

# FORMULA SAE

AT IOWA STATE

2024-2025



# SPONSORSHIP PROPOSAL

# What is Formula SAE?

Formula SAE is a global engineering competition organized by SAE International, where university teams from around the world design and build prototype race cars. Each team functions as a startup company, targeting the non-professional weekend autocross racer. Besides the engineering challenge, teams must also showcase their business skills by presenting the feasibility of engineering, manufacturing, and marketing their vehicles to industry professionals. With over 500 teams from six continents, Formula SAE is the world's largest engineering competition, bringing together the brightest minds from top engineering schools.



## Iowa State Formula SAE

The Iowa State Formula SAE Team operates from the Student Innovation Center at Iowa State University in Ames, Iowa. With a history of building over 25 vehicles for the Formula SAE competition, our team's extensive involvement has driven continuous evolution and product improvement. This year, we are solely focused on developing a competitive electric vehicle (EV) for the upcoming competitions, marking our full transition to electric powertrains.

Our team consistently adapts its design criteria to align more closely with the goals of the series, positioning Iowa State FSAE for success. This progress is largely made possible by the generous contributions of our sponsors, who provide essential financial support, products, and services. Without their support, competing at such a high level would not be possible.

# Iowa State Formula SAE History Highlights:

## Best Finishes:

2017 - 4th Place "CR-22"

2016 - 5th Place "CR-21"

2015 - 3rd Place "CR-20"

2022 - 3rd Place for Business Team



2024 Car- "CR-28"



2023 Car- "CR-27"



1994- First Car



# CR-28 Specs

## Performance

- Top Speed: 90 MPH (Gearing Limited)
- 0-60 mph: 2.5 sec
- 1.7 G Cornering Acceleration

## Engine

- 2007 Yamaha R6
- 76 Wheel Horsepower (Intake Restricted)
- Custom Low Profile Oil Pan
- 3D-Printed Intake
- Fuel Type: 93

## Drivetrain

- Drexler Limited Slip Differential
- CNC Milled Aluminum Uprights
- 6-Speed Sequential Manual Transmission

## Suspension

- Ohlins TTX25 MKII Dampers
- Double Wishbone Suspension Setup
- Unequal Length, Non-Parallel A-Arms
- Pull Rod in Front/Push Rods in Rear

## Data Acquisition

- Strain Gauged Suspension Assemblies
- Acceleration and Yar Rate Sensors
- Driver Input Logging (Throttle, Brakes, Steering)

## CR-29 At a Glance

CR-29 is currently in the design process as it gears up for Formula Michigan in 2025, alongside other races like The Pitt Shootout, Formula Wheat, and SCCA events. This year marks our exciting transition to an electric powertrain.

Over the past year, our Electric Vehicle subsystem has conducted extensive research to ensure seamless integration with other subsystems. CR-29 will feature an electric motor connected to a differential similar to our previous designs, facilitating a smooth transition to an electric configuration.

Our other Subsystems are focusing on trying new techniques yet still making an effective vehicle. Our Aerodynamics Subsystem will be crafting an undertray to complete the Aero kit on CR-29. Our Chassis Sybssystem is also making a new design this year and plans to make a full monocoque chassis. Our primary objective for CR-29 is to design a simple yet fast electric vehicle, cutting weight and enhancing reliability for our debut year in the EV competition.

We greatly appreciate the support of our sponsors, whose contributions are vital in helping us achieve our maximum engineering potential. Their partnership enables us to pursue ambitious goals and drive innovation.

## Dimensions

- Weight: 450 lbs
- Track Width: 47.5” Front, 47” Rear
- Wheelbase: 60.5”
- Overall Length: 105”

## Chassis

- Hybrid Monocoque
- TIG Welded Chromoly Tube Rear Space Frame
- Carbon Fiber Front Tub

## Controls

- Carbon Fiber Steering Wheel
- Paddle Shifting
- Tilton M/C’s and Wilwood Calipers
- Adjustable Pedal Tray and Brake Bias
- Custom Dash

## Aerodynamics

- High-Efficiency Front and Rear Wing Assemblies
- 85 lbs of Downforce at 35MPH
- Tuneability for Vehicle Balance



# Project Budget

## Final Drive

Drexler Differential \$3,500.00  
Axles & CV Joints \$1,200.00  
Hubs & Bearings \$5,000.00  
Uprights \$8,500.00  
Sprockets & Chain \$250.00  
Hardware \$150.00  
**Subtotal \$18,600.00**

## Aerodynamics

Resin \$600.00  
Carbon Fiber Fabric/Fiberglass \$1,500.00  
Core & Ribs \$900.00  
Consumables \$2,000.00  
DRS Servos & Controls \$450.00  
Misc. & Hardware \$300.00  
Molds \$3,000.00  
**Subtotal \$8,750.00**

## Electrical

EarthX ETX Series Battery \$350.00  
Wire and Buttons/Switches \$250.00  
Connectors \$800.00  
Printed Circuit Board \$300.00  
**Subtotal \$1,700.00**

