

Project Description

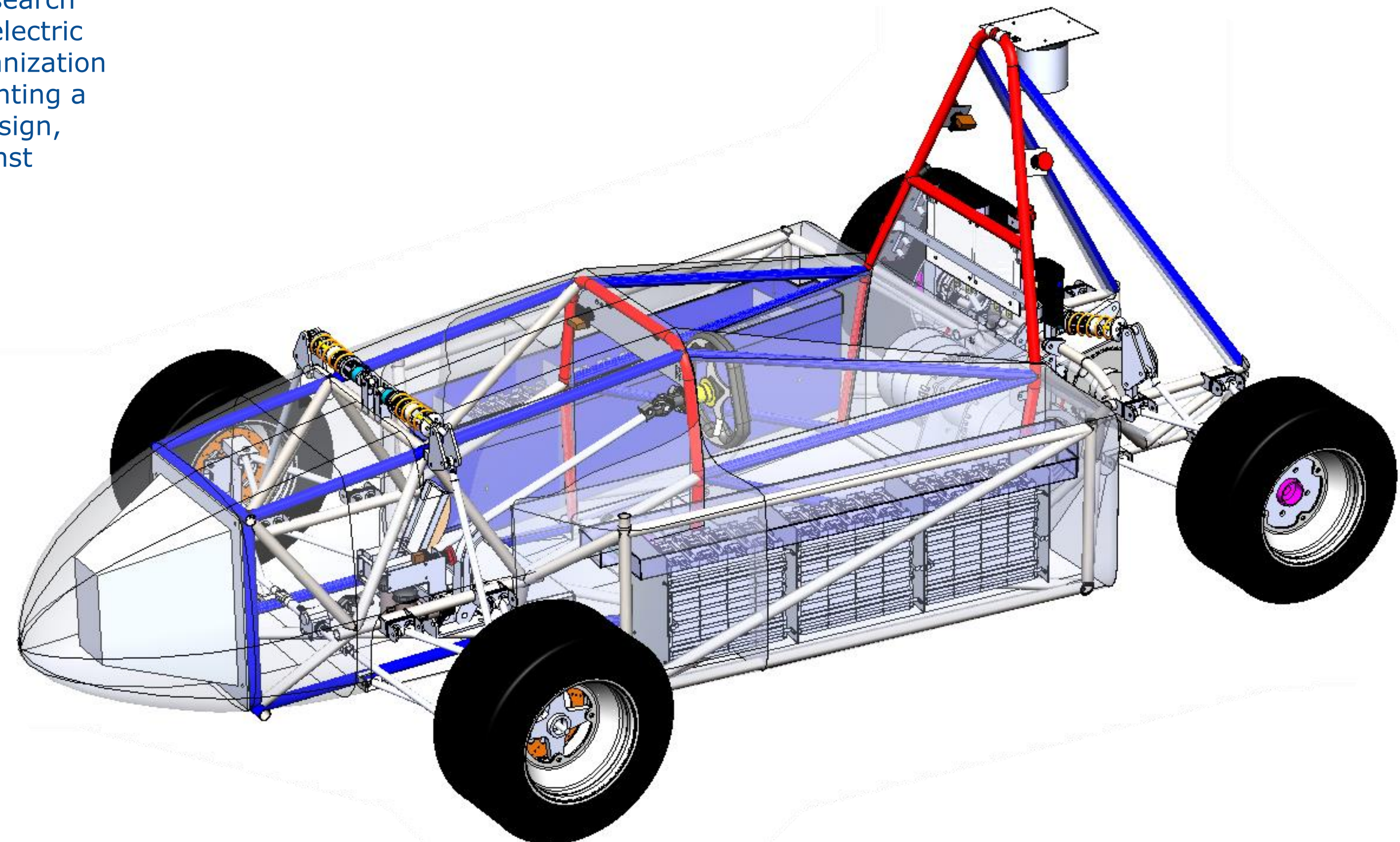
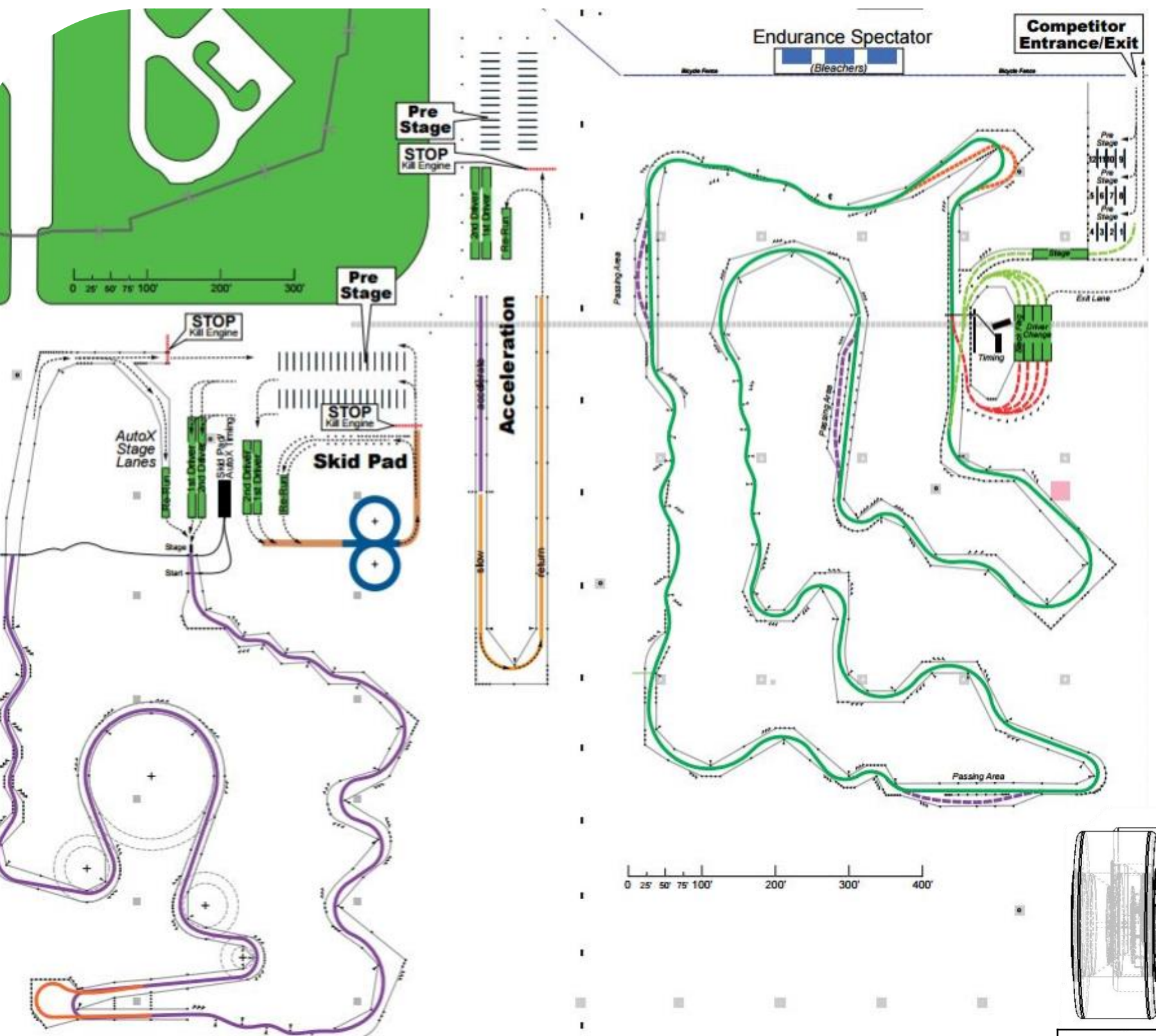
AR-10 Electra is the 2016 UC Irvine FSAE Electric Racecar. FSAE Electric is a research and design project which gives students experience working on an open wheel electric racecar prototype for a design competition using industry methods of team organization and systems engineering, with real deadlines, and economic justification (presenting a business logic plan for a production run of 500 production models). Students design, manufacture, test, and race the prototype in the FSAE Electric competition against universities from around the world.

