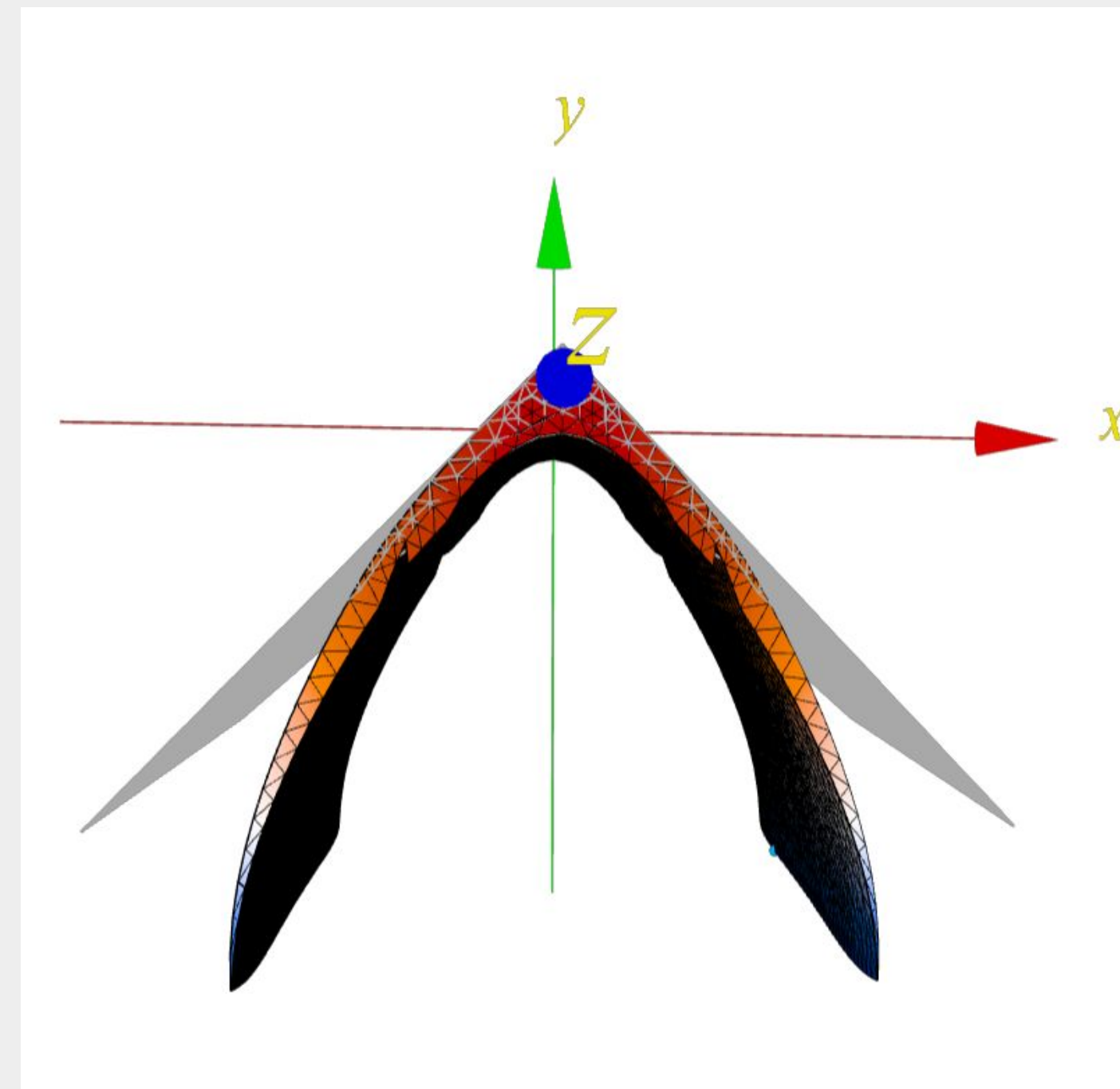


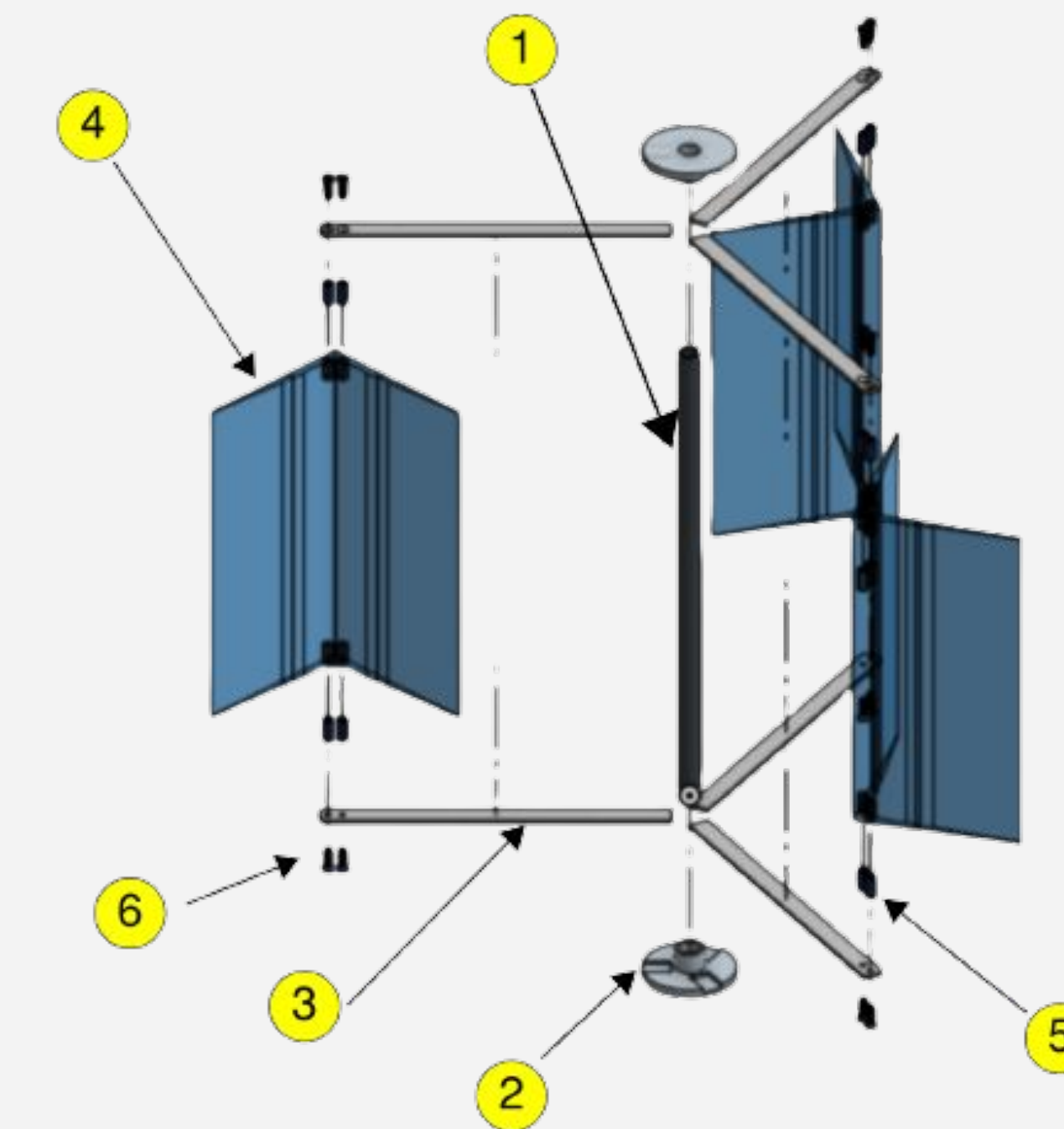
PROJECT OVERVIEW

A vertical axis wind turbine has its axis of rotation perpendicular to the wind streamlines, i.e., vertical to the ground. Thus, it has a drag side which rotates against the wind, and the lift side which rotates in the direction of the wind. In this project, the team built a turbine in such a way the flexibility of the blade reduces the drag on the upstream side while it increases the lift on the downstream side. The task of this project was to compare efficiency of the rigid blades versus the flexible blades.

