

Problem Statement

The most common knee injury is osteoarthritis, which is a degenerative joint disease frequently caused by the “wear and tear” of the cartilage causing pain when pressure is applied to the joint. Spending excessive amounts of time in a “downhill” position causes excessive strain on the joints. Skiers around the world suffer from knee injuries which affect their performance and durability. 43% of skiers admitted into the ER were treated for knee issues.

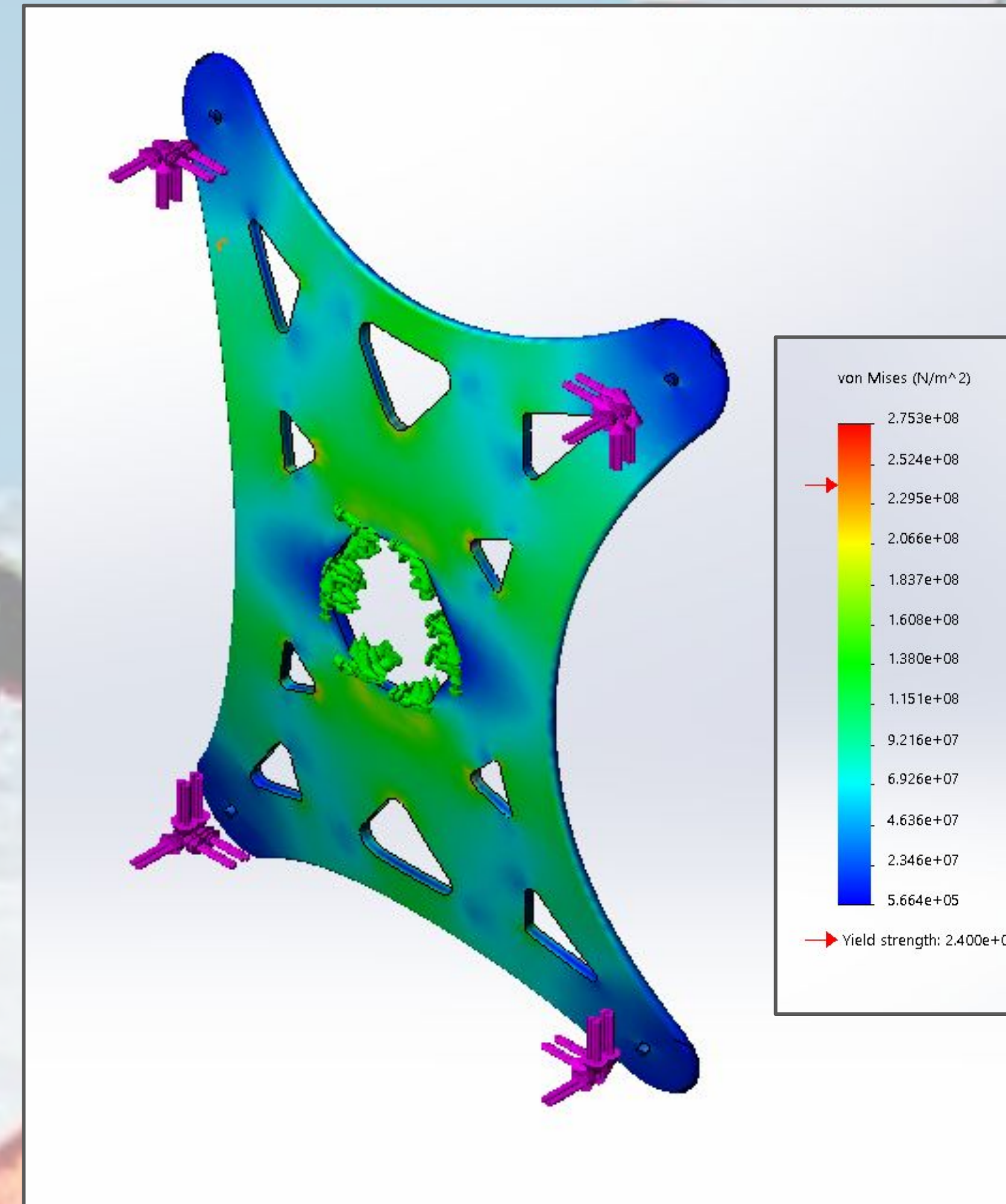


Sponsor

The Lavin Entrepreneurship provided our project with a budget of \$1500



Analysis



Fabrication

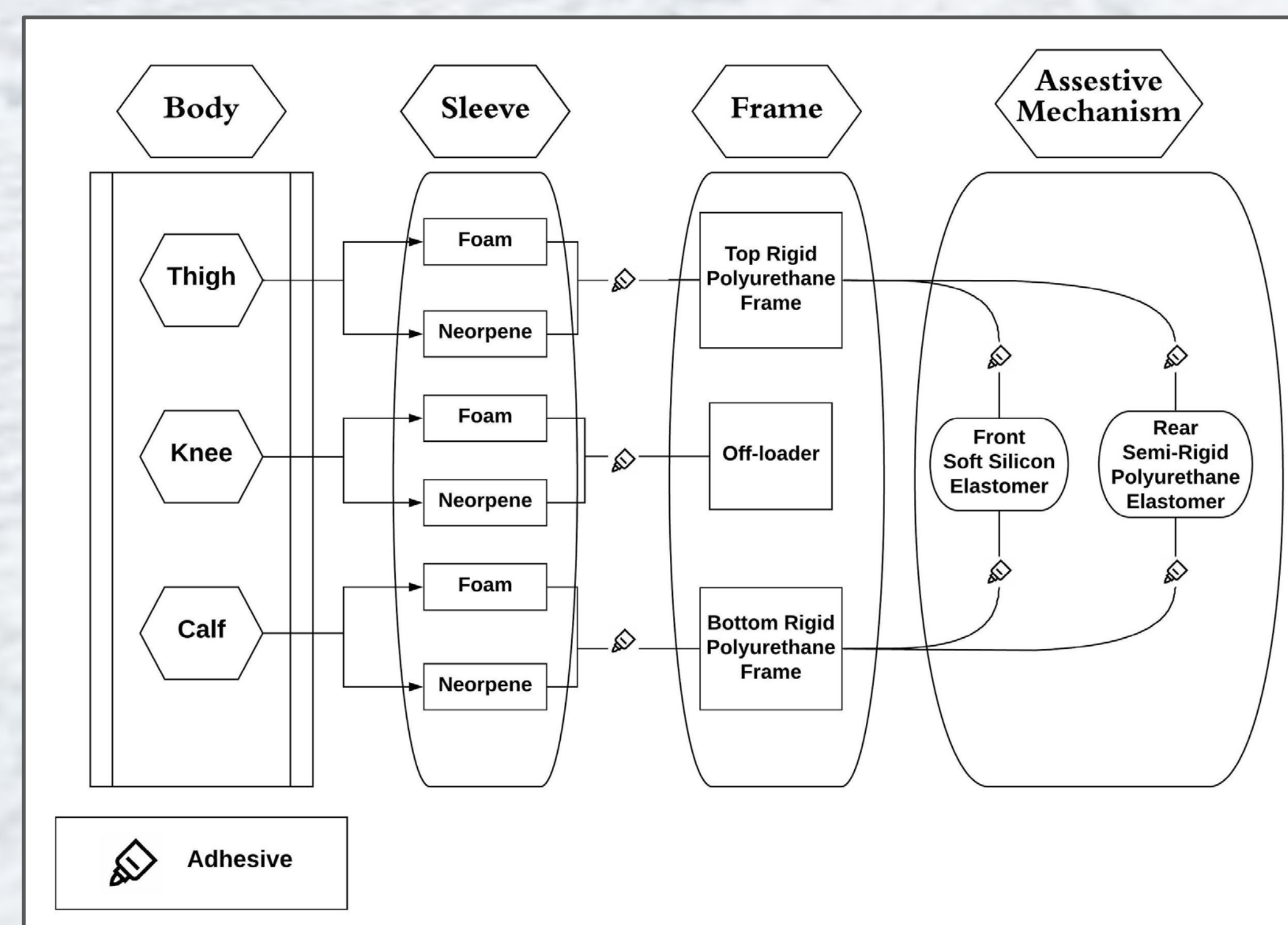
Fabrication of our brace consisted of using a number of molds to create polyurethane and silicone parts. The main pieces of equipment that need to fabricate are a vacuum chamber and a heating element. However due to the COVID-19 pandemic our manufacturing was limited to one person and our progress was seriously delayed. We plan on working with Zip Launch pad engineerins to continue this project and work on a fully functioning prototype.

Team

Mission

Freebody is on a mission to disrupt the current knee brace market by combining the technologies of different types of braces and creating a brace that acts like an assistive brace but feels like an OA brace. By using flexible materials and maintaining a low profile Freebody can differentiate itself from the current brace market that use rigid and heavy metal that make them uncomfortable. Freebody is a L1 team Zip Launchpad.

System Level Diagram



Team Members(Left to Right)

Richard Martinez, Ebrahim Altaher, René Arvizu, Alejandro Ibarra, Jeffrey Vaquera, Abdullah Almulla