



MANIPAL
ACADEMY of HIGHER EDUCATION

(Deemed to be University under Section 3 of the UGC Act, 1956)

SolarMobil

TEAM BROCHURE

2015-16



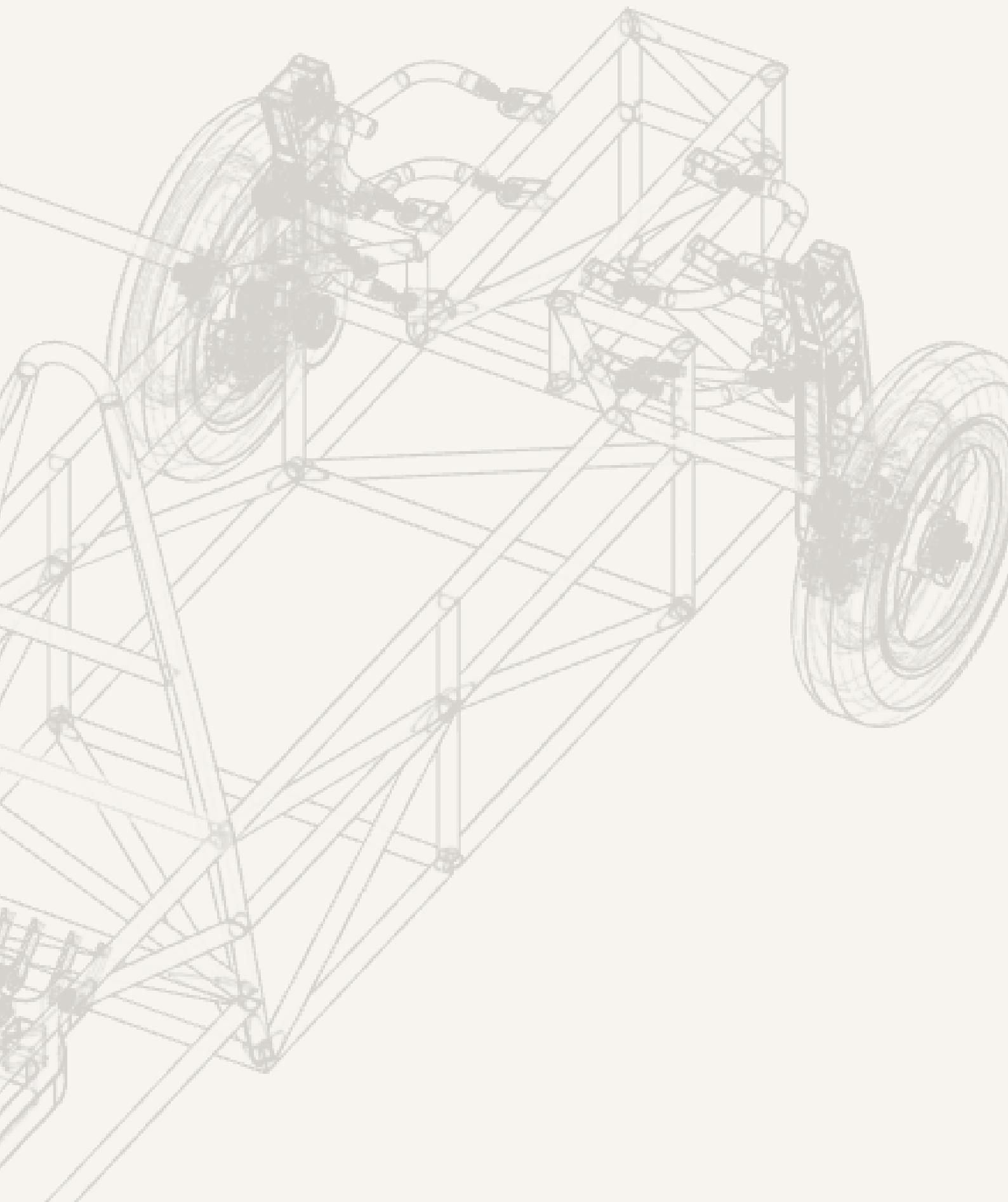


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WHO ARE WE?



