



GUJARAT
TECHNOLOGICAL
UNIVERSITY



EVENT REPORT

SUPRA SAE INDIA 2017



Against all Odds !

Against all odds I will survive
despite whatever you're thinking
For I've been through this before
even at times when I've been sinking

Because I've learned many lessons
Earned the hard way and thus I'll say
Before my peers I'm standing tall
because I'm more than ready to play

Against all odds and look at me now
I've been beaten yet finds that hope
A hope that when my days are done
I've found many ways learning to cope

So who's going to speak up right now
telling me that I can't do this or that?
As a testament of perseverance here
let me tell you friend...just where it's at

We are all tested daily and it sure hurts
Nevertheless we must drop our facades
Everyone is capable of being something
Achieving victory when you survive against all odds !

-- Anonymous

To the future Teams & everyone associated with GTM17

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Acknowledgements:

Team GT Motorsports - Formula Student Team GTU would like to thank everyone involved in this year's project. Without the significant contributions made by our alumni and sponsors, the students, staff and faculty of Gujarat Technological University & L. D. College of Engineering, the program could not be made possible this year. We would like to individually thank the following people for their continued support:

Prof. (Dr.) Navin Sheth (Vice-Chancellor, GTU), Mr. Bipin J. Bhatt (Registrar, GTU), Hiranmay Mahanta and Prof. Mazar A Shaikh to believe in students and supporting them from the very inception. Dr. G. P. Vadodariya, Principal L. D. College of Engineering for allotting dedicated workshop for the Team, Dr. G. H. Upadhyay, Head of Department, Mech. Engg. Dept. LDCE, & Prof. R. J. Jani, Head of Department, Automobile Engg. Dept. LDCE, for their kind and generous support to the team by letting students work in the Workshop 24x7 and test the vehicle within the campus. You were always a motivation. We would like to thank our alumni Devak Bhardwaj for his extended and immense support to the team. Also, it was under his mentorship and guidance that the team performed well in the event.

A huge thanks to Staff of DesignTech at Siemens – Centre of Excellence, LDCE for their support in Training Students in CAM & CAE and allowing us direct access to 3D printing facilities. Silver oak College of Engineering & Technology & Vadodara Institute of Engineering & Research for providing us with manufacturing facilities. Kaushal Bhavsar, Pratikar, for mentoring and web support. Gajjar Industries to part sponsor the laser cutting and bending for different parts used in car. Welltex to part sponsor the laser cutting for different parts. Shore Rubber, Pune to sponsor the team with cooling tubes. Schroth Racing Shorai Power to sponsor LiPoFe Batteries for the car. Wilwood Brakes & Goodridge to part sponsor the braking system for the car. Solidworks to give technical Support & its licences for CAD. Hoosier Tires, easy Composites UK, JSS, Rcad, NTS Graphics etc.

Thank you.



Image 01: Team GT Motorsports with GTM17

Formula Student (FS)/FSAE

What is FSAE?

Formula SAE® is a student design competition organized by SAE International (formerly Society of Automotive Engineers). The first competition was started back in 1979 after Mark Marshek, then at University of Houston (Texas) contacted the SAE Educational Relations Department in 1978 to discuss adding a variant event of the Mini Baja; the name Mini Indy was founded. As many organizers have found, the work in building a car can be exceeded only by that to organize the event; 1980 failed to produce an organizer. Having seen the potential of the event, Mike Best, Robert Edwards and John Tellkamp, students at the University of Texas at Austin, approached Dr. Ron Matthews with an idea - how about another Mini-Indy, but with some changes? Make the rules more open; let it be as unlimited as possible. It was desired that this new competition would take the cars to the next level of engineering. The Baja competition was great for chassis design, but many students wanted to work on engines as well. The new rules would keep engine restrictions to a bare minimum. Any four-stroke engine was allowed for the first four years with power limited by a 25.4 mm intake restriction.

With grass roots support from his students, Dr. Ron Matthews contacted the SAE Educational Relations Department and set the wheels in motion. To differentiate this new event from the Mini-Indy, a new name was sought. To reflect better the road-racing nature of the event and its increased engineering content, the Formula SAE name was adopted.

The concept behind Formula SAE is that a fictional manufacturing company has contracted a design team to develop a small Formula-style race car. The prototype race car is to be evaluated for its potential as a production item. The target marketing group for the race car is the non-professional weekend autocross racer. Each student team designs, builds and tests a prototype based on a series of rules whose purpose is both to ensure onsite event operations and promote clever problem solving.

Formula SAE promotes careers and excellence in engineering as it encompasses all aspects of the automotive industry including research, design, manufacturing, testing, developing, marketing, management and finances. Formula SAE takes students out of the classroom and allows them to apply textbook theories to real work experiences.

As a student, taking part in Formula Student gives them the chance to demonstrate their technical, engineering design, and manufacturing skills. They will also learn important lessons on team working, time management, project management, budgeting and presentation: all things that any prospective employer will be looking for. Formula Student graduates also find that the professionalism they gain as practicing engineers means they are well equipped for their future engineering careers.

The team is tasked to produce a prototype for a single-seat race car for autocross or sprint racing, and present it to a hypothetical manufacturing firm. The car must be low in cost, easy to maintain, and reliable, with high performance in terms of its acceleration, braking, and handling qualities. During the competition, the team must demonstrate the logic behind their proposal and must be able to demonstrate that it can support a viable business model for both parties.

