Sponsorship Package 2024/2025

Western University
1151 Richmond St, London, ON,
Canada N6A 3K7
t. 519.661.2111
www.wemars.org

TABLE OF CONTENTS

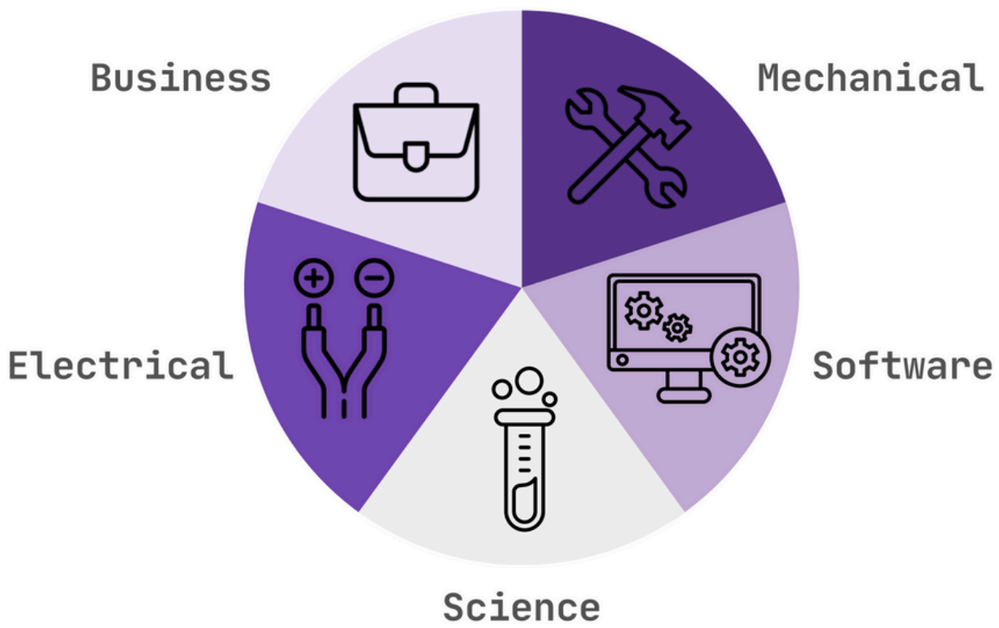
ABOUT US

WE MARS was formed in 2010 as a team of engineering students at Western University assisting in cultivating the first 2 FIRST Robotics Competition (FRC) teams in London, Ontario. Now, the team aims to design, create, and test Mars rovers. This year, we plan to compete in two competitions, the University Rover Challenge (URC) in Utah and the Canadian International Rover Challenge (CIRC) in Alberta.

Eugen Porter

Founder of WE MARS

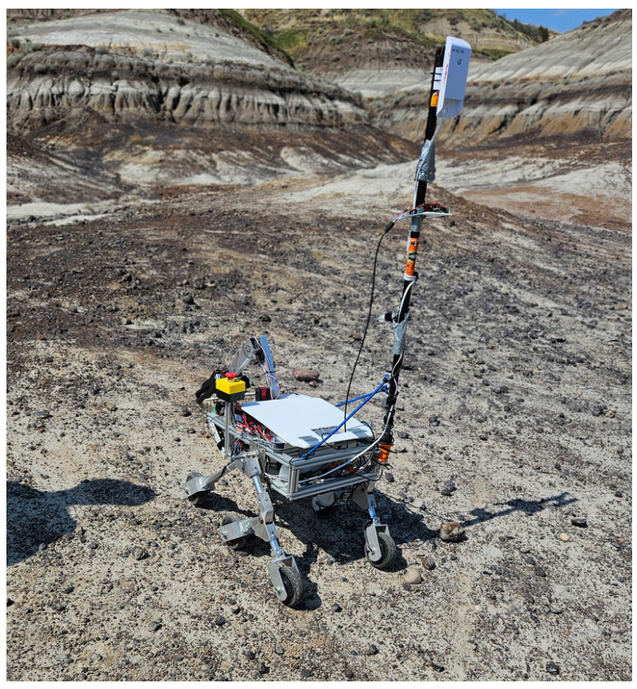
WE MARS is composed into 5 subteams



CIRC 2024

WE MARS competed in the Canadian International Rover Challenge in Drumheller, Alberta in August. Over the period of 4 days, teams competed across 5 different tasks: nighttime traversal, arm dexterity, search & rescue, setup Mars module, and environment assessments. Each task required different components to be used to achieve maximum points.

