ABOUT THE TEAM

As the talks about the energy crisis increasingly tops the news, the focus of energy shifts more and more towards greener and sustainable technologies. Globally, the major consumers of energy are the industrial sector and the transportation sector. And to beat this challenge of depleting natural resources and tackle the rising global energy crisis we, the RVCE SOLAR CAR TEAM, designs and builds solar electric vehicles. Our Motto is to spread the word and encourage more and more individuals to use solar energy and cut down further degradation of the environment.

The Team envisions building indigenous, efficient solar car incorporating state-of-the-art technologies. We also focus on being at-par with other countries and showcase India's capabilities on the same platform as the other technologically advanced countries like the US, Germany, Japan etc. For us, the goal is not just to create a technological innovation but also drive the world towards the renewable energy sources. By raising awareness amongst the public we seek to encourage the younger generation for better and greener tomorrow.

OBJECTIVES

The main objective of our team is to promote the use of solar energy in transportation sector and drive research and innovation into solar technology. We design, build and race highly efficient solar cars in Solar Challenges held across the globe. We also conduct various events that appraise the cause to school students and local communities. We were the only team from India to take part in the World Solar Challenge 2015 and 2017.

ACHIEVEMENTS

The team formed a number of industrial collaborations in the first project cycle; some of our notable sponsors were Infosys, TCS, SunEdison, Wipro, SunPower, HHV Solar, National instruments, IFM, Mahindra Reva, Altair, Molex, Schneider Electric, and many more.

• Formation of the 'Advisory Board' consisting of top level experts - within the college to establish a strong industry-academia support to facilitate the manufacturing and marketing of the car and the project. We also received personal guidance from Chetan Maini, Co-founder of Mahindra Reva.

• The first indian team to obtain a complete sponsorship of space grade solar cells from SunPower, USA.

• The team was invited for Wipro's flagship event as part of the Young Achiever's- the Wipro Earthian 2015 and 2016. We were part of the panel discussion, motivating young minds to take up projects such as these. Received personal guidance and funding from Mr. Narayan Murthy for displaying extraordinary efforts in making one of India's most technologically advanced solar cars to date.

• Became the second team from India to participate in the most prestigious event of the solar racing fraternity, The World Solar Challenge.

• We participated in the "Tech Santhe", part of Zinnov's Confluence 2015, which is one of the largest congregations of technology ecosystem.

• We secured first place in various national level competitions like Dr.AIT.

• The team featured in multiple national and international newspapers, magazines, online forums like Times of India, Deccan, Hindu, Your story and many more.

PERSPECTIVE AND AGENDA

RVCE Solar Car Team is an organisation like none other. The organisation established in 2013 is run by a bunch of 25 dedicated students who share the same passion. The focus is to designs and builds Solar Electric Vehicles with an aim to tackle the rising global energy crisis, envisioning the world with sustainable transportation. The project is interdisciplinary, with students from engineering backgrounds including Mechanical, Electrical, Computer science and Chemical engineering, etc.

We build indigenous efficient solar cars trying to incorporate the best in the world technologies. We also focus on being on-par with other countries and keep India on the same grounds as the other technologically advanced countries like the US, Germany, Japan etc. For us, the goal is not just to create a technological innovation but also drive the world towards the renewable energy sources and to encourage the younger generation for better and greener tomorrows

The team wants to advocate the use of solar energy in transportation. Apart from this we also want to drive research and innovation into solar technology. By building highly efficient solar cars the team not only wants to showcase India's potential on a global platform, but also inspire the youth of the nation to think green. The racing car Soleblaze is trying to make the world know the power of solar energy when applied to cars. We take pride in making note that we were the only team from India to take part in the World Solar Challenge 2015 and 2017.

Keeping in mind all the technical aspects, we dream to of making passenger solar cars a reality. We stand for an environmentally friendly revolution in the transportation sector and we ardently stand behind the earthian movement. We'd like to a part of the change we believe in, by doing our bit.

