What is the Mars Rover Team?

The Mars Rover Team research, designs, manufactures, and tests a Mars Exploration Rover (MER) class rover. This rover features a robotic arm and changeable end effectors that are capable of performing tasks such as flipping switches, turning valves, and screwing threaded features into place. The main design consists of a rocker-bogie six wheel suspension system, GPS navigation/positioning, and wireless communication systems. The rover is entered in the University Rover Challenge and will compete in May against other teams from all over the world.

From the Classroom to a Career

The Mars Rover team is comprised of 13 senior level engineering students and is one of the many projects at California State University Fullerton that can satisfy the final project requirement for graduation. Students are required to work with a faculty advisor who monitors progress and ensures the engineering process is being completed. Not only is the team required to design and manufacture the Mars Rover, but also submit literature surveys, proof of concept materials, complete cost report, final report, and conduct a professional presentation to a board of peers, engineering faculty, and engineering industry professionals.

University Rover Challenge

- **Challenge**: Design and build a Mars rover that works alongside human explorers in the field.

- **Prize**: Cash prize and the opportunity to present at the annual International Mars Society Convention

- **Dates**: May 28–30, 2015

- **Location**: Mars Desert Research Station in Hanksville, Utah
Project Overview

Reaching Out

Throughout the year the Mars Rover team has expanded and evolved to incorporate disciples beyond mechanical engineering. Through the Mars Rover project business, biology, and geology students can be exposed to the interesting world of engineering. The Mars Rover team also encourages underclassmen to get involved and have the opportunity to work closely with senior engineering students.

Planned Improvements

This year’s team designs will make significant changes in not only design, but in manufacturing processes. The rover will go through a tough and thorough design phase. The team will venture into technology that hasn’t been used before. 3-D printing, carbon fiber manufacturing, and CNC machining will be utilized to ensure design specifications are met. Industry specialist will come and help with introduce student into workforce experiences.
Why Should You Support Us?

To complete a MER class rover for competition requires many different physical and technological components. Since University funding is limited, student projects are only allotted a small fraction of actual cost from the engineering department; many teams pay for projects entirely out of pocket and never receive any type of reimbursement. With your contributions, the Mars rover team will be able to manufacture our project and out-perform other teams at competition. Not only will your sponsorship assist our team, but can provide your company with marketing opportunities online, on our campus, and at any public event or competition we attend.

### Team Budget

<table>
<thead>
<tr>
<th>Component</th>
<th>Design Specifications</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame and Body</td>
<td>Manufacturing Materials</td>
<td>$1000</td>
</tr>
<tr>
<td>Suspension</td>
<td>Machine Tooling, Material Stock, Test Bench</td>
<td>$1200</td>
</tr>
<tr>
<td>Wheels and Tires</td>
<td>Custom Wheels, Stock, Bearings, Traction Test Bench</td>
<td>$2500</td>
</tr>
<tr>
<td>Robotic Arm and End Effector</td>
<td>Linkages, servos, motors, belt systems, Feedback System</td>
<td>$2000</td>
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<tr>
<td>Power System</td>
<td>Batteries, System Protection, Power Management</td>
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<tr>
<td>Telemetry System</td>
<td>Remotes, Visual System, Command Station, GPS</td>
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<tr>
<td>Organizational Costs</td>
<td>Event Registration, Team Apparel, Posters, Pamphlets</td>
<td>$1500</td>
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<tr>
<td>Travel</td>
<td>Hotel accommodations, fuel costs, travel expenses</td>
<td>$4000</td>
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<tr>
<td>Total Costs</td>
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<td>$14500.00</td>
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</tbody>
</table>
How You Can Help

Sponsorship Packages

**Mars Level Sponsorship**
• Donation under $200 or equivalent in parts and services
• Special Thanks on CSUF Mars Rover website

**Neptune Level Sponsorship**
• Donation of $200+ or equivalent in parts and services
• Medium decal on rover
• Company logo and link on CSUF Mars Rover website

**Saturn Level Sponsorship**
• Donation of $500+ or equivalent in parts and services
• Large decal on rover
• Company logo and link on CSUF Mars Rover website
• Company logo on team shirt

**Jupiter Level Sponsorship**
• Donation of $1000+ or equivalent in parts and services
• XL decal on rover
• Company logo and link on CSUF Mars Rover website
• Company logo on team shirt
• Company logo on team poster for competition and promotional events

Ways to Support

There are a variety of ways that you can provide support and sponsorship to the Mars Rover Team.

• **Gifts-in-kind**
  Contributing a gift-in-kind entails donating materials and equipment to the team rather than monetary funding. This could include providing fasteners, power systems, or raw materials for manufacturing.

• **Monetary Support**
  Providing sponsorship in the form of a specific dollar amount can be done as a one-time gift or multiple installments over the course of the school year.

• **Services**
  Performing manufacturing, rapid prototyping, or other types of services for the team is also possible.
Meet the Team

2014-2015 Mars Rover Team

Team Captain: Christopher Nguyen, Chassis: Jarame Taylor, Suspension: Ken Greene, Quy Tran, Wheel Assembly: Greg Masich, Chris Thompson Telemetry: Maria Gutierrez, William Zchoche, Matt Wolfenden, Robotic Arm: Lauren DuCharme, Yolanda Mora, Melanie Valenzuela, Electrical Engineering: Nathan Johnson

Contact Information

If you are interested in sponsorship or would like more information about CSUF, the team, or our programs, please contact us.

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Faculty Adviser
(657) 278–3723
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Hart Roussel
Director of Development, College of Engineering and Computer Science
(657) 278–5429
hroussel@fullerton.edu
Sponsorship Commitment

Sponsor Information

Name: __________________________________________________________
Company: _______________________________________________________
Address: _______________________________________________________
Phone: __________________________ Email: _______________________
Signature: _____________________________________ Date: ____________

☐ I am interested in sponsoring student projects. Please contact me.

☐ I would like to donate material & equipment (gifts-in-kind). Please contact me.

☐ I would like to make a gift of $ to support student projects and collegiate design competitions. Enclosed is my check payable to Cal State Fullerton Philanthropic Foundation (501(c)(3) Federal Tax ID 33-0567945).

☐ I will fulfill my sponsorship in installments of $ each, payable on or before __________________________________________. (Please list each payment date)

THANK YOU FOR SUPPORTING THE STUDENTS OF THE COLLEGE OF ENGINEERING AND COMPUTER SCIENCE