



# IIT BOMBAY RACING SPONSORSHIP PROPOSAL



MEET INDIA'S FASTEST FORMULA STUDENT RACECAR



## OUR TEAM

IIT Bombay Racing is an independent self-sustained student organization of 100+ Undergraduate students from the university of IIT Bombay. We, the members of IIT Bombay Racing, build India's fastest formula-style electric racecar. The team believes in providing a platform for budding engineers to live their passion and, during that journey, grow into excellent engineers with immense technical knowledge and a practical approach to real-world problem-solving. Pioneers in engineering high-performance electric cars, we compete at various Formula Student competitions like Formula Bharat and Formula Student UK (FSUK).

Revolutionizing electric mobility in India while focusing on sustainable technologies and innovation has always been at the forefront of our vision.

We believe in a passionate, creative, resourceful, collaborative and achievement-oriented work methodology. Some of the significant technological advancements made by the team and used in our car have been developed and produced in-house by collaboratively working with the industries providing us with valuable industrial knowledge before we move on to our professional work-life.

We are eternally grateful for the support we receive from our sponsors, and are optimistic you will join us and play a part in our continuing success. Hopefully, we have captivated you enough by now for you to read on to discover more about our accomplishments, the car, plans for the future, and how we can build a mutually beneficial relationship.

# OUR EXPERTISE

We have been building cars since 2008, when we began with Internal Combustion Engines, and in 2012, we took up the challenge to create Electric racecars as our graduates had then predicted that electric mobility was the future and the team must work towards it. Mentioned below are a few of the activities that we excel at:

## **ELECTRICAL**

We have accumulator with a maximum capacity of over 400V capable of delivering 80 kW power, the limit being the maximum allowed by the Formula Student Rulebook. We have an in-house manufactured Accumulator Management System which monitors our battery packs' using ADI ASICs through iso-SPI communication. We are radically improving our motor controllers and designing its inherent components from scratch so as to improve its size and cost. We have significantly improved electrical safety rules' implementation by simulating and testing of new components and thus designing PCBs.

## **MECHANICAL**

We are experienced in manufacturing a carbon fibre infused monocoque chassis with aluminium honeycomb. Our car has a 96s2p cell configuration accumulator and 2WD drivetrain with electronic differential. We excel in vehicle dynamics simulations, and our car is capable of achieving 0-100 kph in 3.2s.

