

Team Sovereign Report 2018-19

Baja SAE is an international intercollegiate competition powered by the Society of Automotive Engineers (SAE) where engineering students are encouraged to design, build and race off-road vehicles that can withstand rugged terrains.

The 12th season of Baja SAEINDIA 2019 was held between 23rd & 29th January, 2019 & was organized at NATRIP facility, Pithampur, near Indore. A whopping bulk of 400 teams accounting from IITs, NITs, RECs and private engineering institutions, had registered for this season of Baja SAEINDIA, out of which 50 teams were participating in E-BAJA category and out of which only 48 teams qualified to manufacture their proposed design. However, only 28 teams could make it to the Endurance round.

Team Sovereign's proud ATV- DIABLO, ATV for BAJA 2019 was an eye candy for the event and it gained laurels in various errands of the competition. Not only did it manage to turn heads due to its sleek finished looks but it also earned respectful pats from the jury events for its pure performance.



This was our second year participating in the event. We had rectified all our failures we faced last year and had a better, robust and sturdy buggy this time. Our main focus was on facing every obstacle and provide best performance. The vehicle is powered by a 48 V DC battery and a BLDC motor of having 6 Kw with a controller. The maximum output of the motor is 4500 RPM having 90A of nominal current. The battery has a capacity rating of 110Ah. The low voltage system is run at 12V which is obtained using a DC-DC converter having a 15A peak current.

Dimensions of the vehicle

Dimensions	Front	Rear
Overall Length, Width, Height	(84.64") long, (62.1") wide, (56.7") high	
Wheelbase	(63")	
Track Width	(55.1")	(53.14")
Curb Weight (full of fluids)	240 kg	
Weight Bias with 70 kg driver seated	30%	70%
Weight with 70 kg driver seated	96 kg	224 kg



Features

The main outlining feature of out this year's ATV was the State of Charge, Voltage and Current measurement system. A dedicated Printed Circuit Board was made for this purpose which would display the measured values in the dashboard of our vehicle. For enhanced safety a MCB was added having a rating of 200A that would trip as soon as the current went over limit

One of the main safety features that the vehicles nowadays lack is the distress button which will decrease the response time to any sort of emergency. The distress button would send the vehicle location, registration plate number and the contact number to the emergency number. It will enhance the safety of the passengers.

Overall Performance

The team stood overall **AIR 12th** among the teams participated in the E- Baja edition and **completed 7th in the final endurance race**. Team performed well in the statics event also bagging

1. **3rd position** in design evaluation.
2. **8th position** in sales presentation.
3. **17th position** in cost presentation.

