



MANIPAL
ACADEMY of HIGHER EDUCATION
(Deemed to be University under Section 3 of the UGC Act, 1956)

Solar Mobil

TEAM BROCHURE

2025-'26



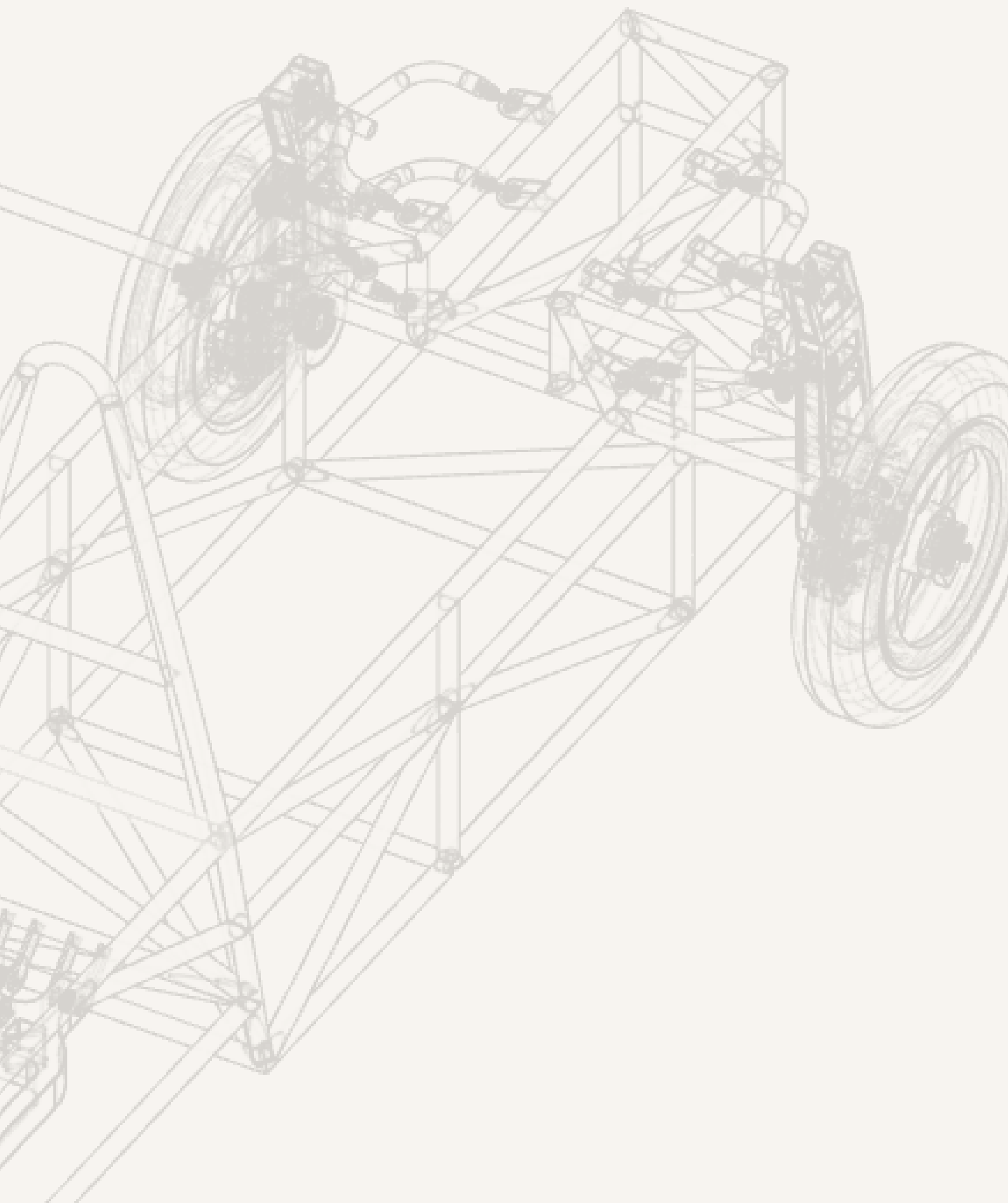


TABLE OF CONTENTS

About Us	4
• Who are we?	4
• Our Vision	5
• Our Mission	6
Our Subsystem	7
Our Legacy	10
About our competitions	13
Future Competitions	15
Community Engagement	16
Why Collaborate with us?	18
How to collaborate with us?	20
Media coverage	22
Our Sponsors	23

WHO ARE WE?