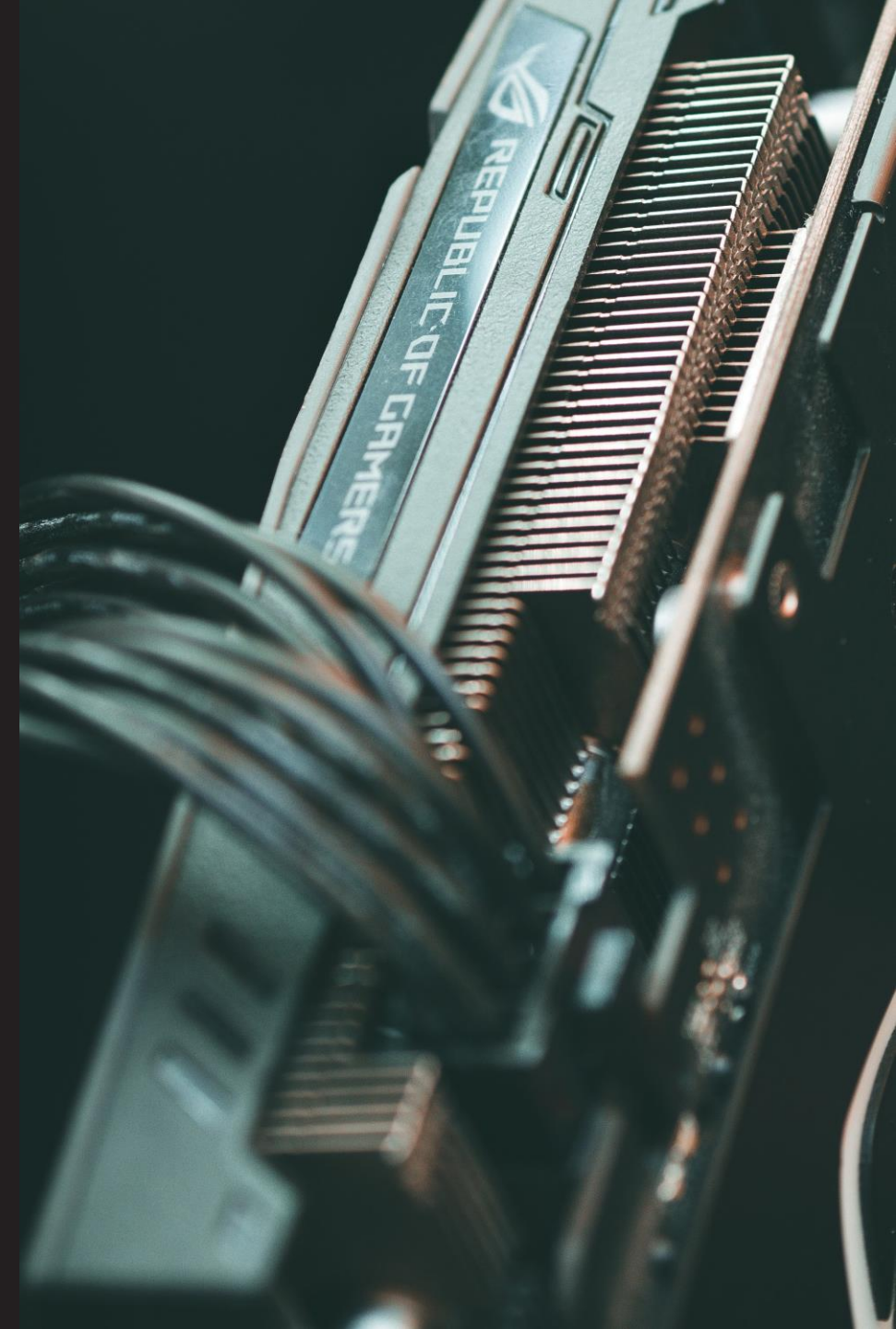
## **DRIVERLESS**

We aim to push our limits by developing cutting-edge driverless technology for Formula Student vehicles. Utilizing a purely vision-based low-latency perception and localization module, and dynamic lap time optimizations, we excel at driverless simulations development. We intend to deploy this software package to our existing electric vehicle series.

## **STATIC & DYNAMIC EVENTS**

Our cars and events are planned in a manner of detailed intricacy, proven by the consecutive 1st positions in the Engineering Design event ('21 & '22) and successive 4th place finishes in Business Plan Presentation ('21 & '22) out of 75 international teams

By being the first electric Formula Student racecar from India, we faced a lot of difficulties without having proper guidance but were still able to clear the endurance event in our 3rd try