Today, the competition has expanded and includes a number of spin off events. In the United States, there are two locations: California and Michigan; Michigan being the largest event and longest running.

India and Formula Student:

FSAE/FS started in 1981 in United States of America under the Society of Automobile Engineers. It took 30 years for a team from India to get to that platform and showcase Indian Engineering at such an event. FSAE/FS is all about learning and experiencing what it will be like to work in real world scenario, thus the most important lesson is to learn from yours/others previous mistakes and ensure you do not repeat them. Some of the first teams to be formed in India were:

1. Defianz Racing, Delhi College of Engineering - 2002
2. Ashwa Racing, RCVE, Bangalore - 2005
3. Orion Racing, K. J. Somaiya, Mumbai - 2007
4. Formula Manipal, Manipal University - 2008

By this time there were a few participations from India in various parts of the globe. Till then there was no good show by any Indian team at such a major event. Reasons were still unknown but a lot of teams were to follow the path shown by these few teams. Orion Racing India and Ashwa Racing were making better progress than other teams, but their progress went upto the mark to deliver a car which could compete against the Universities from Germany or USA.

With Consecutive failure of Indian Teams an International Judge, Pat Clarke once posted over FSAE forums; “In a discussion with Steve Fox on how our 1st car will be if we were Indian team, we concluded that we would build a car that would pass all the requirements, would finish all events and would not finish last for just 2000\$. It would not be pretty and it would not have any unoptanium or unavailabilium on it. It would roll on street wheels and Tires but it would ROLL!!!!”.

This was the start of a new Era with students now having an inspiration and a goal for how the 1st car should actually be. On the other end an affiliate body to SAE International, namely SAEINDIA after the successful start of SAE India BAJA, started their discussion on having an Indian Version of the International FSAE Competition under the Name ‘SUPRA (Super Racing) SAE INDIA’. After a couple of meetings and discussions on frame work, safety and flow of the event, hard work of Prof. Sudhir Gupte & SAE India President Mr. M. S. Kumar first ever Indian Formula Collegiate Series Competition took shape. The 1st Virtual SUPRA was organized in 2009, where 28 teams participated final race event was held at Madras Motorsports Race Track, Chennai in 2011. The event was not totally compliant to the International Rules but served as a good platform for young teams to get in. Supra SAEINDIA was highly criticized for being unsafe and uneducated because of its framework and not meeting up the standards of other FSAE/FS events internationally. Here was where Indian ‘Jugaad Engineering’ was challenged to be converted into ‘pure engineering’. Some took the ownership to perform better and started working on the same but on the other end No. of teams rose up exponentially and the same issues continued. No successful car yet.

After nearly 10 years, in 2011, the team IIT Roorkee Motorsports developed a car and represented India in FSAE Australasia 2011 competition held in Melbourne, Australia and became the first ever car from India to complete the 22 km endurance race, The team also stood 1st in Efficiency.

Over the years there were some good engineered cars going to international events like UK, Germany & Italy. Teams like Orion Racing, Pravega racing, Formula Manipal, Raftar Formula racing, etc raised the Indian flag internationally. Pravega Racing, Vellore was the first team to grab awards at an international event. 3rd in Manufacturing and Cost Event, FS Italy-2012, 2nd in Manufacturing and Cost Event, FS Italy-2013. This was just the beginning, students of India hope to see a podium finish by an Indian team soon in the near future. In, 2017, the 1st season of FORMULA BHARAT with 73 teams from across India took place at Kari Motor Speedway, Coimbatore in the month of January. Seeing the concern issues with Supra SAEINDIA the international competition (FSAE/FS) was also introduced to India under the name Formula Bharat (FB). The event followed the strict norms of international rulebook and proved to be a good learning experience to teams which could not travel to these foreign destinations. After US, India is the second country to have two such events happening in a year.

In July 2017, the 6th edition of SUPRA SAEINDIA 2017 was held at Buddh International Circuit, Noida from 26th June to 1st July where 126 teams from various engineering colleges from all over India had participated. 111 teams had registered onsite with their vehicles to participate in the event.

The Team:

GT Motorsports - Formula Student Team GTU is a state level collaboration between 18 colleges spread across Gujarat state. These colleges share physical and intellectual resources by using advanced communication-technology to create a highly competitive vehicle. The supply chain management is unique in Formula Student and very important at that point.

Team Structure:

Because the GT Motorsports Team is a co-operation of many colleges it needs an efficient organization structure behind it. Rather than act as competitors at the events, resources are pooled and the skills of the colleges combined. Design, production and testing will take place at various campuses. GT Motorsports is divided into teams including: Management, Powertrain, Body, Aerodynamic and Suspension. These Teams are split again in different sub-teams. These sub teams are visualized in the graph.

For this type of collaboration, it is imperative that each sub team involve students from varied interests and use all the human resources available to meet design and manufacture deadlines. Image 02 shows how the Team Structure was formed.