MAHE's official student Solar Vehicle Team, established in 2011. We design, build, and race solar-electric vehicles for global competitions.

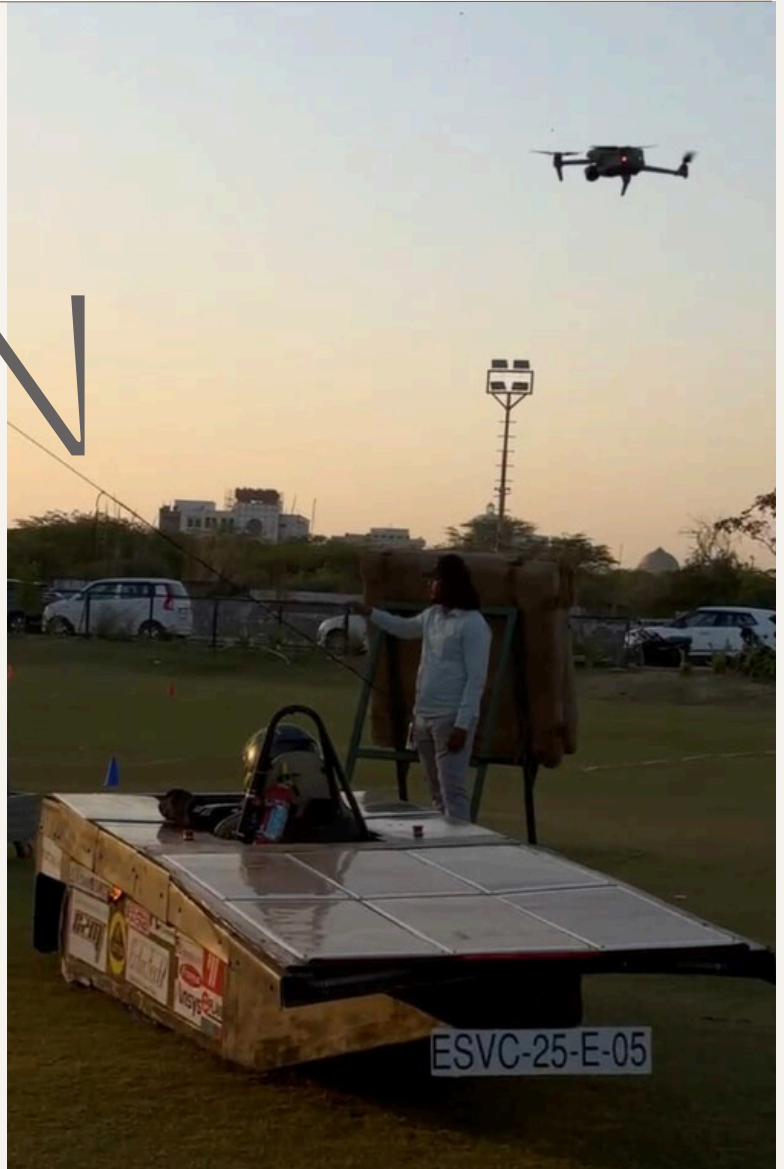
We're student engineers pushing the boundaries of sustainable transportation through innovation, competition, and real-world testing.

Our Achievements:

- Built India's first 2-seater and 4-seater solar electric vehicles
- Six fully functional solar vehicles completed
- Competed in exhibitions and endurance races
- Currently developing our 7th-generation vehicle for Sasol Solar Challenge 2026

OUR VISION

To become a leading student centre of research and development in the field of green transportation with a focus on solar passenger vehicles in the next five years.



We aim to bridge academic research with practical application, creating solar vehicle technologies that shape the future of sustainable mobility. Through international competitions and continuous innovation, we're establishing ourselves as pioneers in solar transportation while preparing the next generation of green technology leaders.

OUR MISSION



To fabricate a high-performance adventure-class Solar Electric Vehicle and to focus on the practicality and feasibility of the vehicle for daily use. We aim to build upon the success of past projects.

Our work directly contributes to the UN Sustainable Development Goals, advancing clean energy solutions, climate action, innovation, and partnerships for a sustainable future.



We create vehicles that excel in competition while demonstrating real-world applicability. Every project builds on our extensive experience, incorporating lessons learned and emerging technologies to advance practical solar transportation solutions for everyday use.