Project Goal and Requirements

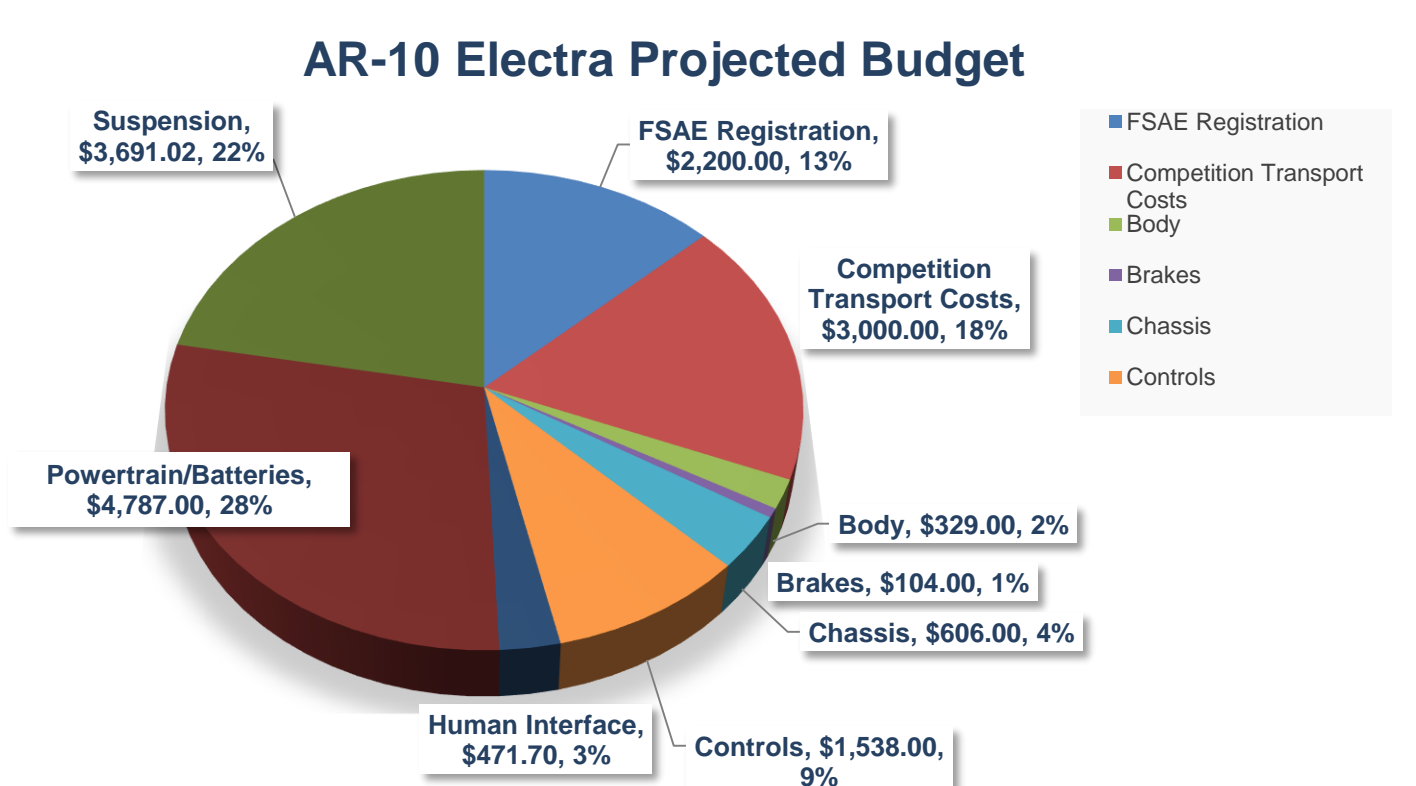
Goals for AR-10 Electra 2015-2016: (update)