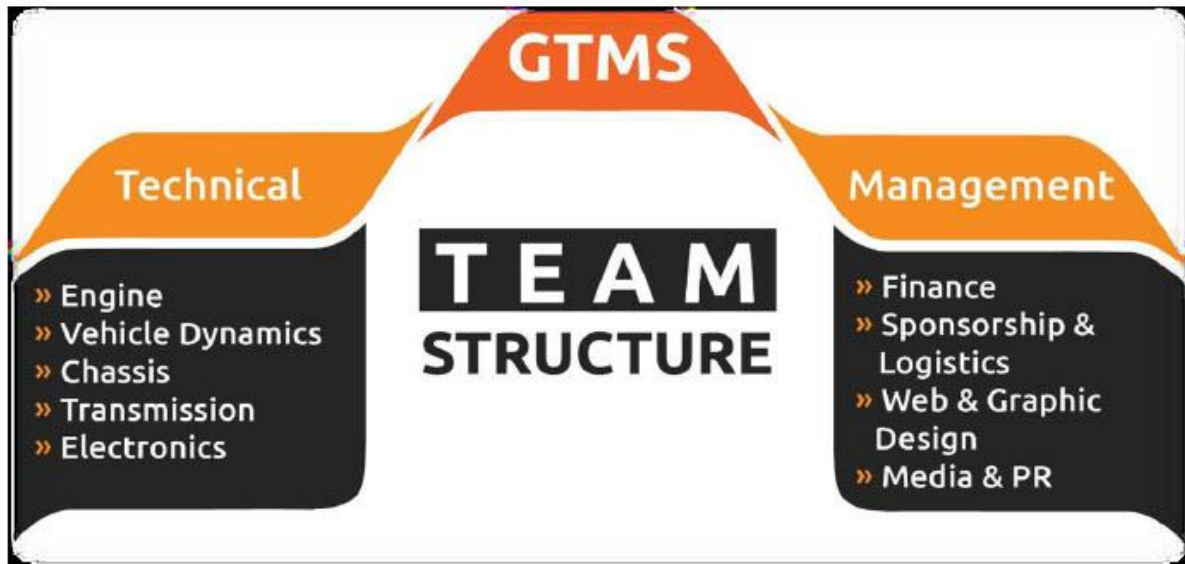


Image 02: Team Structure

Team List:

Sr.no	Name	Designation
1	Kishan Thakkar	Team Captain/ Design Head
2	Unmit Parmar	Driver
3	Luvneesh Dubey	Powertrain
4	Sunil Kumar	Electricals
5	Edwin Jiji	Treasurer
6	Kushal Panchal	Manual Machining
7	Jesal Vadwala	Business Plan
8	Sanjay Chettiar	Business Plan
9	Parth Kansara	Procurement
10	Ankit Solanki	CAM
11	Aagam Shah	Inventory
12	Sarthak Hirani	Inventory
13	Neeraj Kadam	Driver/ Procurement
14	Pranav Anand	Brakes
15	Chintan Agarwal	Cost Report/PR
16	Bhuman Patel	Cost Report
17	Ketan Bhavsar	Cost Report
18	Krupesh Prajapati	Brakes
19	Krutharth Pathak	Drivetrain
20	Devak Bhardwaj	Faculty Advisor

Main Event: SUPRA SAEINDIA 2017

Buddh International Circuit, Greater Noida, Uttar Pradesh

Date: 26th June, 2017 (Day-0):

It was an early morning for the team GT motorsport it was the day for registration and pit allocations at the event site. The team was well on time at the site as the bus picked them just at the right time from the hotel. The registration process began soon and the team captain and one of the team member registered the team and collected the Kit (event handbook, lanyards, I-cards and food coupons) provided by the event organizers. 19 team members of GT Motorsports registered at the event site. Out of the 126 registered teams, 111 had made it to the event site for onsite registration process. It was 10:00 AM and the team had successfully completed the registration process. After the registration was done the team was allotted a pit (according to the team categorization), wherein the team was supposed to setup their car and the required tools. Everyone onsite was busy helping their respective teams to set up their car and the pit as well as taking a tour of the track. The vehicle bearing truck was at the venue at 11:30 am and was ready to be unloaded. The tedious task of setting up a flourished mini workshop at the pit was accomplished by the joined efforts of the team members. All the bits and pieces were arranged and shelved as per the requirements. It was 1:30 pm then and the exhausted team members had lunch at the site. The pit was now set up and the only task that trailed was to unite all the parts of the vehicle that were brought into pieces or got loosed up during the transportation. 6:30 pm was the closing time as per the schedule and the task to get the vehicle 'Technical Inspection' ready was very well fulfilled. The bus picked the team from the event site and dropped them to the hotels by 9:00 pm. The dinner was on the table when the team had gone through refreshments. The Day ended at 10:00 pm when all team members were summoned for a meeting to discuss the strategic approach for Day 1.