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

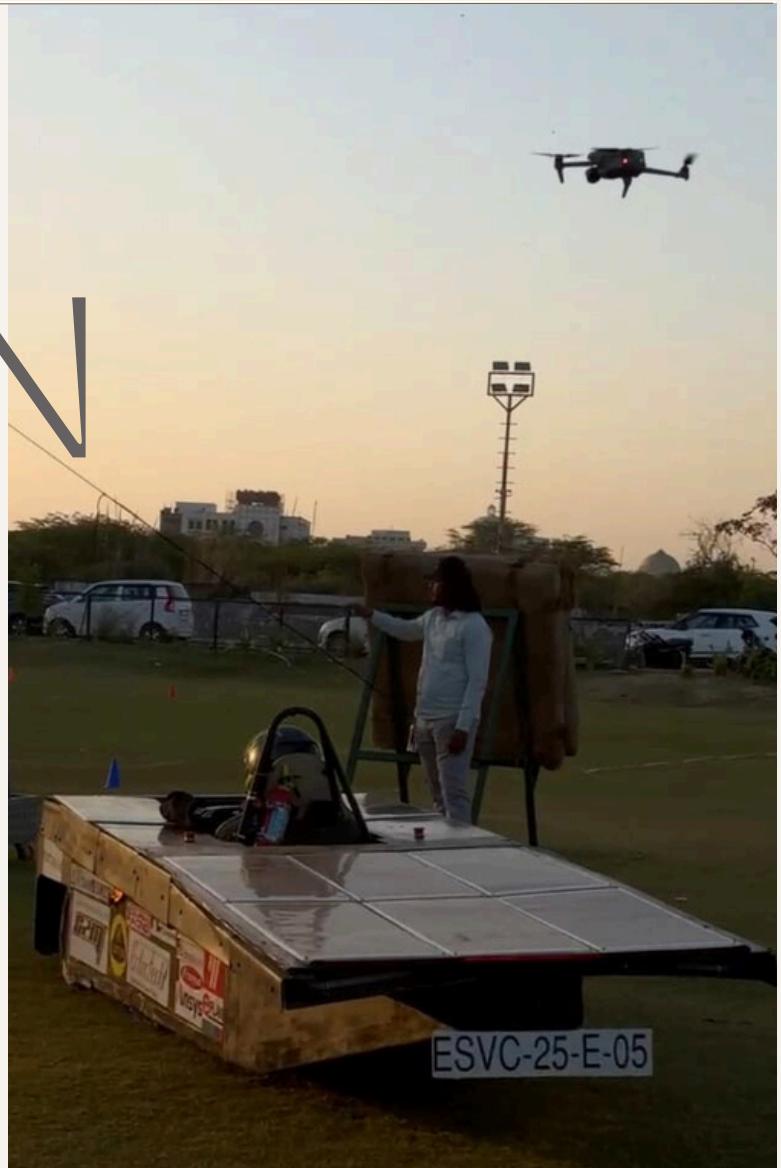
We're student engineers pushing the boundaries of sustainable transportation through innovation, competition, and real-world testing.

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

4 QUALITY EDUCATION



7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



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.

13 CLIMATE ACTION



17 PARTNERSHIPS FOR THE GOALS



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

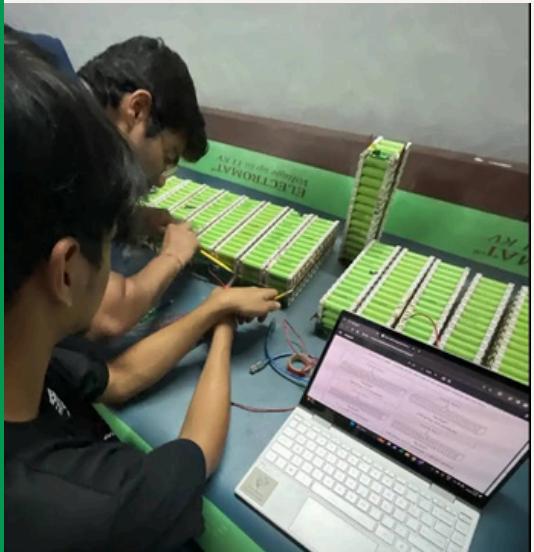
Research

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.

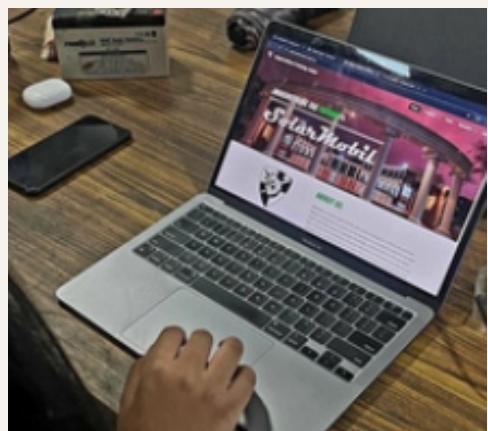
STRATEGY

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.



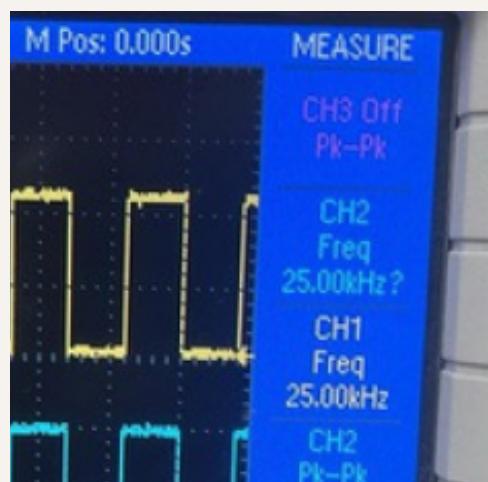
MANAGEMENT

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

WORLD SOLAR
CHALLENGE
2027



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.

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

Long-Term Institutional Partnership

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.

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.

Joint Research & Development

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.

OUR SPONSORS



MANIPAL
ACADEMY of HIGHER EDUCATION
(Institution of Eminence Deemed to be University)

PREMIUM SPONSORS



GOLD SPONSORS



SILVER SPONSORS





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