VAYU



AGNI



PRITHVI



Evo 1.0



Evo 2.0



Evo 3.0



ORCA



EVOX



EVOK



FORMULA STUDENT  
89  
INDIAN INSTITUTE OF TECHNOLOGY BOMBAY  
IIT Bombay Racing

IIT Bombay  
**RACING**  
EvoLV

IIT BOMBAY  
FORMULA STUDENT

PCB  
POWER  
MARKET

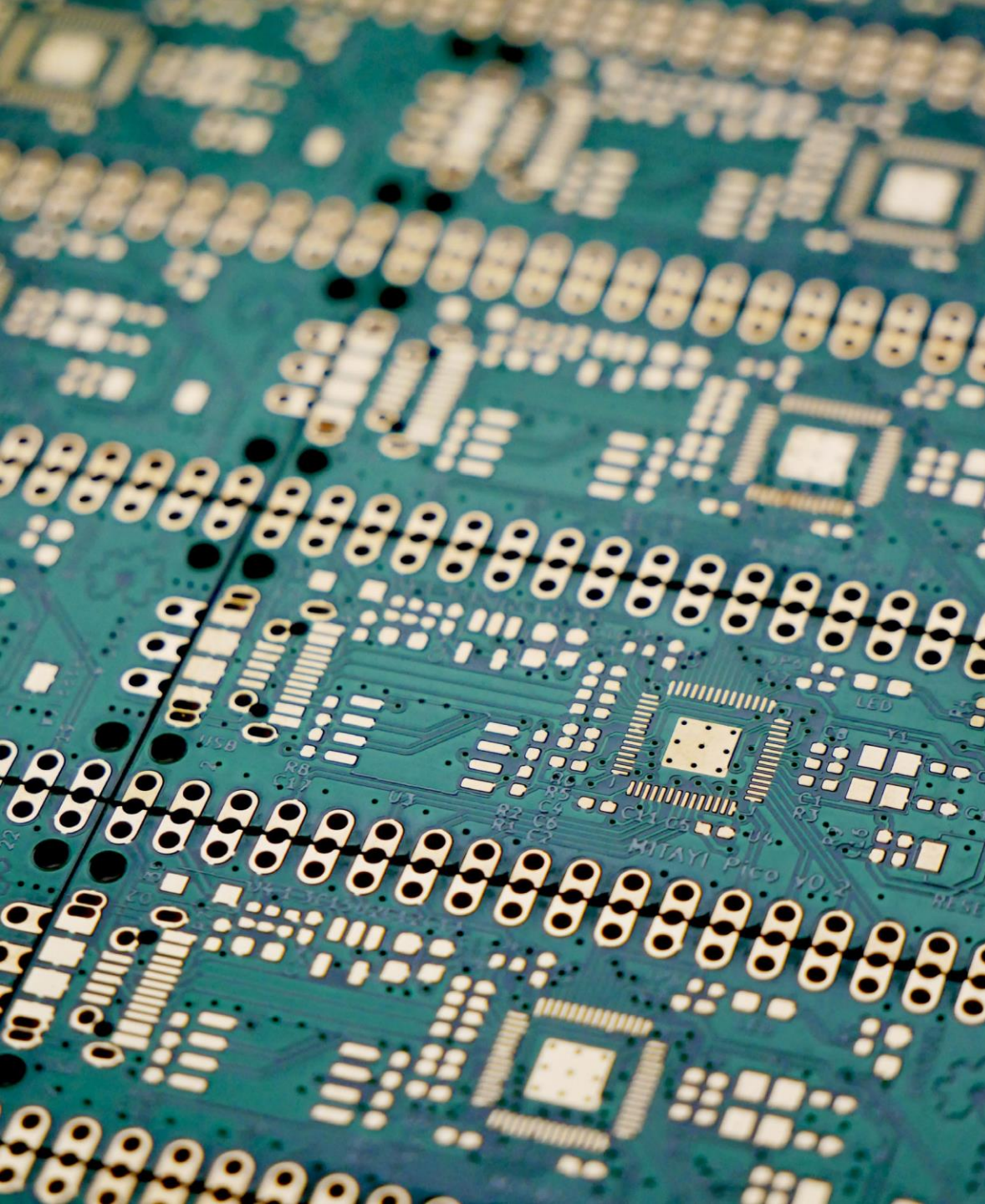
FORMULA  
STUDENT

NRB  
BEARINGS

89

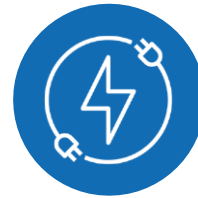
EvoLV

EvoLV

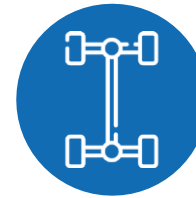


# CAR SPECIFICATIONS

Specifications of our upcoming car (E-13)