OVERHEAD VIEW

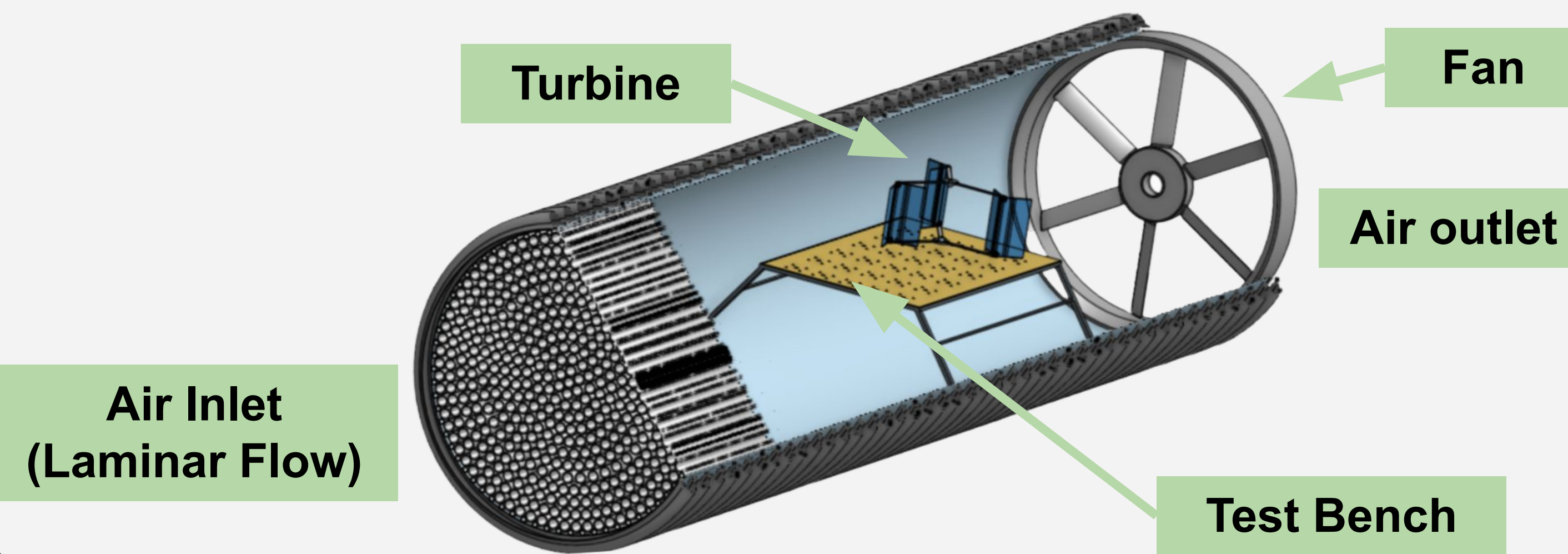


CAD MODEL

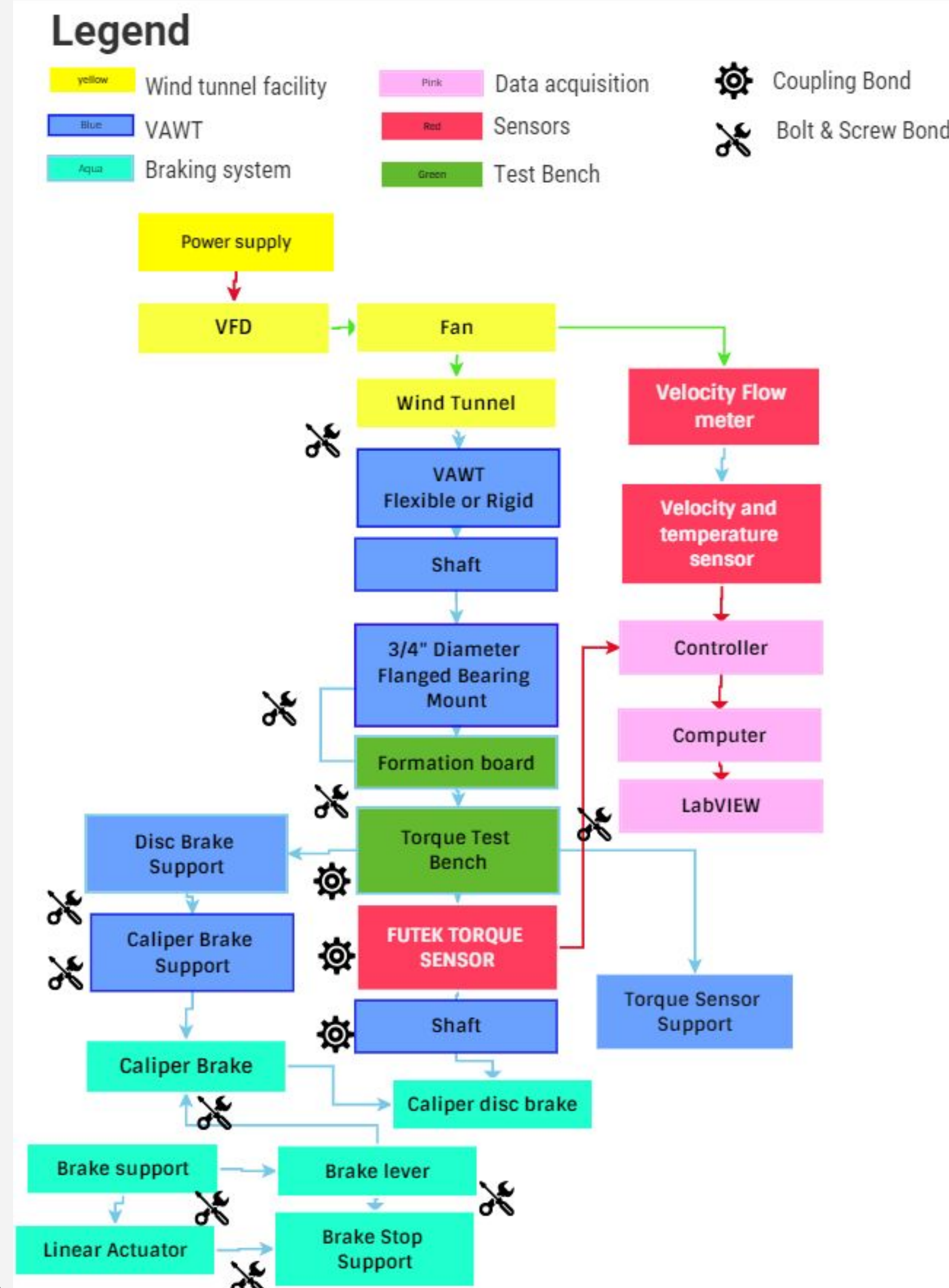


Part	Description
1	17.5" 6061 Al Rod
2	6061 Al Flange
3	12"x0.75"x0.125" 6061 Al Flat Rod
4	12" V-Shaped Blade
5	10-32 Zn Plated Steel Coupling Nut
6	10-32, 0.75 long Zn-Plated Alloy Steel Flathead Screw

