-Upright design began with bearing selection

-Bearing loading was created by using the mass of a 650lb car and driver and a 2g. This allowed for unknown forces and anomalies when driving.

-Going through 150km cycle length, size and cost, three bearings were chosen as potential options.

-6813 sealed bearings were chosen for the rear because they were big enough to have internally mounted CV joints.

-6908 sealed bearings were selected for their lower moment of inertia.

-Designing the geometry

-Suspension geometries were selected from Optimum K, a program that optimizes geometry points based on certain goals.

-All four uprights were designed around the origin of the car, allowing for static camber of -.3 degrees to be designed in

-Inspiration of shape came from the team's manufacturing capabilities. If the parts could not be made by a sponsor with CNC capabilities, the parts could be made in house on a 3-axis mill with a rotary table.

-A 0.0005 press fit after anodizing was achieved for the bearing surfaces

-Manufacturing

-Parts were manufactured by PVA, Precision Valve and Automation. A hard, black anodize was also applied by the company after machining.

-I did not do any of the coding myself for the parts or tooling required.