Li-ion Battery



Carbon-fibre  
monocoque



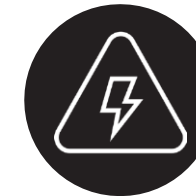
Weight bias  
(% Rear)



Final Drive Ratio



Motor Torque



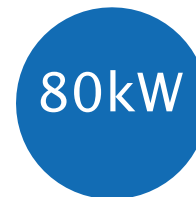
403.2 V (Peak) – 355.2 V  
(Nominal) 96S2P



Available Energy



Max discharge



Max power



Time for 0 – 100  
km/h



Top speed

# THE COMPETITION

Pioneers in engineering high-performance electric cars, we compete at various Formula Student competitions like Formula Bharat and Formula Student UK (FSUK). FSUK is Europe's most prominent educational engineering competition attended by over 10K+ people and 110+ teams worldwide.

Formula Student (FS) is Europe's most established educational engineering competition, covered by the BBC network in the UK and is on its way to a silver jubilee in 2023. Backed by industry and high-profile engineers such as Patron and Ross Brawn OBE, the competition aims to develop enterprising and innovative young engineers and encourages the youth to pursue a career in engineering. These competitions demand students from international universities to compete with a formula-style vehicle in engineering design, overall cost, marketability and dynamic performance.

This time around, we are staying flexible by exploring other highly competitive and renowned formula student competitions in Europe, namely the FSG (Germany), FSN (Netherlands), FSI (Italy) and FSA (Austria) to increase our exposure and supplement our knowledge in the EV space. Ultimately, everyone in the team is looking forward to an exciting year ahead with increased enthusiasm to triumph.





## OUR ACHIEVEMENTS

Not wanting to run out of paper, listed down are only a handful of awards that were granted to our team throughout our lifetime.

### **FSUK 22**

4th place in Business Plan Presentation ranked among the top 10 teams in Electric Vehicle category.

### **FSUK 21**

Engineering design – 1st  
Business Plan Presentation 4th (of 96 teams, event common to all classes)  
Cost and Manufacturing 10th  
2nd place in the virtual Lap Time Simulation

### **Formula Bharat 21**

Engineering Design – 1st  
Procurement Strategy 1st  
Software & Intelligence 3rd  
FMEA 3rd  
Team Management 5th  
Overall 1st

### **FSUK 20**

1st position for Engineering design, 6th in Cost & Manufacturing overall 4th position internationally awarded the Formula Student award five consecutive times.

### **Formula Bharat 22**

Won the Business Presentation Event and System Intelligence Event  
2nd in the Cost Event and Business Presentation Event at FSUK '09  
first electric Formula Student Vehicle.