OUR SUBSYSTEMS

Mechanical

Electrical

Electronics

Strategy

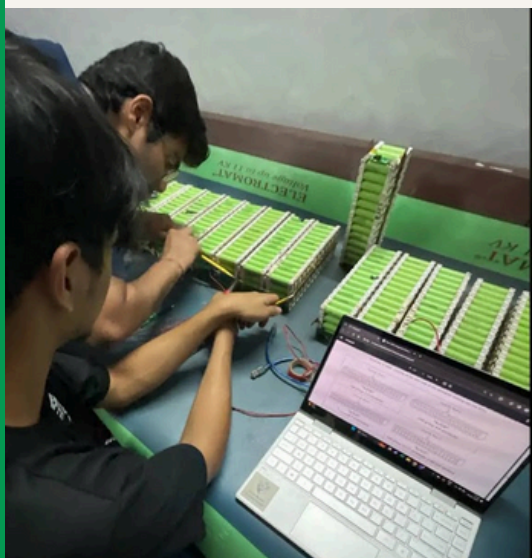
Research

Management



MECHANICAL

The Mechanical team is split into Vehicle Dynamics and Structures & Aerodynamics. They design and optimize the braking, suspension, steering, chassis, and bodywork using tools like SolidWorks, Ansys, and Altair to ensure performance, safety, and efficiency.



ELECTRICAL

The Electrical team handles the design, selection, and integration of the battery pack, motor, and solar panels. They focus on simulations, energy modeling, and wiring to ensure reliable and efficient power delivery.



ELECTRONICS

This team develops key electronic systems like the BMS, MPPT, and motor controller. They implement CAN communication, RTOS-based driver displays, custom PCB design, and sensor interfacing for real-time vehicle control.

STRATEGY

The Strategy team builds models to calculate optimal race speed and manage energy use. By analyzing solar input, battery charge, terrain, and weather, they guide the vehicle to complete the race efficiently.



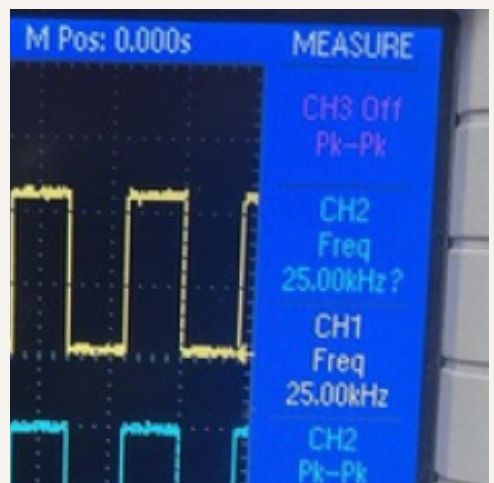
MANAGEMENT

The Management team oversees logistics, finance, sponsorships, and outreach. They ensure smooth coordination between technical work and external communication, keeping the project on track.



RESEARCH

We are a research-focused team aiming to publish papers and file patents for our innovations. Every system is developed with an eye on pushing the boundaries of solar-electric mobility.



OUR LEGACY

2011 FREYR

2015 SERVE

2016 SM-S1

2018 SM-S2

2023 ZENITH

2024 HELIARK

FREYR

2011



- Third Indian team to fully design & fabricate a Solar EV, from scratch
- Single seater, 3-Wheeled Design
- Attained the Consolation Prize at Manipal University Innovation Day

SERVE

2015



- India's first 2-Seater Solar EV Passenger vehicle
- 1st Position at QuEST Ingenium 2015, among 5,794 entries.
- 3rd Position at CII India Innovation Challenge, among 1,500 entries

SM-S1

2016



- Designed in accordance with Sasol Solar Challenge
- Showcased at the Future Mobility Show 2019, to companies including BMW, Toyota and Maruti Suzuki.

SM-S2

2018



- India's First 4-Seater Solar EV Passenger Vehicle
- 1st Position at ASME led Design Challenge, 2016
- 3rd Position at Anveshan, under Association of Indian Universities (AIU), New Delhi, 2017

ZENITH

2023



- Participated in a 100 KM rally on the Yamuna Expressway.
- Secured 4th position in ESVC 2023, which took place at the Yamuna Expressway.
- Secured 1st position in the Solar Endurance race at SEVC2023 held in Coimbatore.

HELIARK

2025

- Secured 3rd overall nationally in ESVC 3000.
- Fastest car developed by the team yet reaching a top speed of 100 km/hr on the Yamuna Expressway.
- Has the Best Acceleration in a solar car in India.