- Pass technical inspection
- Complete endurance event at FSAE Lincoln

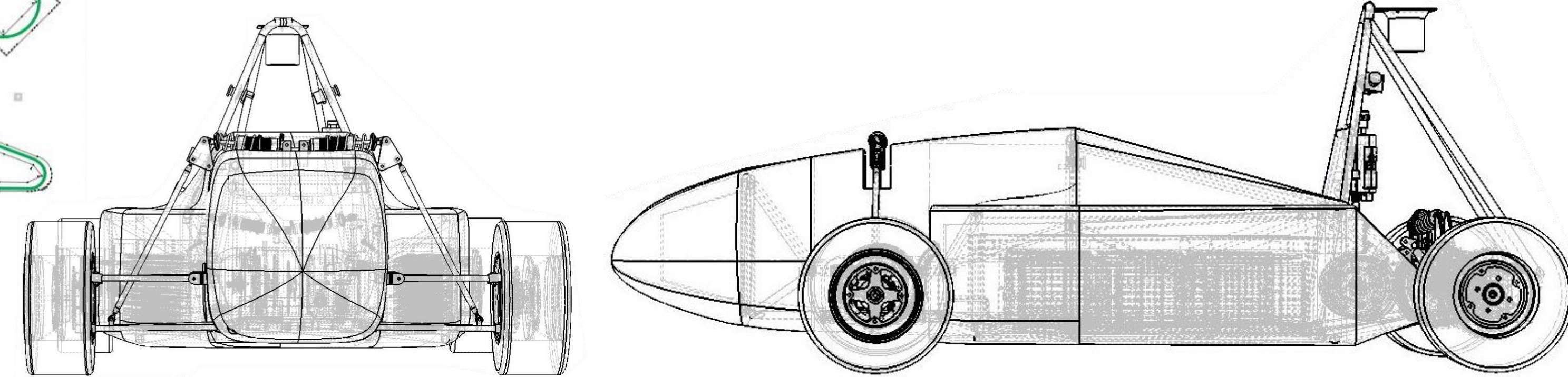
Formula SAE Electric Competition



Projected Costs 2015-2016



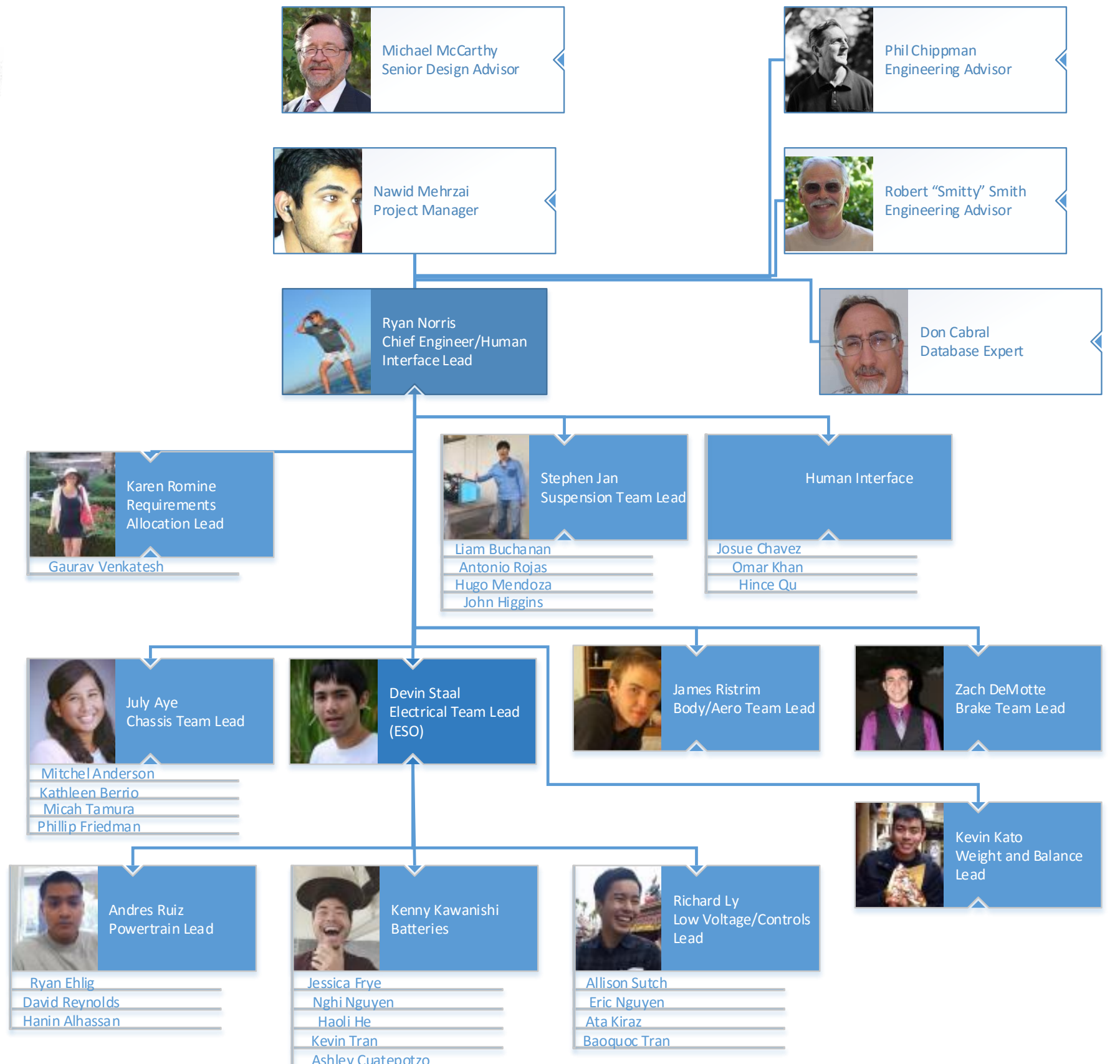
Requirements vs Specifications



AR-10 Electra Requirement Sheet					
Dimensions	Wheelbase	Track	Length	Width	Height
	62 in	46.5 in	90 in	51 in	45 in
Weight Distribution	Front	Rear	Total		
	45%	55%	<700 lbs (including 150 lb driver)		
Battery	Chemistry	Capacity	Voltage	Max Discharge Current	
	LiMnFePO4	7.68kWh	72V	1000 Amps (10C)	
Drivetrain	Stall Torque	Max Power	Gear Ratio	Differential	
	72 lbf	62 horsepower	4:1	Electronic Torque Vectoring	
Chassis	Type	Material	Weight		
	Spaceframe	ANSI 1020 Mild Steel	84 lbs		
Suspension	Type	Fully independent inboard pushrod		Tire	
		Hoosier LC0			
Performance	Max Speed	0-Max Speed	50ft skidpad	MPGe	Range
	60 mph	3.0 seconds	1.2 g	92	20 miles

AR-10 Electra Specification Sheet					