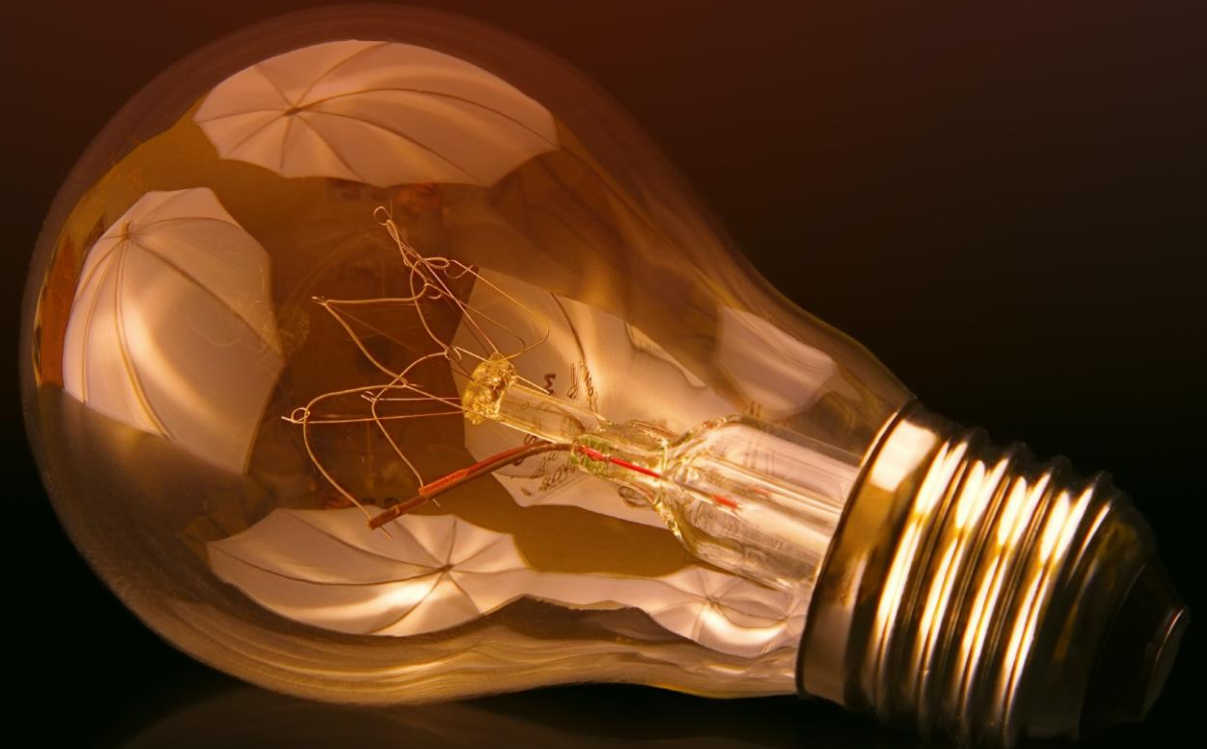
# OUR FUTURE PLANS

We are all equipped to move from a steel tubular space-frame chassis to a carbon-fibre-based monocoque chassis this season while simultaneously working on next-gen driverless technologies. With the world moving towards automation, we are moving on from the EV space to the DV space and will soon be releasing a driverless car, rolling out tentatively by 2024. With this car, we would be participating in multiple autonomous competitions in Europe.

We have 12 dedicated design engineers currently working on various driverless technologies like:

- Deep learning-based Perception
- Simultaneous Location and Mapping (SLAM)
- Path planning and Motion Control
- Control Systems

And going forward for the coming year, our immediate goals are to manufacture and test our car comprehensively and get it ready before the FS competitions. We have also planned to launch our vehicle, tentatively in January for which dates will be fixed soon.



# COME JOIN US

Together, we can create the most effective and efficient automobile IITB Racing has ever produced. At IITB Racing, we appreciate help in any way, whether it comes in the form of monetary support, equipment, manufacturing services, or suggestions and consultation. In order for us to design our car from the ground up and produce it, our partners are essential in providing the services and components we require.



## Technical Collaboration

The key to our success has been extensive and thorough testing of the vehicle and its components; to enhance this further, we use our highly developed data logger to record and document everything. We are pleased to provide our sponsors with our findings and any gathered data for additional analysis, improvement, and consultation.



## Access to Special Team Events

You can attend a number of exclusive events by working with us. These could include test days, our yearly car reveal, expositions that we attend and open houses at our lab and campus. We are also open to displaying our car at company events to exhibit the work our team does to your employees and staff.



## Marketing & Networking Possibilities

Our partners are provided with ample marketing opportunities including but not limited to, logos on the livery of our car and team kits, shout-outs on our social media channels and website and promotion on our magazine, Milestone. In addition, our sponsors will be permitted to put up booths at events and expos, giving them a variety of chances to meet with other partners and our driven and entrepreneurial students.



# OUR SPONSORS



AUTODESK.



TATA MOTORS



TESLA



# CONTACT US



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