WIND TUNNEL TESTING

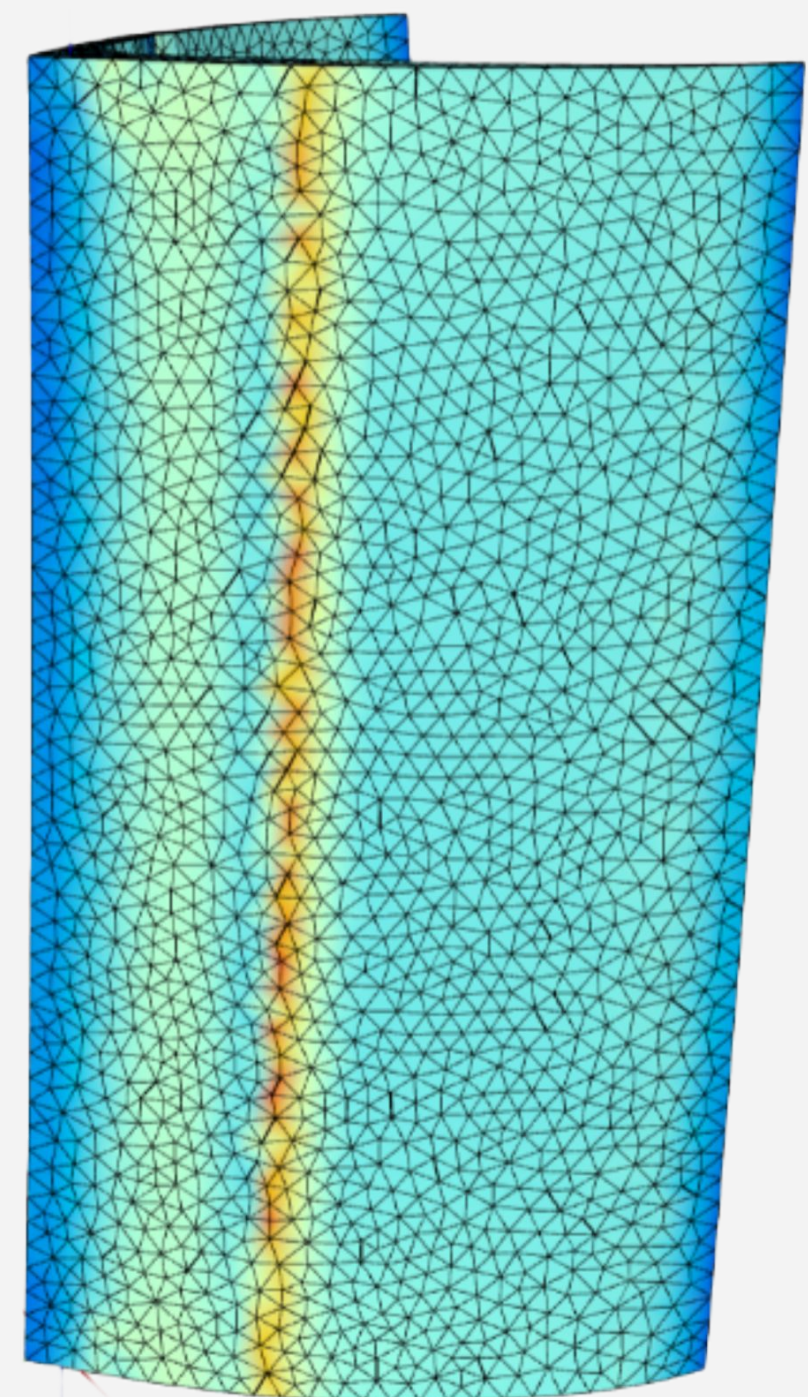


SYSTEM LEVEL DIAGRAM

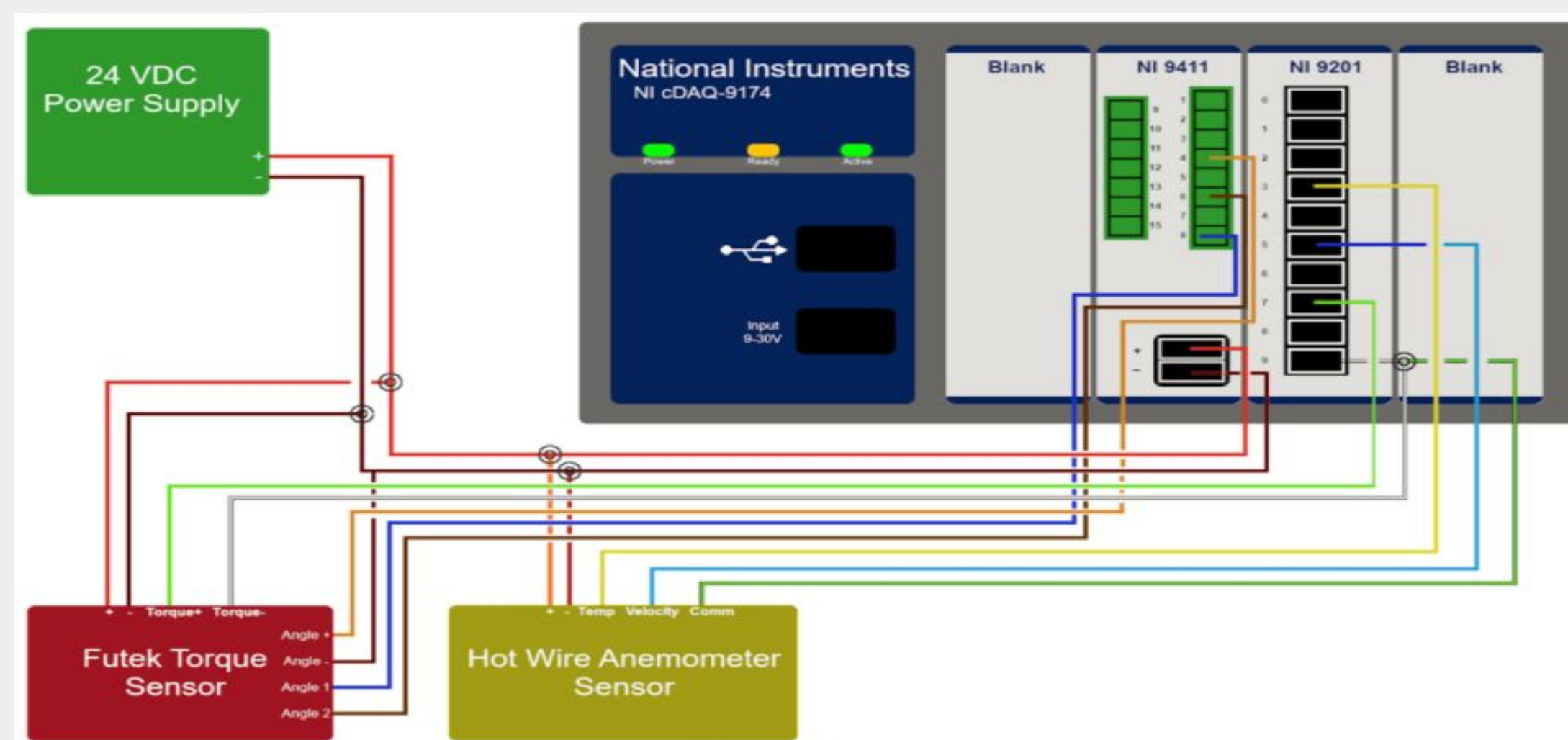


ENGINEERING ANALYSIS

Blade Characteristics		
Property	Polyurethane	Units
Young's Modulus	24221.3	psi
Yield Strength	1870.99	psi
Max Allowable Stress	17.40453	psi
Max Displacement	0.029	in



DATA ACQUISITION



TEAM MEMBERS



William 'Carson' Campbell Design Lead
Kellsie Dang Manufacture Lead
Isaiah Gentry Project Lead
Franco Ojeda Test Lead
Angel Mora Quality Lead

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