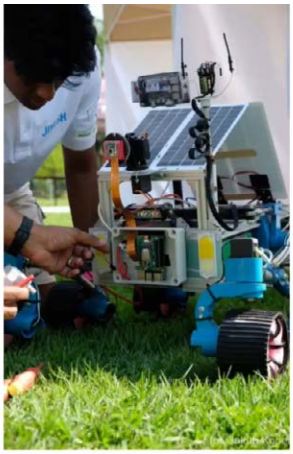
IGNITING INNOVATION

STUDENT ROBOTICS COMPETITIONS AS CATALYSTS FOR YOUNG TALENT



Cars4Mars
African Rover Challenge

In a world increasingly driven by technology, innovation is no longer a luxury but a necessity. For young minds passionate about engineering, coding, and artificial intelligence, student robotics competitions have emerged as a powerful platform for the engineers of tomorrow. Cars4Mars, an African-based initiative, has created a platform for high school, college, and university students to design and build a Mars rover prototype.

Building Community and a Robot

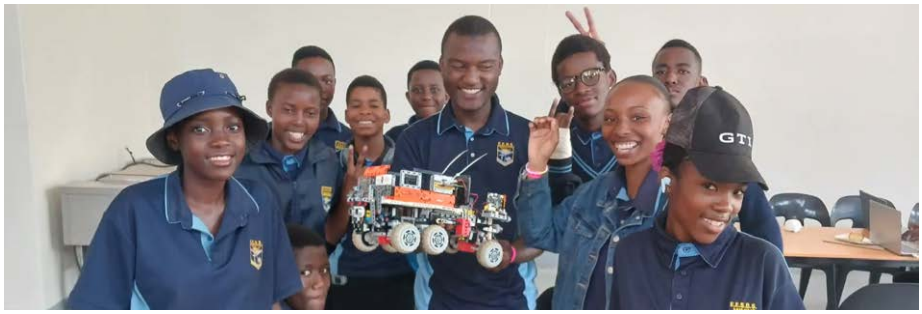
The Cars4Mars competition inspires students from different countries to become the next generation of African innovators. The competition motivates students to reach out to professors, experts, and engineers for technical guidance and mentorship. During its first edition, the competition started with 66 student teams ready to embark on the robotics challenge and turn their design into a reality. The students from 11 African countries brought their unique perspectives and approaches to robotics as each team had a unique robot design. This type of environment enables the youth to challenge themselves, overcome technical barriers, and learn not only from mentors and judges but also from each other.

In order to create a functional prototype, teams will explore different disciplines as they engineer, design, manufacture, program, and operate their robot. The Cars4Mars competition presents the opportunity for students to get hands-on experience in STEM (Science, Technology, Engineering and Mathematics), developing critical thinking, teamwork, and problem-solving skills that are essential for success in today's job market. These competitions foster creativity and resilience, as teams must iterate their designs, troubleshoot errors, and refine their strategies under tight deadlines.

After 7 months of work, teams have to present and test the capabilities of their manufactured rover to qualify for the final competition round. At this phase, the young participants get feedback from the competition judges and experts on the space industry. Such opportunities are key to discover a future career in STEM and get inspired with the possibilities of robotics in other industries.

The Final Test

Beyond technical skills, these competitions nurture leadership, confidence, and communication abilities. During the final, teams and their robots will come together in Johannesburg, South Africa to put their designs to the test. The first edition had 12 teams ready to wirelessly drive their rover through a special obstacle course built from red sand. The 2025 competition includes additional challenges that require AI & autonomous capabilities involving object recognition and classification (e.g. computer vision algorithm), further developing the skills that these future engineers will need to enter both industry and research fields.



Young people won't study science, technologies, engineering and mathematics (STEM), if no one tells them that such a field exists. There are many girls here, and because they're introduced to this here, any one of them can become a robotics engineer. – Basia Nasiorowska

Workforce of the Future

Technology-related fields have many opportunities to support societal challenges. Inspiring young talent to explore these areas is crucial for their future careers as they can develop critical and innovative thinking from an early age. Competitions, such as Cars4Mars, prepare students for situations they will face over the coming years such as project planning, problem solving, and multidisciplinary working.

Moreover, it fosters innovation as the participants can become the next generation of inventors, scientists, and engineers that will impact their communities and countries through their work.

The Next Rovers

The 2025 edition of Cars4Mars is underway and teams around the world are starting to plan their approach to the African Rover Challenge. Over the next months they will prepare their robot to compete against in this year's obstacle course called Mars Yard.

As these young innovators come together to compete, they are not just building robots—they are shaping the future of Africa's tech ecosystem. Their journey is one of collaboration, resilience, and ambition, proving that with the right support, Africa's youth can lead the global stage in robotics and beyond. ■

Cars4Mars
African Rover Challenge

Follow the Cars4Mars 2025 competition

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Basia - Cars4Mars African Rover Challenge

2025 Competition Dates

Launch Stage Final (Online)	09 August 2025
Mars Stage Final (In-person)	20 September 2025

Interested to join as a team?

Contact Ms Basia Nasiorowska – basia@cars4mars.co.za