Dimensions	Wheelbase	Track	Length	Width	Height
	70 in	55 in	112 in	60 in	44 in
Weight Distribution	Front	Rear	Total		
	45%	55%	700 lbs (including 150 lb driver)		
Battery	Chemistry	Capacity	Voltage	Max Discharge Current	
	LiMnFePO4	7.68kWh	72V	1000 Amps (10C)	
Drivetrain	Stall Torque	Max Power	Gear Ratio	Differential	
	72 lbf	62 horsepower	3.2:1	Electronic Torque Vectoring	
Chassis	Type	Material	Weight		
	Spaceframe	ANSI 1020 Mild Steel	94 lbs		
Suspension	Type	Fully independent inboard pushrod		Tire	
		Hoosier LC0			
Performance	Max Speed	0-Max Speed	50ft skidpad	MPGe	Range
	55 mph	4.0 seconds	1.2 g	92	20 miles

Team Structure



Lincoln Nebraska June 15th-18th

- Static Events:**
- Technical Inspection
 - Electrical/Mechanical
 - 60 degree Tilt Test
 - Rain Test
 - Brake Test
 - Design Presentation
 - Cost Presentation
 - Business Presentation

- Dynamic Events:**
- 75m Acceleration
 - 50ft Skid Pad
 - 1/2 mile Autocross
 - Efficiency
 - 22km Endurance

Timeline