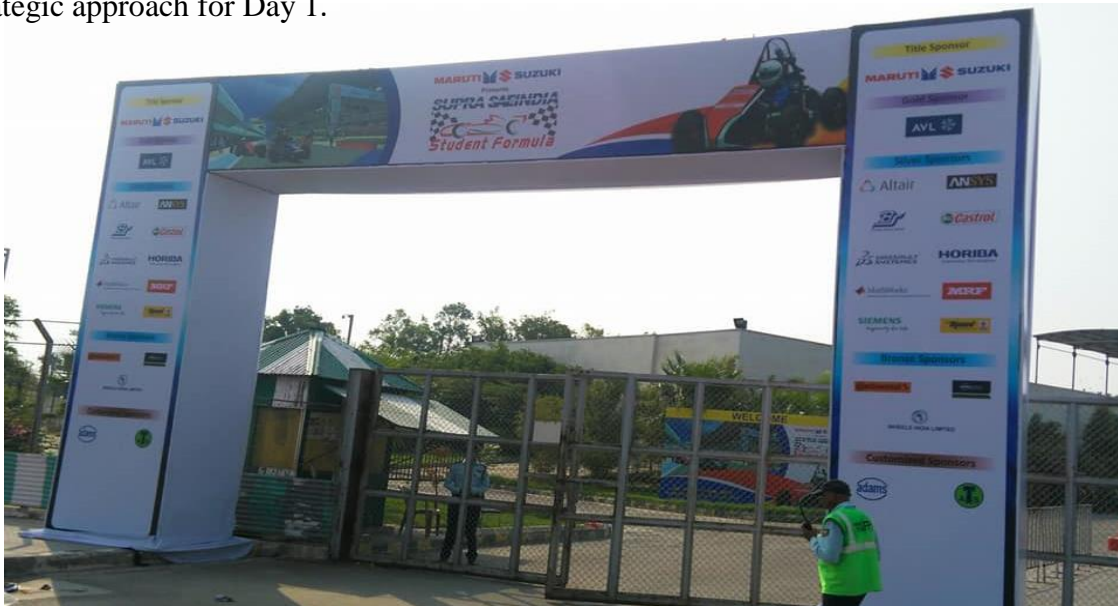


Image 03: Main Entrance Gate

Date: 27th June, 2017 (Day-1):

The team got up early and were all prepared for the technical inspection day 1. The bus was called early at 7:00 AM and the team reached the circuit by 8:00 AM. Day 1 of the event started off with the tech ready car teams lining up for the technical inspection, which is the very first test which every team has to clear before it moves on to the next test, in front of the 4 bays wherein the technical inspection was to be carried out. There was a splendid atmosphere at the event site as all the teams present were engrossed in their preparatory work. The work hierarchy was predefined in the previous day meeting and in the team meeting in the bus by the team captain, so all minor tasks and adjustments were taken up as soon as the team reached the pit, without any delay. Around 11:00 am the team lined up in the Technical Inspection queue. The members with all the required tools and extra sets of equipment along with the vehicle made themselves present at the technical inspection bay. The design lead and the technical team confronted the judges for any explanations or reasons while the other members waited before the pit.



Image 04: First Technical Inspection Attempt

Problems pointed out during the first attempt:

- There should be a minimum clearance of 25mm between Anti-Intrusion plate and reservoir mount (Any non- crushable object).
- A minimum of two threads should project behind critical fasteners in the accelerator pedal stop.

- There was a larger opening in the firewall near the lap belt mounts than required.
- The team were instructed to replace the plastic T- connector with a metal one (Fuel filter should be all metal).
- Replace side panel cable ties with rivets.
- The rubber boot covering the rack should be secured with metal clipping.
- The orange color was blemished at some points on the jack bar.

Solutions of the problems:

- Washers were inserted between the reservoir mount fasteners.
- The bolt was replaced and the direction of insertion was reversed.
- The gap was sealed using an aluminum plate.
- The connector was replaced.
- Rivets were fastened after removing the cable ties in side panel.
- Cable ties were clipped on the boots.
- The jack bar was repainted.

The team was honored to be motivated by the Chief Advisor of SUPRA SAEINDIA, Mr. Sudhir Gupte Sir. The time was 5:30 PM and the vehicle was once again ready to be moved for the inspection but as the official closing time for the day was reached our inspection was rescheduled for tomorrow. The team tired of the day moved back to the hotel by 9:00 pm. A meeting was called and the plan for the static events was discussed, as the static events of the team were scheduled for the next day.