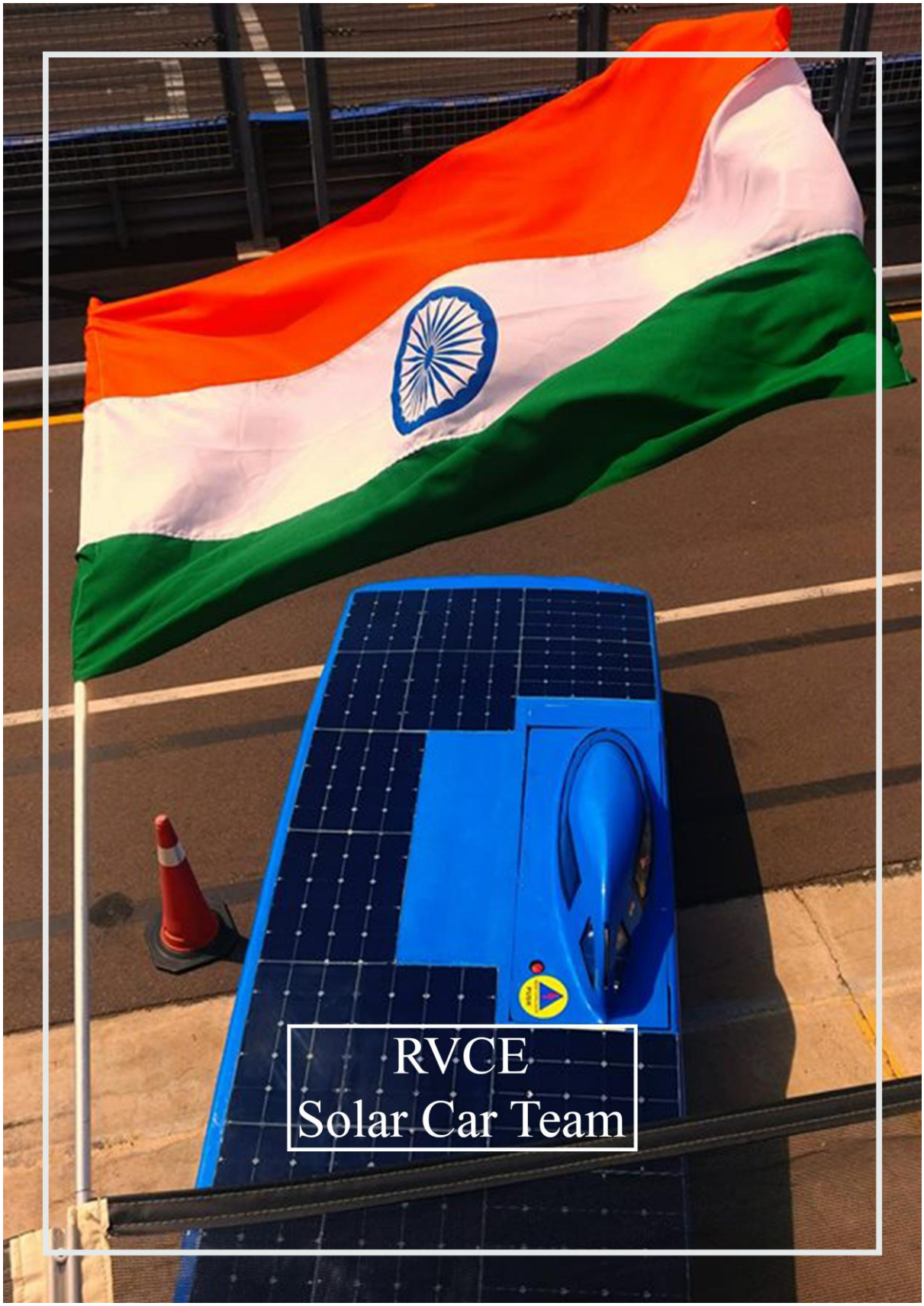
SOCIETAL BENEFITS AND HOW WE STAND OUT

Mother Nature has provided us with immense resources to utilise; some renewable and some non-renewable. Though mankind has not been able to tap into all the resources available, there have been a few of it, like the fossil fuels which are exploited to the fullest and the verge of exhaustion. And having known that it is not reliable for too long, concerns are shifting towards the utilisation of the inexhaustible sources of energy like the solar energy, the wind energy, the tidal energy etc., for these resources don't deplete that easily. Bringing in technologies for better fulfilment of needs with the never-ending resources pose as a challenge to the scientific community. On this regard, we are making an effort to tap into the transportation sector to bring in viable technologies onto the roads.

