

Team5: Initial CAD and FEM

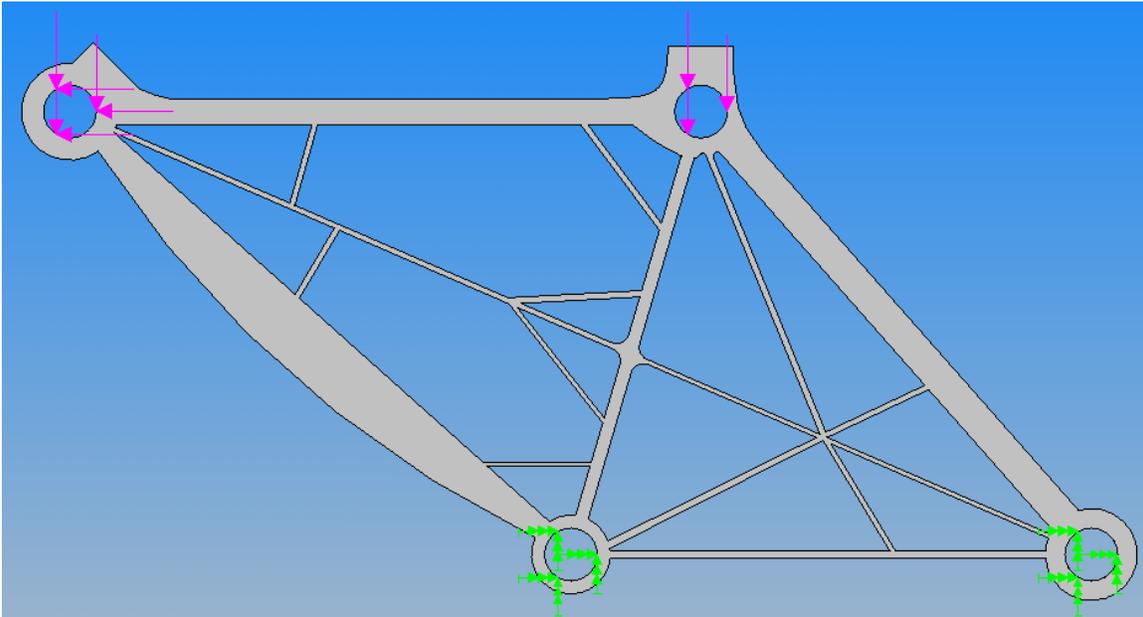


Figure 1: CAD Model showing web/truss type structure for max stiffness and minimum weight