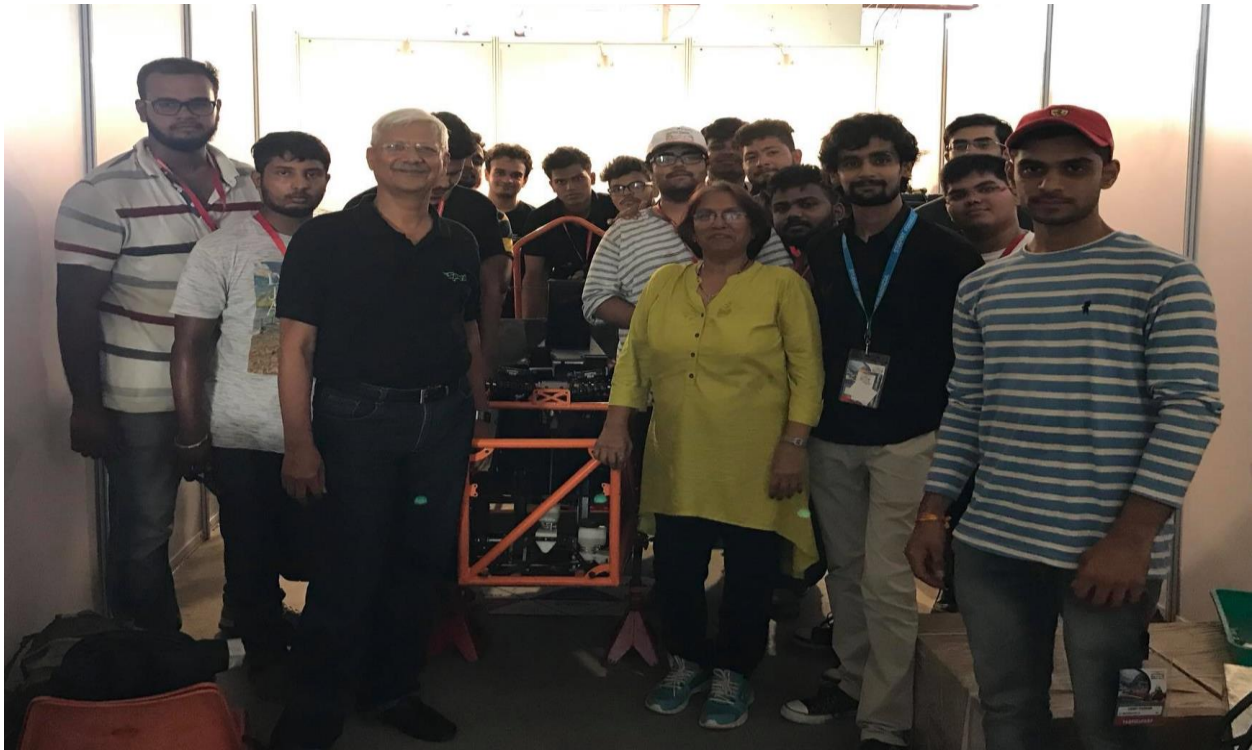


Image 05: Team GT Motorsports with Mr. Sudhir Gupte Sir

Date: 28th June, 2017 (Day-2):

It was the second day of the event, Day 2 was the day from which static events began. The team's Business Presentation event was scheduled at 10:00 AM and the Cost Event and Design Event were scheduled at 3:00 pm and 3:30 pm respectively. Also, it was the second chance for the team to clear the technical inspection. The time was 9:45 AM and the business presentation team presented themselves before the judges while the vehicle was moved to the technical inspection bay. Here in, a few team members have to present a proposal, in front of a panel of judges to lure the investors to invest in them in order to start the production of their car on large scale. Two members of GTMS had appeared in front of the panel of judges and presented their business plan. The business presentation started well when one of the presenter explained all the marketing strategies and plant layout while the other member tackled all the finance related predictions. The presentation took around 15 minutes and ended even better as the judges found no errors to counter.

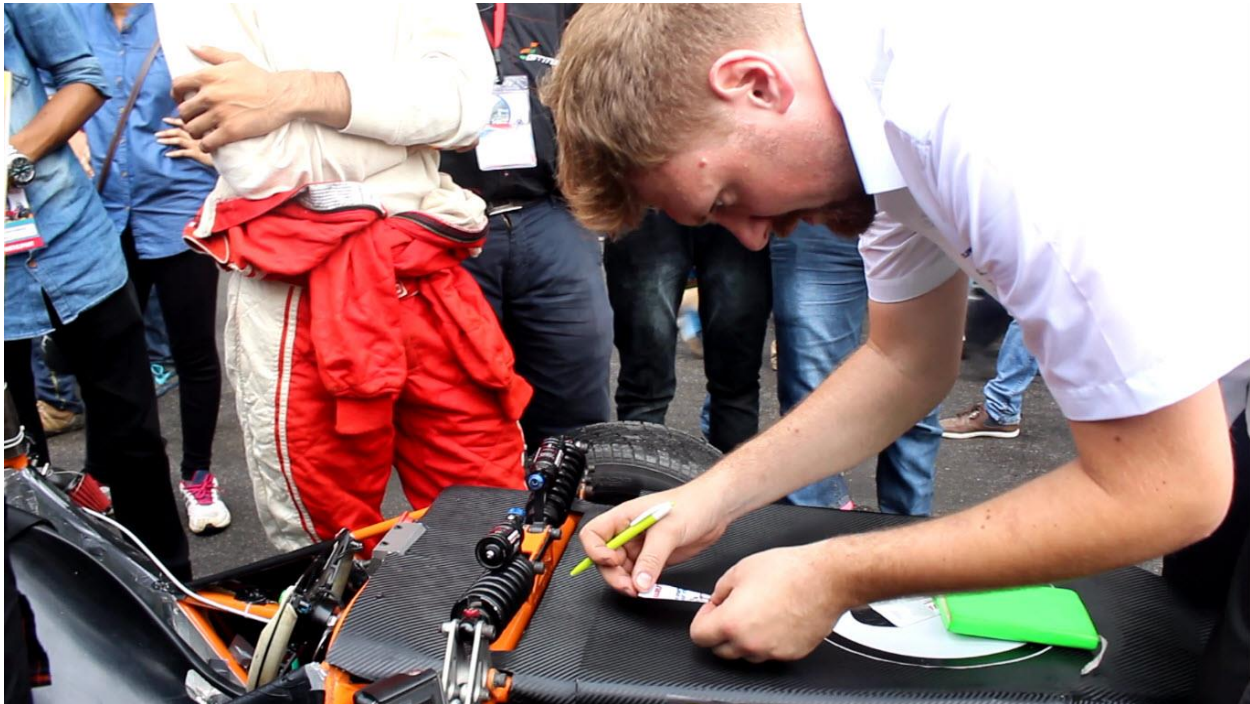


Image 06: GTM17 getting the Technical Inspection Sticker

1:00 pm was the lunch time and the team members had their lunch. Short time after that when an announcement brought a sense of cheerfulness on the team's face. The announcement was as follows: ***"Team no. 34 GT Motorsports has successfully cleared technical inspection"***. The time flew in the celebrations and soon the cost and design presentations were to start. The assigned team members reached the static bay with the vehicle. First was the cost presentation, and the cost report was presented before the judge. The team was asked to verify the Engine and Drivetrain data before him. Further after the presentation of the cost by the students it was now the turn of the judges to check if the participants have considered all the minute cost details of the car. Details as precise as cost of bolts used to mount the Seat, to the cable ties used to pack

the wires together were asked for in the cost event. To the team's confidence every detail was found correct and the presentation ended with the compliment as being one of the best cost presentations of the event.