Solar electric vehicles hold an upper hand in such technology by proper utilisation of the solar energy irradiated on them. But even today total utilisation of that energy is far from reality and needs vigorous improvements to be implemented. Though solar driven passenger cars is what the world aims at, there stands a lot of issues that need to be overcome to make it run on roads.

By building solar cars we are not only trying to address the existing problem of depleting resources, but also contribute to cleaner and greener environment by cutting down the emission of harmful gases. Our car runs solely on solar energy without the use of any external energy sources and leaves totally a zero carbon footprint. Because we plan to leave a better environment to our future generations. We are also trying to make an effort to create more and more awareness towards the better utilisation of solar energy, and shift towards greener technologies.


www.solarcar-rvce.in


RVCE
Solar Car Team

EVENTS AND EXHIBITS

Our prime event is the prestigious Bridgestone World Solar Challenge; where-in we will be up against some of the reputed universities across the globe. We also take pride to be called the only Indian team in the WSC 2015 and 2017. World Solar Challenge is a biennial event held in Australia. The race challenges the teams to cover 3,022 kilometres (Darwin to Adelaide) in 7 days running solely the solar energy on the Australian outback. Top universities like MIT, Stanford, Michigan, Tokai and many more compete here thereby, finishing the race is in itself is a huge accomplishment. We also aim at participating in many other events like the Sasol Solar Challenge, Abu Dhabi Solar chalenge, etc.

It's not about how fast you go, it's about how far you go.

-Chris Selwood
Event Director, WSC

SPECIFICATIONS AND MATERIALS USED

SOLEBLAZE

Mechanical specifications

- Car net weight: 277Kg
- Material Used: Spaceframe Aluminium 6063 T6 Chassis and Carbon fibre 1.5 mm shell
- Steering: Rack and pinion steering system
- Brakes: Dual circuit hydraulic brake system, Regenerative braking
- Suspension: Double wishbone suspension (Aluminium 6060 T6)
- Design: Aerodynamic Symmetric design

Electronic specifications

- Solar array: Monocrystalline Silicon Cells SunPower C60 Cells wired in 3 parallel strings boosted by an MPPT
- Batteries: 20 kg Lithium Ion Batteries Energy Capacity Estimate-5kWh
- Motor: Mitsuba BLDC Motor, 97% efficient in-hub Motor
- Telemetry System: National instruments-Compact RIO

ARKA

Mechanical specifications:

- Car net weight: 220 Kg
- Material: Carbon fibre monocoque with Honeycomb Sandwich structure
- Steering: Ackerman steering with Rack and Pinion
- Brakes: Mechanical braking on all four wheels, Regenerative breaking on Driving wheel
- Suspension: Double wishbone front suspension, Trailing arm rear suspension
- Design: Aerodynamic Catamaran design

Electronic specifications:

- Solar array: Sunpower Maxeon Gen 2 cells, monocrystalline Si cells with 22.4% efficiency arranged in two string boosted by a MPPT each.
- Batteries: Panasonic NCR18650B Li-ion cells, 120 V, 50 Ah, 6 KWh energy capacity
- Motor: Mitsuba BLDC Motor, 97% efficient in-hub Motor
- Telemetry System: Data collection using Beaglebone Black micro controller and Cloud computing using IBM Bluemix platform.

The Start

It all began with a dream, a dream of giving back something to the world, to the nation. The idea began as a self-study topic. When intense research on it told us it could become a reality, we started off with procuring support from the college. From just an idea, to getting a prototype ready from scratch was indeed a tedious job. The research began from the ideal materials which could be used and then the design. But like every other project, we realised our model was far too ideal to be built in reality. Shifting from our ideal design to a practical one indeed turned out to become daunting. With constant support from college, our faculty advisors and vigorous help by our fellow team mates, we decided on a doable model. The next challenge was executing our plan, for which we had no financial support. Our sponsorship team dived-in to save our ship, started reaching out to people. Received immense amount of support from believers of solar energy, having mentored by Mr.Narayan Murthy himself, was indeed honouring. From an idea, to a self-study, to having successfully completed the second prototype, our team strived day-in and day-out for having reached this feat.

In May 2015, the team began manufacturing its car, Soleblaze, starting with work on the aluminium chassis, carbon fibre body and silicon solar panels, and completed the process in September 2015 with the integration of electrical components and circuitry. The car was even showcased at the campus of IT giant Infosys, and received funding and personal guidance from company Co-founder Narayan Murthy.