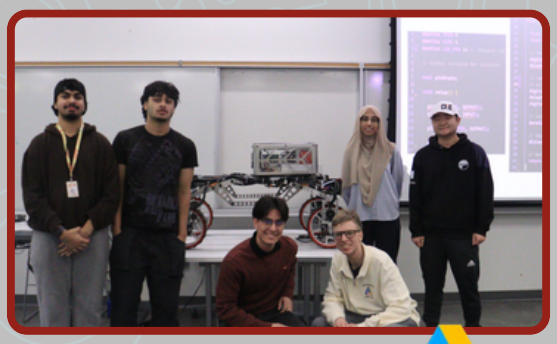
MMRT

MCMASTER MARS ROVER TEAM MONTHLY NEWSLETTER

OUTREACH UPDATES

DELTAHACKS x MMRT

- Hosted a hands-on Hardware Workshop at DeltaHacks 2026.
- Participants tackled an Arduino challenge and explored rover hardware.
- Shared insights on our V2.5 Rover and real-world engineering applications.

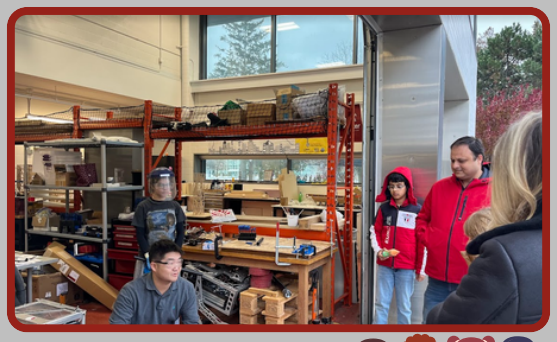


WIE x MMRT

- Hosted the WIE x MMRT Women in Engineering Leadership Panel.
- Connected students with industry professionals for mentorship and discussion.
- Panelists shared career journeys, advice, and leadership insights.

ARM ASSEMBLY

- Team members and visitors stopped by the bay to see the robotic arm assembly.
- Major mechanical components assembled with minor troubleshooting remaining.
- Strong progress toward full integration with the rover.



SUB-TEAM UPDATES

ELECTRICAL

- Developed the BATMAN 1.1 battery monitoring board with full voltage, current, and temperature protection.
- Designed CAN and power harnesses to improve reliability and system integration.
- Created a modular power distribution system and dedicated PSUs for each rover subsystem.
- Built an LED status board using NeoPixels to clearly indicate rover states and faults.

Wire Harnessing.

BUSINESS

- Secured new sponsors, including Meter Group, Hoskin Scientific, Tenaquip, and Hakko, providing essential tools and sensing equipment.
- Conducted monetary sponsorship outreach to 15+ companies to support upcoming rover development.
- Updated slideshow templates and digital assets to reflect MMRT's new branding.
- Designed new apparel concepts and planned upcoming social media campaigns.

SOFTWARE

- Built an Arduino-based soil sensor testbench with logging and visualization tools for rapid sensor testing.
- Integrated rover drive simulation and hardware testing for the V2 system.
- Implemented SLAM and NAV2 to support autonomous mapping and path planning.
- Enhanced the SparkMMRT library for multi-motor CAN control and configuration.

SCIENCE

- Completed and validated the first spectrometer prototype, with a second design prepared for testing.
- Finalized life-detection experiments and organized procedures into a centralized master log.
- Designed the science module auger system for controlled soil transfer and analysis.
- Streamlined the geology handbook using remote sensing to support competition preparation.

MECHANICAL

Member of MMRT Machining on the Mill.

- Transitioned to an Archimedes screw auger for improved soil collection and handling.
- Designed a two-stage boring and sampling system to separate topsoil from target samples.
- Optimized the rocker-bogie suspension using lightweight carbon fiber components.
- Advanced robotic arm, drivetrain, and gearbox manufacturing toward full rover integration.

CONTACT US

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NVIDIA Workshop: Canadian Physical AI Institute Building High-Fidelity Digital Twins with Matterix

The McMaster Mars Rover Team is partnering with the Canadian Physical AI Institute for a technical deep-dive on "The Sim-to-Real Gap" using NVIDIA Isaac Sim.

Register here: https://luma.com/tp20xcls