Image 07: Team at Cost Event

The cost event was followed by design presentation. In the design event, the motive is to check the knowledge of the students about the design of the car. In the design event, the evaluation of the designing knowledge of members of the team was evaluated and later the feedback was provided to the team, where they need to focus for further improvement of the car.



Image 08: Team at Design Event

The lead design members explained all the design aspects of the vehicle making the use of reports and computer data. The design judges were quite impressed with the team and the static session ended at about 3:45 PM. The GTM 17 was then moved to the fueling area where it was fueled up.



Image 09: GTM17 at Fuel Filling Area



Image 10: GTM17 on weighing scales

Then the car was moved to the weighing area where the weight of the car was checked. The GTM17 weighed 208 kg and was one of the lightest cars. Then the car was taken for tilt test where the car was mounted on a tilt table and the harness was tightened around the Main Roll hoop of the car so as to prevent car in case of roll over, and the car was tilted at 45 deg and then 60 deg from the horizontal and the car was checked for leaks. During this attempt, no leaks were found and the GTM17 successfully cleared the Tilt Test.



Image 11: GTM17 at Tilt Test

It is 4:30 pm and the vehicle was taken for the noise test. The vehicle was arranged on the setup. But to the team's misfortune the engine didn't start even after multiple attempts. The issue couldn't be identified on that day so the vehicle was again pulled back to the pit and were left with the alternative to try next day. The team returned to the hotel with the electrical team still thinking for a solution. The team desperately needed a clue.

Date: 29th June, 2017 (Day-3):

The morning was not as much cheerful as it used to be. The team reached the event site at 9:00 AM and soon the search for fault source started. A short lapse from then the member found a broken connection in the starter switch. It was rectified and an attempt was made to crank the engine. But to the team's grievance there was something else too that was not right. All the team members' hope and spirit seemed draining as all their hard work and struggle appeared in vain. At last the sun shone bright and another fault connection was found out at the fuel injector. Whew! The engine started.



Image 12: Noise Test Setup



Image 13: GTM17 getting the Noise Test Sticker

In the Noise Test the engine is fired and noise level of the car @7500rpm is measured. The noise in any scenario should not exceed 110db. The GTM17 in its first attempt measured 108db and cleared the Noise Test. Thereafter, the team went to the dynamic area for the Brake Test, where in, the car is supposed to get all its 4 wheels locked simultaneously. The GTM17

cleared the brake test in 1st attempt. The first team to do so. By clearing all the mandatory test team awarded with complete technical sticker.



Image 14: Brake Test first attempt



Image 15: GTM17 getting the Brake Test Sticker

The vehicle was now moved on for the dynamic events. Team GT motorsports was the third team who cleared all the tests at that time. First attempt for the acceleration was made with a time of 5.76 seconds. After that there was dry Skidpad test. Both the drivers were ready and two simultaneous attempts were made. It was 4:00 PM then and the team moved on for the Autocross event. The two attempts were 1 min 57 seconds and 1 min 58 seconds respectively. The day's closure was near so the team finished its remaining attempt for the acceleration. The second attempt was inferior clocking 5.9 seconds. The team successfully completed all the dynamics events with the closure. It was the first time in history of the team GT Motorsports that the team has cleared all the statics and dynamics events two days prior to the Endurance. It was the time for some rest that night and the next day too.



Image 16: Autocross Event



Image 17: Skidpad event

Date: 30th June, 2017 (Day-4):

The time was 8:00 AM and the team was still in bed. The bus had left early from the hotel and it was on the team to arrange for its own transport. The atmosphere was good with light rain showers. The ambience boosted team's spirit to further fine tune their preparations. The team reached the event site at 11:00 AM. There was nothing much to do except some error and loose checks. While the other members went on to other teams to understand their design and learn something new. The team got an opportunity to think of racing aspects that had not been possible in the history of the team may be due to lack of time. The team members especially the juniors took maximum advantage to interact with other teams and understand their vehicle aspects while they were busy trying to clear the tests and participate in as many dynamic events as they could before the day ended. 1:00 PM was the lunch time and was a nice time for all the team members to gather and plan on nontechnical prospects such as preparations for print and media. All the auxiliary tasks such as applying decals and stickers to enhance vehicle appearance was accomplished. The drivers went for the drivers briefing session where they were introduced with the final track. The team returned the hotel early at 8:00 PM.



Image 18: Dynamic Event Area

Date: 1st July, 2017 (Day-5):

The final day started even early when the drivers meet was scheduled at 7:30 AM. Both the drivers and other team members reached the event site on time to do the final touches on the GTM17. The endurance was scheduled at 11:00 AM. All the 32 teams who qualified for the endurance were called to form a line up for the fuel filling. The team members took their positions and started setting up cameras to record the event from as many angles as possible. The main grandstand was full with emotions and excitement and adrenaline. The heart pumping music and the clamor just adds to the beauty. The teams' vehicles were then arranged for the photography session. It was just sheer pleasure to see our vehicle parked in style in the front row. The whole atmosphere justified the name "The Grand Stand" to be called so and after that two groups of 16 cars were formed as it was not possible for 32 cars to run on the track at a time.