FREYR

2011

SERVE

2015



SM-S1

2016

SM-S2

2018



ZENITH

2023

HELIARK

2025



ABOUT OUR COMPETITIONS

COMPETITIONS SUCCESSES

ESVC 2023

- Participated in 100km rally on Yamuna Expressway
- 4th Position Overall at ESVC 3000
- 1st Business Plan
- 1st Cost Report
- Best Teamwork
- Future Award

SEVC 2023

- 1st Position in Solar Endurance
- Femina Award
- 1st Cost Report
- 3rd Brake and Acceleration Test

ESVC 2025

- Competing in a 150 km endurance rally on the Yamuna Expressway.
- Our team achieved a remarkable milestone by recording the fastest top speed of 100 km/h during the competition.
- 3rd Position at ESVC 3000, 2025.
- Won Award for Best Design, Best Acceleration, and Best Ergonomics & Aesthetics.
- Runners Up in Innovation, Business Plan and Cost Plan
- Future Award

FUTURE COMPETITIONS



SEVC
2026

We are set to compete in the Solar Electric Vehicle Championship organized by CSRM in March 2026. This competition will showcase our latest innovations against top Indian solar vehicle teams and serves as preparation for the World Solar Challenge 2027.

WORLD SOLAR
CHALLENGE
2027



We are preparing to compete in the prestigious Bridgestone World Solar Challenge 2027 with our upcoming vehicle, 007. Building upon our past achievements and continuous innovation, we are ready to take on this ultimate test of endurance and efficiency a 3,000+ kilometer journey across the Australian outback, showcasing the future of sustainable mobility on a global stage.

COMMUNITY ENGAGEMENT



Professor (Dr.) T. G. Sitharam, Chairman of AICTE, New Delhi, and our esteemed alumnus, Mr. Vinod Easwaran, MD & CEO of Jio Payments Bank, Mumbai, visited our Workshop on 19 January 2024

Student Activity Center Visit by Ramakrishna Bajaj National Quality Award Trust Team on 13th January 2025



Team SolarMobil (MIT) and Coimbatore Society of Racing Minds organized SEVC 2024 from March 27–31 at MIT, Manipal. The event featured 17 teams and over 450 participants from across India, focusing on innovation in solar-powered electric vehicles.



On the final day of SEVC 2024, the EV Awareness Rally was organized at MIT Manipal, marking the grand conclusion of the five-day event. Zenith, the latest endeavour of SolarMobil led the rally followed by the electric vehicles of the other 17 teams.

At the SEVC workshop in Sinhgad College Pune, we connected with various teams, exchanging ideas on design, aerodynamics, and energy efficiency. We also learned about new competition constraints and manufacturing updates, prompting us to refine our vehicle for better durability and weight optimization.



WHY COLLABORATE WITH US?

Strategic Brand Visibility

Gain prominent brand exposure through logo placement on our solar car, team uniforms, pit displays, and promotional content. Your brand will be showcased at national and international competitions, public exhibitions, and across our growing digital presence.

Student Engagement

Engage directly with a highly motivated, multidisciplinary student team. Collaborate on projects, offer mentorship, or identify top talent for internships and future roles, building early connections with the next generation of engineers and innovators.

Collaborative Research & Field Testing

Join us in advancing applied research through real-world testing and co-development. As a research-driven team with published papers and filed patents, we invite industry partners to collaborate on technologies like battery systems, sensors, and power electronics contributing to innovation while gaining valuable performance insights.

Corporate Social Responsibility Alignment

Support a student-driven initiative focused on clean energy, sustainable transportation, and hands-on technical education. Your involvement contributes meaningfully to youth empowerment and responsible engineering innovation.

Long-Term Institutional Partnership

Establish a lasting relationship with Manipal Institute of Technology through joint workshops, technical lectures, campus events, and collaborative research opportunities bridging the gap between industry and academia.

HOW TO COLLABORATE WITH US?

Our progress is powered by the incredible support of industry partners who share our vision for innovation and sustainable mobility. To continue designing, building, and racing cutting-edge solar electric vehicles, we invite companies to collaborate with us in the following ways:

Components

Provide critical parts and subsystems required for vehicle manufacturing, such as mechanical hardware, electrical components, sensors, or custom modules. Your contributions directly enhance the technical depth and performance of our builds.

Machining & Fabrication

Offer mentorship, technical expertise, or consultancy to guide our team in areas such as systems design, material selection, power electronics, or embedded systems. Your industrial insights help bridge the gap between classroom learning and real-world application.

Financial Support

Contribute through monetary sponsorships that help cover material procurement, fabrication, testing, and logistics costs. Every contribution goes directly toward research, innovation, and competition readiness.

