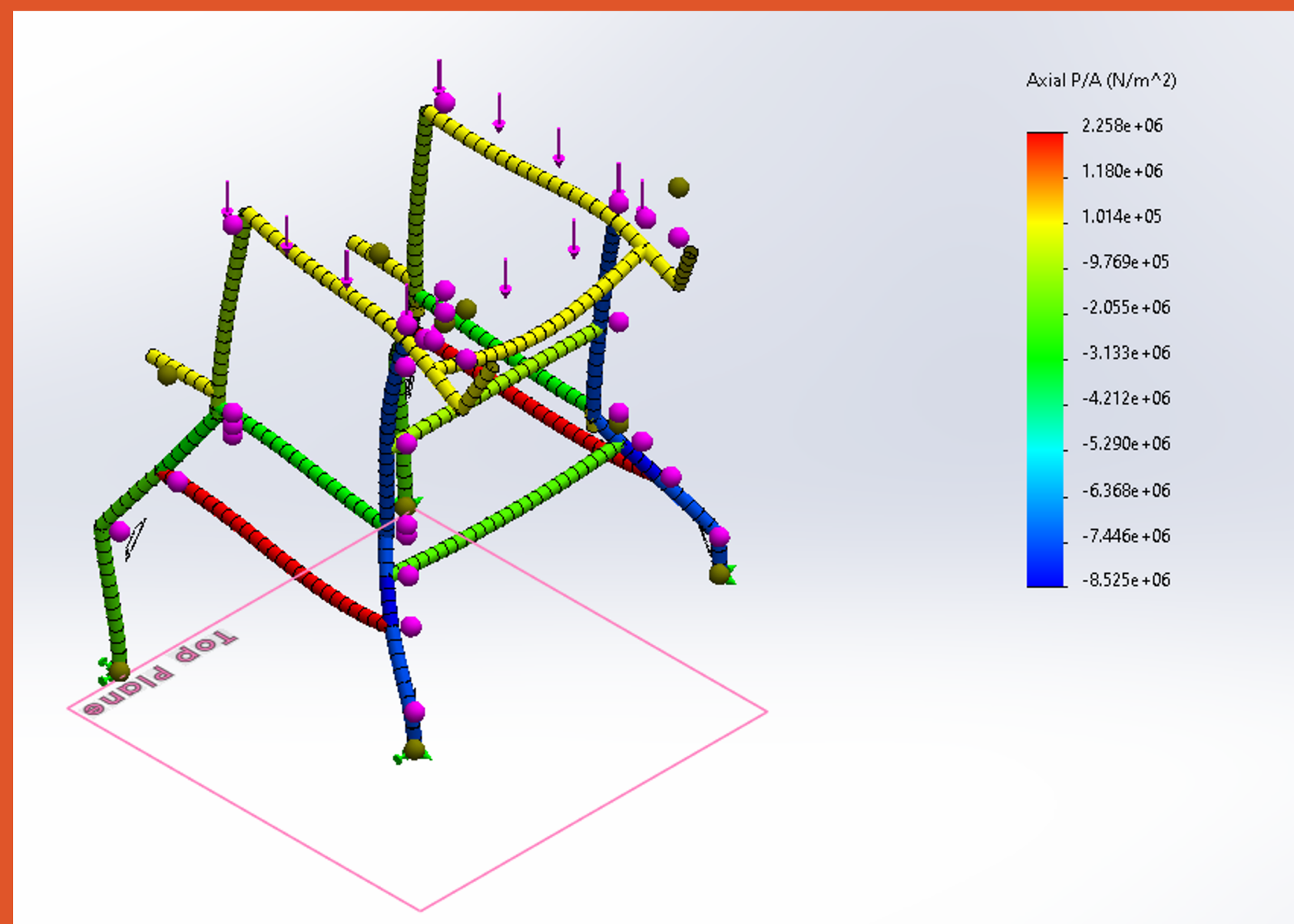
Lillian Webster

## TECHNICAL ADVISOR

Dr. John Parmigiani, P.E.

## IMPLEMENTATION AND TESTING

- Prototype development focused on dimensions to meet doorway requirement
- Professional welding and fixturing to ensure the safety of client
- Fit and fall tests done by team to ensure the walker could bare full weight of client



*SolidWorks simulation load testing.*



## WALK AROUND

## Custom Assistive Walking Device

## PROJECT DESCRIPTION

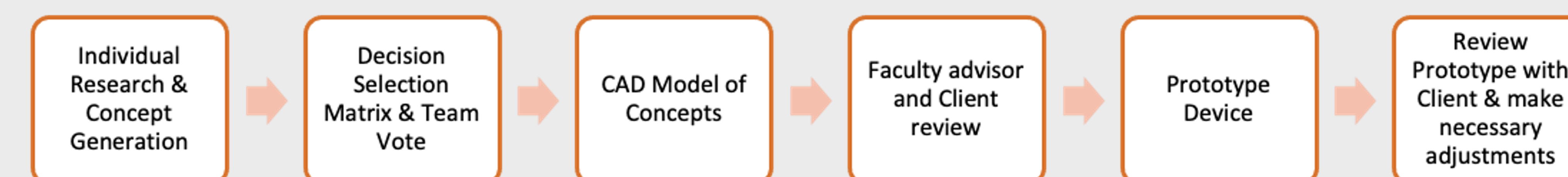
The Walk Around project is an assistive walking device custom designed and fabricated to allow the client to walk safely and autonomously. The client, also the project sponsor, is a woman in her seventies with a specific set of medical conditions. The client uses a wheelchair as her primary means of transportation for everyday movements around the house. The client's medical conditions include multiple sclerosis, ataxia, and motion impairments associated with a medical stroke.

The client has used a variety of market assistive walking devices, but has not found any luck in a system that is safe for the client to use autonomously. The purpose of this project is to provide the client with a safe to use assistive walking device that will provide more independence in their everyday life, through the ability to walk.



*Walk Around final device prototype.*

## DESIGN DEVELOPMENT



*Flow diagram of the design process for the Walk Around project.*

## DESIGN SOLUTION

After three iterations of device prototypes, the team decided on the following design features for the final *Walk Around* device:

- Outer and inner frame linked together with pivot arms to lower to the client in a seated position and raise to client in a standing position
- Pelvic support that comfortably supports the client in case of a fall or if legs tire
- Chest support to provide stability and additional upper body support
- Aluminum frame welded together to provide a lightweight yet stable base
- Four wheels for stability: two swivel wheels in the front for easy maneuverability, and two fixed wheels in the back connected to the braking system
- A variety of client requested accessories

## FINAL SOLIDWORKS CAD



*Final design CAD.*

## DESIGN REQUIREMENTS

The key design requirements derived from the customer requirements are as follows, the device must:

- Fit through standard doorway width
- Support the full weight of the client.
- Fit a budget of approximately \$1,000
- Not tip over if any kind of fall occurs
- Fit close enough to counter to allow client to utilize counter space