The GTM17 was allotted the 4th position in the second slot, i.e the GTM17 had to start from position 4. Before the GTM17 went for the lineup there was a small issue with the judges regarding the mount of the GoPro (used for recording videos) and after discussion with the judge he allowed the team to use the mounts for the GoPro if they made it more rigid using aluminum tape. The GTM17 was taken inside the pit where the tyres were changed from wets to racing slicks. During this time, the first slot of 16 cars performed their Endurance run. The Endurance race comprises of a 22km race among different cars with the track being restricted to some 6ft and to check the driver's capabilities various hurdles in form of Zig-Zag pattern were designed in the race. Each team is supposed to complete 22km run on the track in order to successfully complete the Endurance Race. Along with that, teams are supposed to get their driver changed after completion of 11km Soon it was time for the cars in the second slot to perform their Endurance run. All the 16 cars lined up in the position instructed to them.

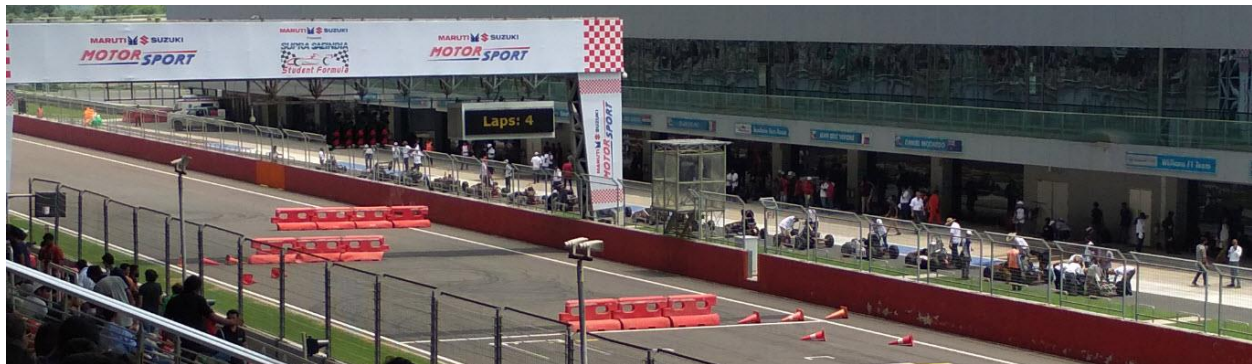


Image 19: Lineup for the Endurance

The race was started off by the officials by the releasing balloons in the air. The GTM 17 started on position 4 in the second slot with the first driver in the seat who overtook 2 other cars on the track before returning to the pit for the driver change. All the other cars too returned to their pits for the driver change and took positions in the lineup according to the standings after the first driver's run. With the second driver in the seat and starting from position 2, the second driver got past the vehicle ahead in front in the second last lap. Now all he had to do was

maintain his position in the race without allowing anyone else to overtake. He performed his duty well and returned to the pit after the last lap in position 1! The crowd was cheering the name of GT Motorsports for their performance in the Endurance.



Image 20: GTM17 going for the lineup



Image 21: Marshal performing Safety Check

After the Endurance event was over there was a post endurance inspection by the judges on the cars, to check whether the cars have no leaks or damages. No leaks or damages were found in the GTM17 and from there it was taken to the pit with members of other teams congratulating the drivers and the team captain and clicking photos of the GTM17 on the way. The team also got a visit from 2 of the alumni of the team who had reached there to boost the energy of the team for the endurance.

Soon the packing phase started to pack all the items in the boxes so that the whole team could enjoy the felicitation ceremony peacefully. The packing was going and soon an announcement was made for all the participants to gather in the seminar hall for the felicitation ceremony. The team reached the hall just as the ceremony was about to start as they had to complete the packing. The team settled down together at a place in the left corner of the hall as the hall was already full. The ceremony started soon with the stage anchor welcoming all the dignitaries, judges, participants and the volunteers.



Image 22: SUPRA SAEINDIA 2017 Award Ceremony

One by one the anchor started calling out the names of the teams who had won in the respective fields and asked them to come to the stage and collect the trophy and the cash prize. The team was waiting in a pretty curious mood that when will the name Team GT Motorsports be announced. The name of the team who had won the award for **Best Vehicle Appearance Award** was announced and it was “Team GT Motorsports”. The GTM 17 was the best-looking car of all the cars that had participated in the event. The team had just settled down after coming back from stage after they received the 1st trophy and soon the name Team GT Motorsports was called out again. And this time it was for the **Engineering Excellence Award**. After that the names of the team who had won in different static and dynamic events were called out.

Now, it was time to declare the endurance vent winners and the team was confident to bag this prize and yes, they did **Endurance 1st** Team GT Motorsports. And the team was in a celebration mood after they won 3 prizes as it was for the very first time that they had won any prize in any event. Now the overall winners were being announced and the team was in a state of mood that they may get the 2nd prize but to their surprise when the **Overall Winners** name was announced, it was the name Team GT Motorsports!!! The team bagged the title of National Champions of 2017 by becoming the Overall Winners of 2017 season along with 3 other prizes and a trophy and cash prize for each award. After the ceremony was over the team clicked photos with the judges of the event and the team captain was interviewed by one of the media person who was covering the whole event. After the celebration in the hall, the team went back to the pit and invited the team Stallion Motorsport for a photo with both the cars and the team.