Join² Research & Development²

As a research-oriented team with published papers and filed patents, we welcome R&D collaborations. Companies can co-develop and test emerging technologies—such as energy storage systems, solar array designs, or telematics—in a rigorous, real-world environment.

Workshops & Knowledge Sharing

Host technical sessions, factory visits, or guest lectures to engage with a motivated team of multidisciplinary students. These sessions create mutual learning opportunities and foster long-term relationships.

MEDIA COVERAGE

THE NEW INDIAN EXPRESS
GALURU A two-seater solar car that can reach a maximum of 60 kmph, fully designed by Manipal Institute of Technology students, was unveiled on Wednesday.

Tata Power backed the initiative by SolarMobil Manipal, a group of 27 students from various engineering streams of Manipal Institute of Technology. The vehicle, weighing 590 kg and built at a cost of roughly ₹25 lakh, was sponsored by various corporate houses. Tata Solar Power provided them with the vital solar modules required for the project. As of now, there are no plans to explore commercial options.

Speaking at the launch of the SERVe (Solar Electric Road Vehicle), Ansh Khanna, CEO, Tata Power, said, "The innovation resonates with our core values. Hence, we have provided the vehicle a platform."

The customised solar panels provided by the group weigh just 35 kg and provide up to 960 watts of power.

Electric Autosport
 The first offering, a single-seater race car, was introduced in 2013. The team is now back with another car after working meticulously for three consecutive years. SolarMobil's second solar car features an urban architecture that enables the car with scope for commercial use. Dubbed Solar Electric Road Vehicle (SERVe), it is a two-seater that can achieve a cruising speed of up to 100 kmph, and 60 kmph when powered by only solar panels.

After SolarMobil 13 months to zero in on the final design for the SERVe. However, they are still in the process of giving the body a final touch in order to give it a rather aerodynamic look. Prior this, the team will complete the final testing, calibration and data acquisition. After completing the final procedure, SolarMobil will compete in the 2014 South African Solar Challenge (SASCOC), an international race event organised annually for cars that run on solar energy. The challenge requires participants to cover a distance of 1000 km in South African outback in their respective cars. Covering this distance with Tata around 8 to 10 kmph will also allow SolarMobil to test their vehicle's maximum limit. SERVe has been equipped with a specially tailored battery that enables the vehicle to run up to 300-350 km on a single charge cycle. Besides, this range can be further increased, provided the vehicle gets additional solar charging stations.

TRAILBLAZING STUDENT
 MIT has a long history of education, and its reputation for both national and international earned accolades. In the 2014 Solar Challenge, the team won the title of 'Fastest Car' and 'Most Impressive Top Speed'.



LED DRIVE: Proud students of Manipal Institute of Technology display their solar car. The two-seater was unveiled at Electronics City on Wednesday.

READY TO RACE
 A team of students from Manipal Institute of Technology unveiled the university's first prototype solar car. The estimated cost is ₹25 lakh.

FEATURE	DETAILS
SEATING	Two-seater
MAXIMUM SPEED	60 kmph
TOP SPEED	140 kmph (100 kmph)
WEIGHT	590 kg
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It took us eight months to design the car and another eight to put a basic frame and model together. Since then, we have been testing the car, making it lighter and increasing efficiency.

Next Steps: To race in Africa.

Indian students to build an 'energy positive' two seater

NDTV AUTO

global sources
EET India
 Manipal Institute & Tata Power Solar unveil solar car with 60 kmph top speed

THE ECONOMIC TIMES
 Students from the SolarMobil team at Manipal Institute of Technology (MIT) unveiled their first prototype solar car, which is targeted at commercial usage. Dubbed as SERVe (Solar Electric Road Vehicle), it is custom-fit with solar panels designed by Tata Power. It is a good example of an effort that will help increase the use of green mobility.



THANKS TO TATA POWER SOLAR AND MANIPAL INSTITUTE, COMMERCIAL SOLAR CARS NOT A Distant DREAM ANYMORE

BBC Sign in

AUTOS
 Where is my solar car?

As headlines go, "MIT students design solar car prototype" isn't exactly arresting. It's those words have been headlining press releases about once a week for the last few days.

The press release we received earlier this month was slightly interesting, in that this particular Institute of Technology is in Massachusetts, but Manipal, in southwest India. But as we know, it became even more compelling.

Related

THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA

Students shine on road, build solar-powered



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an electric car...
 The students...
 The only girl...
 The car was...
 The car was...
 The car was...