During our time at CIRC, we had the opportunity to meet other teams and share ideas which greatly helped us with designing our new rover. Since this was our first time back at the competition after COVID, the members of the team were better able to grasp the challenges we'd be facing along the way and new ways to overcome them.



Technical Summary

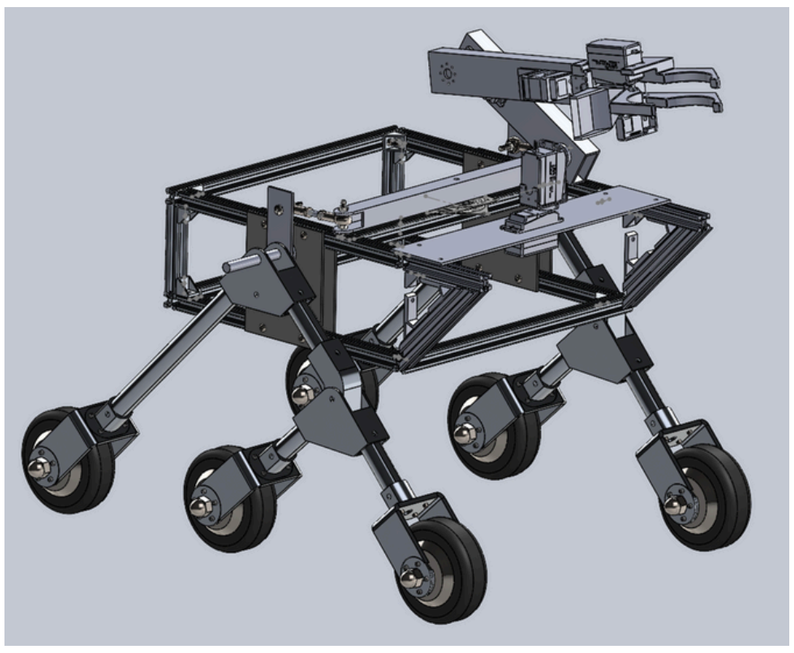
We are currently designing and manufacturing a new rover within an 8 month period, the goal is for this rover to be able to complete all core tasks at URC and CIRC. The last 3 months before the competition will be utilized to test all operations and implement bonus features to the rover.

Our primary focus is our mechanical systems, these systems must be built for navigating loose and rough terrain of the competition field. We are planning to be able to track Rover motion with multiple sensors such as GPS, IMU, and Cameras, as well as have precise control of each wheel.

The chassis consists of six wheels, three per side and will be constructed using a rocker-bogie design. The rockers on each side will be connected with a differential. Each wheel will have its own motor located inside of it. Another major design focus is the communication system. We need to be able to communicate data and video stream from the Rover to the driver station in addition to sending control information back to the Rover. This requires sufficient speed and bandwidth. Along with those criteria, we would also like to be able to send high-resolution photos.

To achieve the individual tasks, an arm will be required that can lift and manipulate a 5kg payload. The arm is designed to have 6 degrees of freedom plus the end effector. A camera will be mounted just behind the end effector to allow the operator visual feedback to control the manipulator. Various end effectors are used including a grabbing claw, a touch screen/keyboard pointer, and a drill to collect dirt. In this case, the end effector will need to be able to collect the dirt and keep it contained on board the rover for later analysis.

The other crucial aspect of the Rover design includes the electrical system. We will need to monitor and manage the voltage of the battery cells. Accordingly, the electrical components are the Jetson Nano, Power Distribution Board, custom motor controllers, motors, batteries, and battery monitoring system. The battery system will consist of a 12V-16.8V 10000mAH LIPO battery.