Then the team moved back to the pit and started working on packing the last few boxes so that they could be loaded into the truck as soon as it arrived. The truck arrived a bit late and as soon as it reached the team members started loading the truck with the boxes and the GTM 17. After the loading was done, the team left the event site, bidding adieu to the Buddh International Circuit where they became the National Champions for the first time.



Image 23: GTM17 with the trophies

Lessons Learnt:

1. Do not listen to people who say you can't do it.
2. A Motivated team can overcome highest bureaucracy.
3. Don't Stick with Plan A for the event site. Consider Contingencies and Keep a backup plan ready for possible Breakdowns.
4. Stay Updated with the rulebook. There can be slight changes in the rules each time and can cause serious damage.
5. Hard work always pays off. Don't lose hope till the last moment.
6. Keep the whole team intact. Stay in touch with senior members and carry along the juniors with you.
7. Documentation. Each and every minute details should be documented and maintained well be it Design Decisions, Fabrication, Marketing or Management.
8. Focus evenly towards Static Events along with the Dynamic events. They can cause a huge difference in overall Standings. This is an Engineering Design Event and not a Motor Racing Event. Focus more on learning than Competing.
9. Practice makes a Machine Perfect. Test the Vehicle in similar track conditions. All failures must happen in the testing phase only. More Testing will give you more data for improvements.
10. Segregate the Cost Report into multiple parts and mark the Key Components for easy access during the presentation.
11. Dedicate few Students for Static Events well in advance. They are Cash points no matter how your car is you can score maximum in this.
12. Don't get carried away. Follow protocols strictly and ensure safety.
13. Every part including the last NUT & BOLT must be modelled in CAD.
14. Launch Event must be decided a month in Advance. Proper management to be ensure by the team. Don't miss out on any detail. Invitations to be sent in person and follow up should be taken.
15. "Straight Trees are cut first". Avoid Bureaucracy of any level and authority. You might have a good intention but it can go other ways and shoot against you.

Areas of Development for 2017-2018 Campaign for Team GT Motorsports.

Below mentioned is a list of problem statements or new areas where the team will be working and need helps from other faculties and Industry:

1. Design & Development of Engine Air Intake System for Formula Student Vehicles.
2. Design & Development of Engine Exhaust System for Formula Student Vehicles.
3. Mathematical Modelling of Engine for better understanding & simulation of designs.
4. Development of light weight and high Thermal Efficient Water cooling system for KTM 390 engine.
5. Understand and implement new age materials like Plastics and Composites in Manufacturing of vehicles.
6. Understand and implement modern Race Car Aerodynamics to upgrade performance of the vehicle.
7. Train Students on Computer Aided machining & Gain hardware help from industry for the same.
8. Understand and learn various Load Case Scenarios for Analysis and Validation of designed components.
9. Design and develop a custom wiring harness for the vehicle.
10. Custom ECU Programing and Engine tuning using an Engine Dynamometer.
11. Live Time Data Acquisition for Engine & Vehicle Performance.
12. Design & Development of Electro Pneumatic or Electro-Magnetic Gear Shifter for the vehicle.
13. Incorporating Tyre Data for deriving actual load cases acting on the vehicle.
14. Developing a functional simulation of Aerodynamic package which will include front wing, rear wing and diffuser. This will further aid in achieving higher cornering speeds.
15. High weight reduction in outboard department by reducing rim size and tyre size. Thus, decreasing the unsprung mass.

The University has always believed in commending the students to inspire them to scale greater heights so, a felicitation was arranged by the University on 10th of July 2017 at 1 PM at the Secretariat, Gandhinagar to honor the members of the team who claimed the title of National Champions. The Hon. Minister of Education welcomed the team members along with the Hon. Registrar of Gujarat Technological University and Hiranmay Mahanta Sir with a small note. The Vice-Captain of the team Unmit Parmar gave a small introduction to the Hon. Minister regarding the team, the events they participate in and the car they build. The Team Captain, Kishan Thakkar gave a note regarding the achievements and the titles the team achieved in the event. This was followed by felicitating the team members who attended the event and were a part of the team with a Certificate of Appreciation from Gujarat Technological University. After the felicitation was done the team and all the other dignitaries got together for a photo which has later printed, framed and presented to the Hon. Minister by the Registrar of the University.

Later on the team sat down for a small discussion with the Hon. Minister. The Hon. Minister again appreciated the team for their efforts and stated that it was a matter of pride for the whole of Gujarat and this was for the first time that a team, comprising students from 18 different colleges from Gujarat had achieved this feat. The genesis of the team, the journey from 2014 to 2017, past achievements, how the team sustains the legacy etc. were the topics of the discussion. At the end, he personally as well as on behalf of Gujarat Government encouraged to do the hard work done by students. He also honored the team by commenting that the team has set a good example for the other engineering students in Gujarat. The Registrar whole heartedly accepted that Gujarat Technological University will bear all the expenses of the team. The team bid adieu to the Hon. Minister with a note of keeping up the performance in the upcoming events also.



Image 24: Team GT Motorsports with Hon. Education Minister