## Data Acquisition

Brake Pressure Sensors \$300.00 Linear  
Potentiometers \$600.00  
Tire Temperature Sensors \$400.00  
Brake Temperature Sensors \$100.00  
Wheel Speed Sensors \$340.00  
AiM Channel Expander \$500.00  
AiM MXS \$2,300.00  
**Subtotal \$4,540.00**

## Controls

Steering Rack \$750.00  
Throttle Pedal \$400.00  
Wilwood PS-1 Calipers \$500.00  
Master Cylinders (Tilton 78) \$530.00  
Brake Rotors & Fittings \$350.00  
Misc. & Hardware \$900.00  
**Subtotal \$3,080.00**



## Suspension

Linkages \$500.00  
Dampers \$2,600.00  
Springs \$500.00  
Anti-Roll Bar Blades \$600.00  
Tires \$7,500.00  
Wheels \$1,100.00  
Misc. & Hardware \$750.00  
**Subtotal \$13,550.00**

## Chassis

Carbon \$3,750.00  
Core \$700.00  
Molds \$2,000.00  
Steel Tube & Laser Cut \$1,000.00  
Impact Attenuator \$200.00  
Mounting Tabs \$150.00  
Assembly Jig \$1,100.00  
Welding Supplies \$300.00  
6-Point Harness \$460.00  
**Subtotal \$9,660.00**

## Electric Powertrain

Emrax 208 Motor \$6,000.00  
DTI HV550 Inverter \$6,000.00  
HV Cables \$450.00  
Radiator & Fan \$750.00  
Pump \$200.00  
Hardware \$150.00  
**Subtotal \$13,550.00**

## Battery

Cells \$5,000.00  
Battery Management System \$2,400.00  
Container \$100.00  
Maintenance Plugs \$80.00  
Modules X6 \$150.00  
AIR \$200.00  
Charger \$900.00  
Misc. & Hardware \$1,000.00  
**Subtotal \$9,830.00**

## **Car Total \$83,260.00**

## Competition Expenses

FSAE Michigan IC Registration \$2,550.00  
FSAE Michigan IC Mileage \$2,500.00  
FSAE Michigan IC Hotel \$6,000.00  
FSAE Michigan EV Registration \$2,550.00  
FSAE Michigan EV Mileage \$2,500.00  
FSAE Michigan EV Hotel \$4,000.00  
**Subtotal \$20,100.00**

## **Combined Total \$103,360.00**

# Why Sponsor Us?

There are many fantastic benefits to sponsoring the Iowa State Formula SAE Team in addition to helping a group of engineers solve problems daily!

Our member's and sponsors' **relationships** are essential in everything we do as a Team. We hold info sessions with any of our sponsors and have many great conversations with the employees of our sponsoring companies about their business!

Our members often find **experiential and post-grad employment** with sponsoring companies. Learning the goods and services offered by sponsors equips our members to tackle a variety of challenges wherever they work!

## ALL DONATIONS TO OUR TEAM ARE TAX DEDUCTIBLE

Your company will reach a **unique market** within and around Iowa State University. Our Team has been showcased in many forms of media over the years, and we keep an extremely active presence on social media. In addition to media coverage, our Team attends over **30 outreach events** per season! These include school visits to **promote STEM**, events within the university where thousands of students and families get to see our Team and vehicle, as well as presentations within our community.

At the end of the day, your contribution helps a group of over **150 ambitious students** design, build, and compete with a race car! Having a logo on the next Iowa State racing machine is **something to be proud of**.

As seen on:

- Iowa State Daily
- Ten-Tenths Podcast
- Ames Tribune
- KCCI 8 News
- Des Moines Register
- Automotive Engineering International Magazine

Featuring members and alumni who have continued on to work at:

- 3M
- Boeing
- Caterpillar
- Collins Aerospace
- Continental Automotive
- Denso
- Donaldson
- Ford Motor Company
- General Motors
- Hendrick Motorsport
- Honda Motor Company
- Husco
- John Deere
- Magna
- NASCAR
- Polaris
- Relativity Space
- Rolls Royce
- Rouch Performance
- Sekisui Aerospace
- Stellantis
- Stratolaunch
- Tesla
- Western Digital



# Sponsorship Packages

Benefits:	Diamond \$15,000	Platinum \$5,000	Gold \$2,500	Silver \$1,000	Bronze \$500
Name/Logo* on Car	✓	✓	✓	✓	✓
Framed Picture with Car & Team	✓	✓	✓	✓	✓
Ability to Have Team Info Session	✓	✓	✓	✓	✓
Sponsorship Plaque	✓	✓	✓	✓	
Name/Logo* on Team T-shirts	✓	✓	✓	✓	
Featured Post on Social Media	✓	✓	✓		
Ability to Have the Team Visit	✓	✓	✓		
Ability to Display Car at Business	✓	✓			
Prominent Impact on Livery Design	✓				

\*Logo size will vary depending on amount given

Besides cash donations, sponsors have chosen to support us through:

- Part & Material Donations
- Design & Fabrication Services
- Software Licenses
- Manufacturing Equipment Donations
- Testing Facilities

Donations ensure the success of our program and allow a greater chance of victory at competition. Without our generous sponsors, the team would cease to exist!

**Shop Tours are available upon request!**

## Contact:

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