Manipal students design commercial solar car

Aparajita Ray | THE

The students have priced the car at Rs 16 lakh. "It will cost around Rs 1 lakh if produced on a mass scale. We confirmed this with marketing officials of various automobile companies," said Anjan Kumar, third-year student.

Indian Students Build A Solar Car for International Competition

Bangalore: They came looking for ideas which can enhance their project work and take them to South Africa. Eight students from the Manipal Institute of Technology had...

OUR SPONSORS



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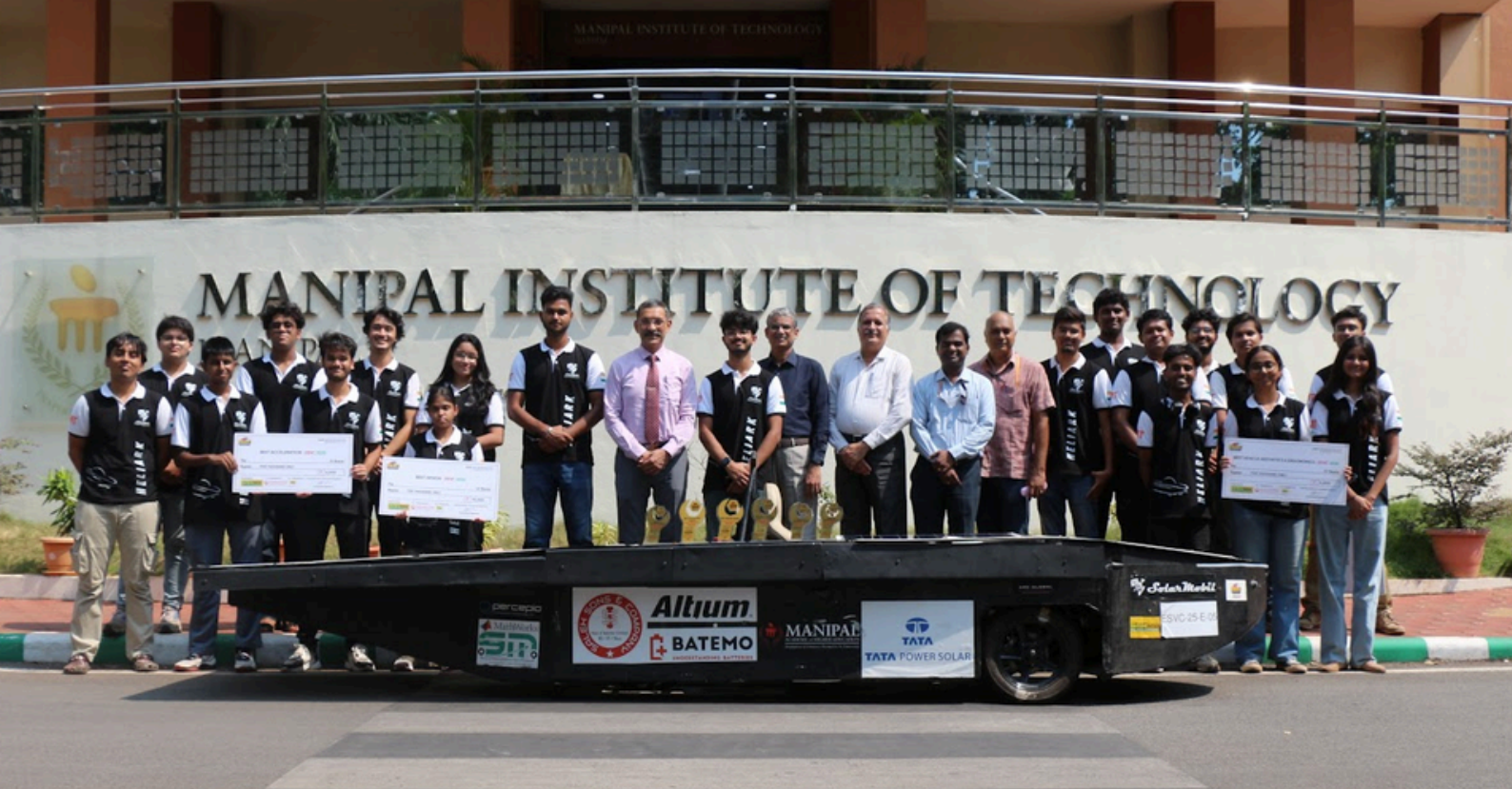
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