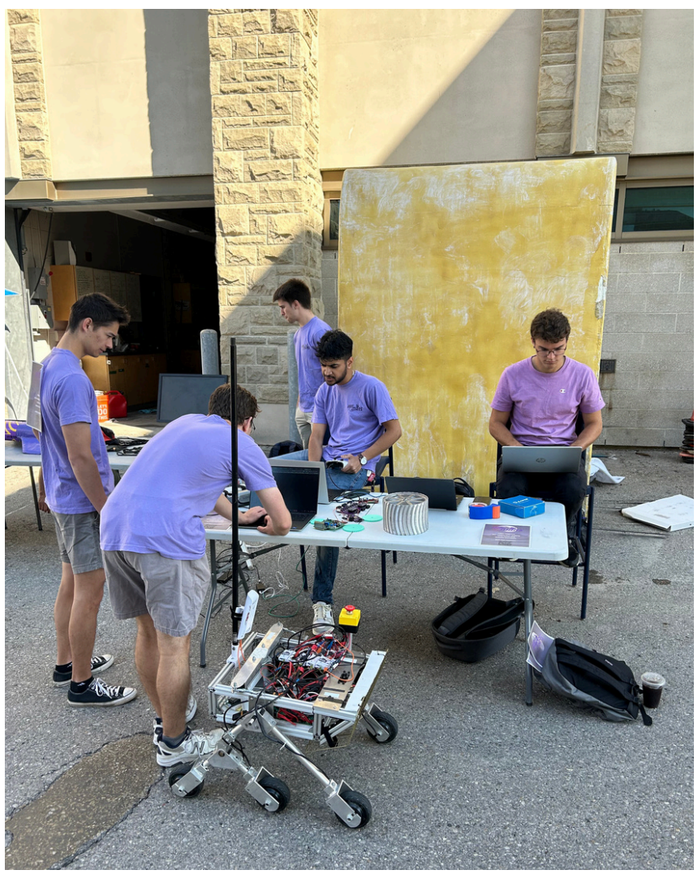


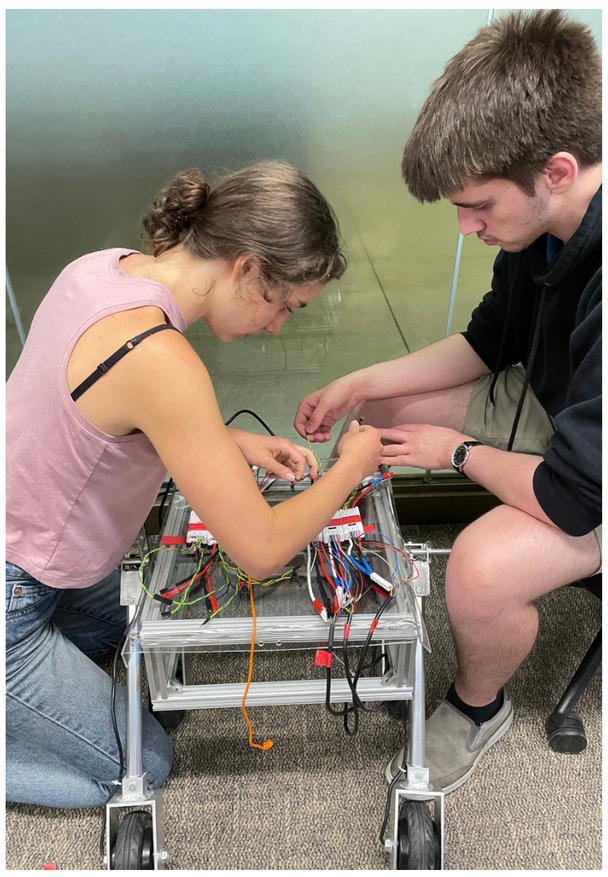
2023/2024 Rover Design

Importance of Sponsors

Our sponsors range from generous personal donations to corporations who are leaders in their fields. We are very thankful for their commitment to our program and we strive to show our gratitude at every opportunity.

- Corporate Sponsorship (major income for the club since we are non-profit)
- Personal Donations
- Donation Jar at Community Events
- Grant Programs for Specific Investments





WE MARS relies on sponsorships and donations to fund our activities. We use funds to...

- purchase materials and equipment
- organize outreach events
- create prototypes and designs
- enhance our toolset
- send the team to competitions

For the 2024/2025 season of WE MARS, the team set out to build a brand new rover, alongside advancing our current rover, ramping up our outreach efforts, planning more prototypes, and competing in two competitions. We would value and appreciate your support.

Perks for Sponsors

We greatly appreciate donations of any monetary value. Your company will receive various perks by sponsoring WE MARS. List of perks:

- Logo on website
- Logo on all rovers
- Logo on banner
- Logo on t-shirts
- Social media posts
- Advertisements during outreach events
- Invite to rover testing events
- For manufacturers, the exclusive provider of parts

Interested in partnering with us?

WE MARS can be contacted through email at:

wemars@uwo.ca

@we.mars

wemars@uwo.ca

WE MARS