

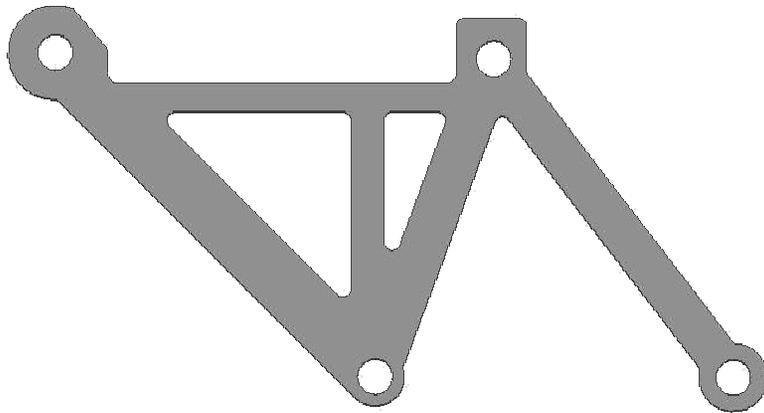
Team 2: Family Deluxe Bicycle Frame Design

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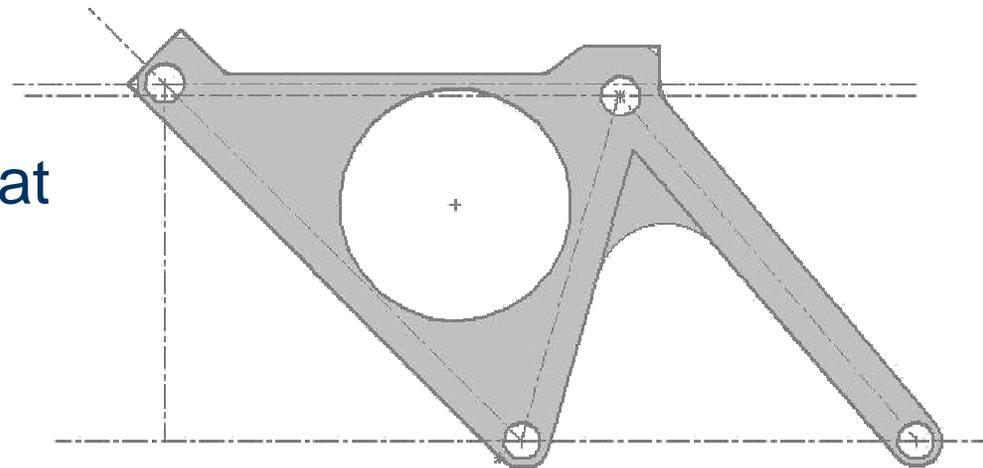
Frame Design – Version 1



- Got rid of superfluous members, braced two loaded holes instead
- Costs were too high, hole 1 displacement requirement not met
- Hole 2 displacement and mass were below the limits

Final Design

- Reduced cost by eliminating extra member and by filleting
- Eliminated extra curves at holes to reduce cost
- Shifted uppermost bar higher, increased mass near loaded holes in order to reduce deformation



Final Design Performance

	Requirement	Final design	Test Results
Mass	0.25 lbs	0.241 lbs	0.247 lbs
Cost	\$4.70	\$4.68	-
Displacement 1	0.063 mm	0.0581 mm	0.465 mm
Displacement 2	0.010 mm	0.00764 mm	0.121 mm
Frequency	463 Hz	544 Hz	555 Hz

- The frequency and mass testing displayed only approximately 2% error
- The displacements measured were approximately an order of magnitude greater than predicted