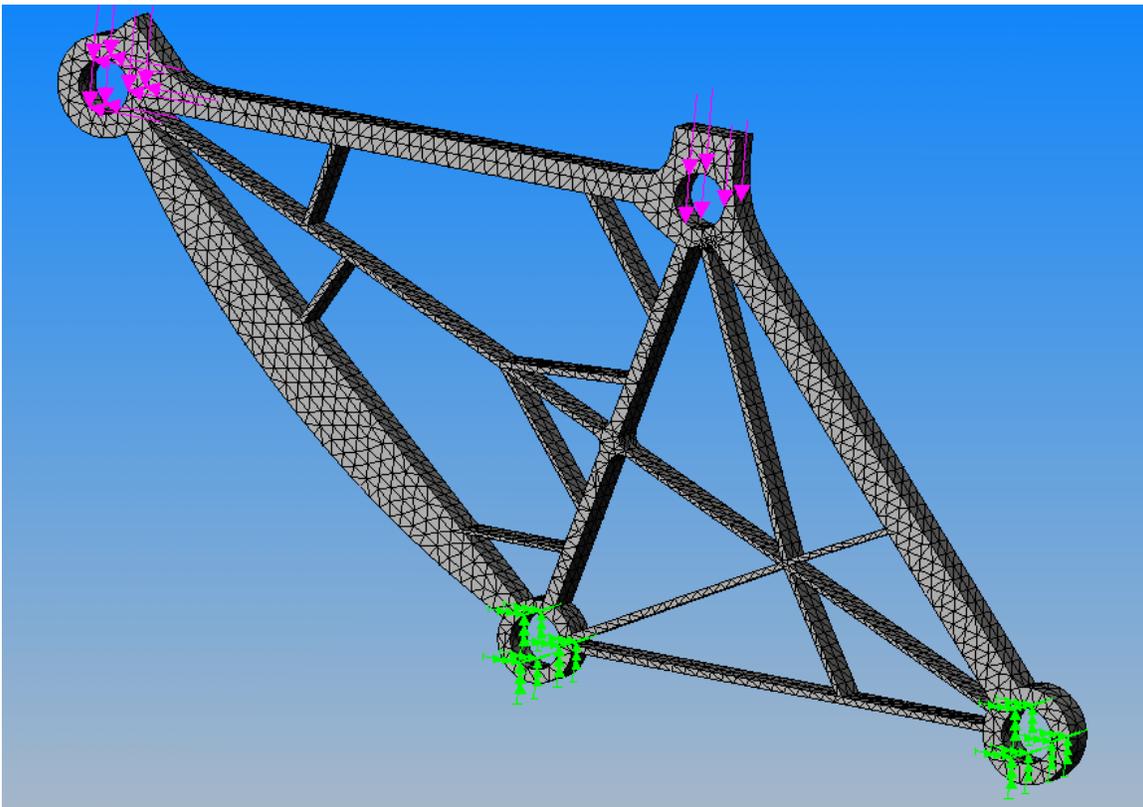


Figure 2: Solid Mesh of Model showing applied loads and boundary conditions

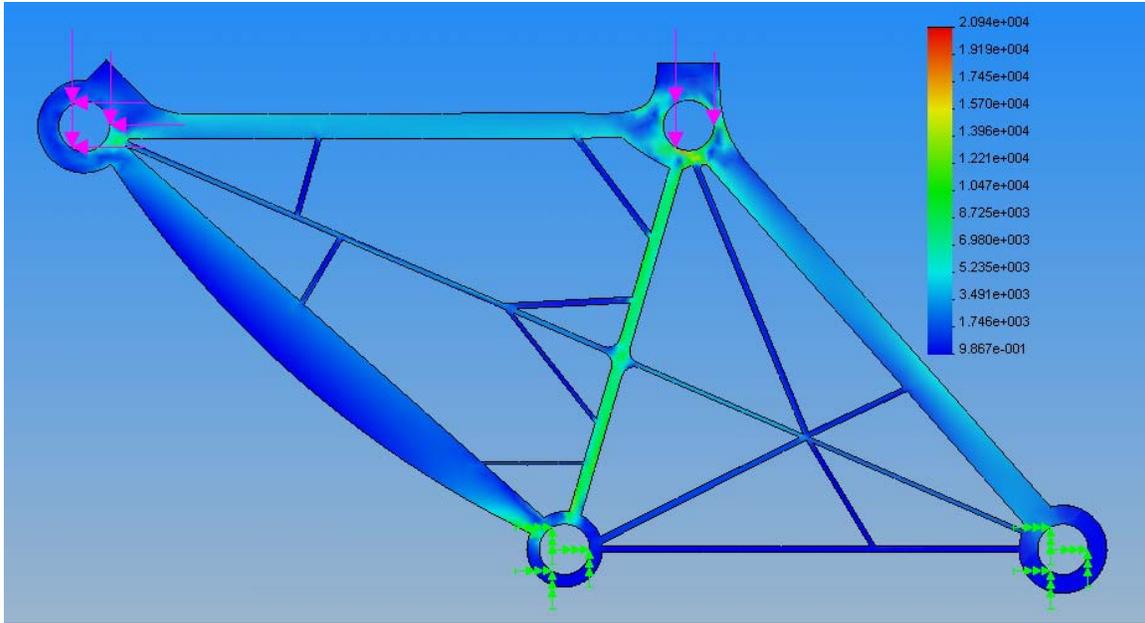


Figure 3: Von Mises Stress plot

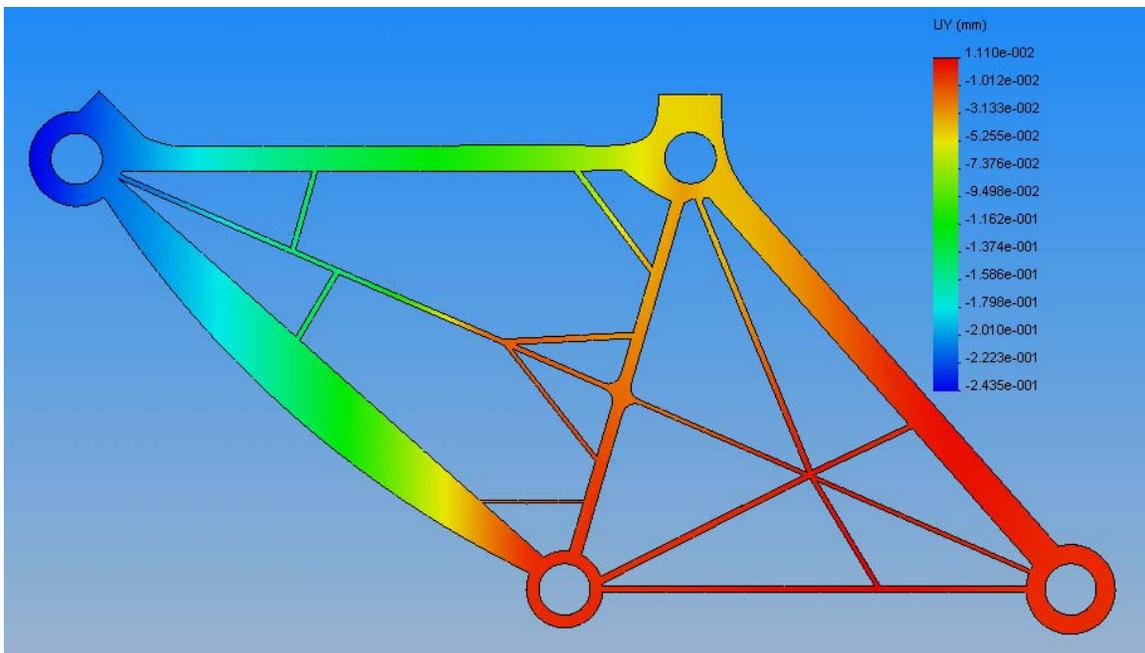


Figure 4: Displacement in the Y direction in mm

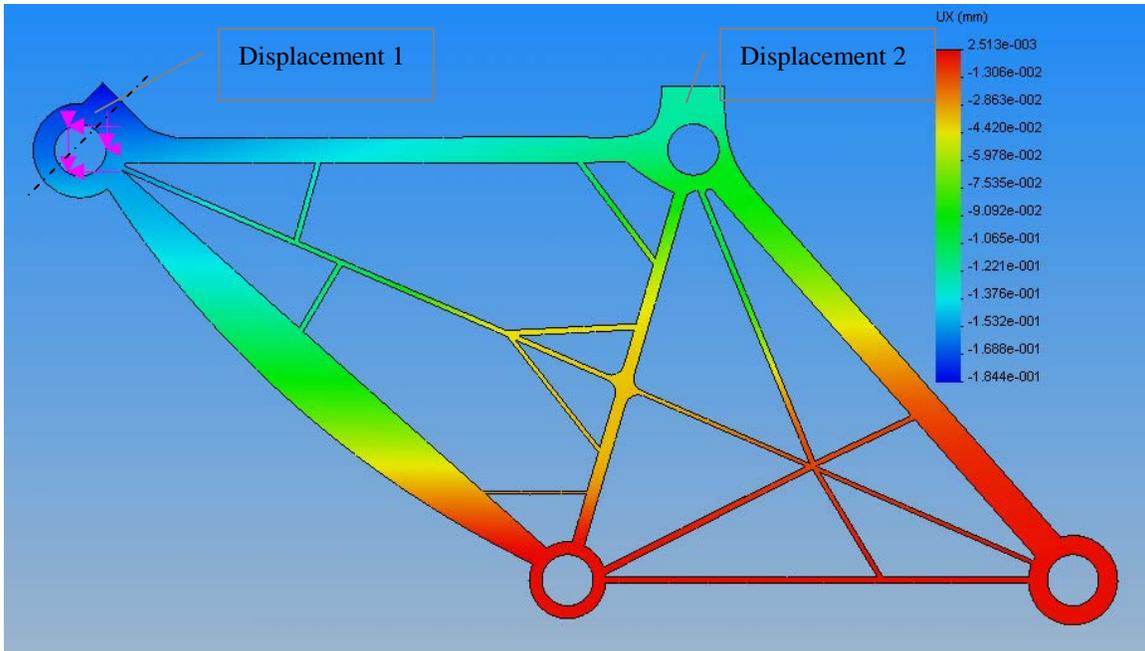


Figure 5: Displacement in the X direction in mm

Displacement 1
 Displacement 2
 Nat freq
 Mass

| | Displacement 1 | Displacement 2 | Mass | Natural Freq |
|-------------|-----------------------|-----------------------|-------------|---------------------|
| Requirement | 0.071 | 0.011 | 1.6lbs | 295.0 Hertz |
| Actual | 0.303 | 0.0455 | 1.4lbs | 231.7 Hertz |
| % Off | 426% | 383% | 87.5% | 127% |

Table1: Results to date on meeting Design Constraints

Conclusion:

Got some changes to make.

Team 5