



THE SPARTAN RACER

GO GREEN! GO WHITE! GO FAST!

NOVEMBER 2020



Team Updates

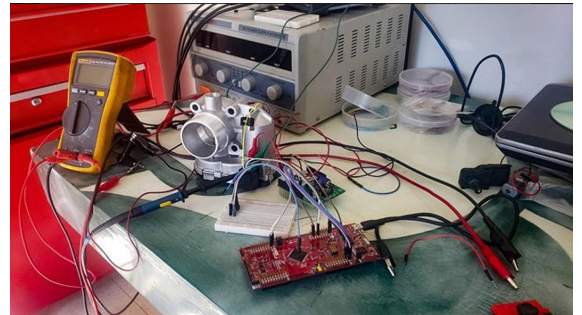
The thrill of a new design

With 2020 being the beginning of a redesign year, each subsystem is excited for all the new changes possible to the platform. One of the most drastic changes the team made was the switch from a three-quarters monocoque to a half monocoque. The monocoque is the largest and most complex part of the chassis. The change was primarily made due to driver safety and overall vehicle packaging requirements, but will also allow the team to repurpose the monocoque in future years if an FSAE Electric Vehicle (EV) team is formed. With the growing presence of EVs in the automotive world, it would be a privilege for MSU to have its very own Formula Electric organization.



The SR-20 the night before Florida

Along with the introduction of a half-monocoque design, the SR-22 will be longer and wider than the SR-20 before it. This change will bring aero, cooling, and packaging benefits to the new car and allow the team to develop new technologies that were previously unachievable.



A picture of the new ETC board being tested

Other development updates

Alongside the chassis, track width, and wheelbase changes, the team has spent plenty of R&D time on vehicle electronics. A few members on the team made it their mission to add electronic throttle control (ETC) on SR-22. The incorporation of ETC onto the vehicle will allow the team to program custom throttle curves and implement more advanced throttle control features. Development started by conducting a failure mode and effects analysis to assist in high-level design of the system. Currently, the team is working on developing the hardware and control software needed to drive the electronic throttle body. The ETC system will be validated on a test bench and on the team's dynamometer before being implemented into a vehicle.

The team has also started recruiting new members and teaching some of them NX, a 3D modeling program. While remaining remote, recruits are still actively learning about their preferred team subsystem and will be taking on projects of their own very soon.



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Featured Team Members

Name: Michaelangelo Parkinson
Role: Aero Manufacturing Lead
Hometown: Farmington Hills, MI
Major: Mechanical Engineering
Class Standing: Sophomore
Year on the Team: 2nd



What does the Aero Manufacturing Lead do?

In my role, I use software such as Hypermesh and ANSYS to test how our airfoils deflect. With this data, I can figure out where I can lighten our package while keeping the rigidity necessary for our aero package to work. Along with that, I research ways to refine and speed up our manufacturing process

What is your favorite team experience?

My favorite experience so far is spending my Winter break manufacturing the car. Nothing brings people closer together than working non-stop for 3 weeks. You'll become best friends with each other in no time!

What hobbies do you have outside of FSAE

I love to Sim race. On top of that, to exercise the creative side of my brain I write scripts for my favorite forms of media and why they are important for everyone to experience. I also play the guitar mainly focusing on fingerstyle tracks

Name: Bhanu Makkapati
Role: Oil Team Lead
Hometown: Canton, MI
Major: Mechanical Engineering
Class Standing: Sophomore
Year on the Team: 2nd



What does your role of Electronics R&D Lead entail?

As the Oiling Team Lead, I manage the design, manufacturing, and validation of the dry-sump oil system on our car. The system is built upon three major components including the pan itself, an external oil reservoir, and an engine-driven scavenge pump.

What is your favorite memory from your time on the team so far?

My favorite memory was traveling to Florida for Spring Break to test our vehicle for the first time. Most of my year was spent building that car, so seeing it pushed to the limit was unforgettable.

What places have you interned at?

This past summer I was an intern at Applied Materials in San Jose, CA where I was in charge of an R&D team that specialized in material testing and optimization of Physical Vapor Deposition instruments. To be working at the amazing atmosphere of Silicon Valley was an experience like no other.



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Featured Team Alumni

Name: Jeff Schmitz
Hometown: Sterling Heights, MI
Degree: BS Mechanical Engineering
Years on the Team: 1997-2005
Roles: Project Manager and Steward
[LinkedIn Profile](#)



What were your roles on the team?

I was initially recruited as the Chief Engineer of the team for my senior year. I quickly split the historic leadership of the group in two – Project Manager and Chief Engineer.

How did you contribute to the advancement of the team?

As Project Manager I wanted to make MSU the best FSAE team in Michigan. What resulted was a lifetime passion for improving the experiences for fellow MSU students. Due to some aggressive fundraising and a productive meeting with the Dean of the College of Engineering our team had the supplies and support needed to build a great car. In our 1997 competition, we achieved our best finish to date with 2nd in presentation and 10th overall. We also received our first Sportsmanship award from our peers – we did not know there was such an award which made it even more special. After graduation I stayed close to the program, mentored the next few Project Managers, sponsored the finances of the team, was a proponent of college credit for team projects, a founding member of the Cloud endowment and remained the steward for MSU for nearly a decade before moving out of the state. Now I stay as close as needed so continued generations of Spartans can gain the amazing experience of participating in MSU FSAE.

What are your favorite memories from the team?

There are a lot, but if had to choose three:

- 1) Tearing up after seeing MSU compete in the endurance event.
- 2) Having my air density project approved in 2003 moving us from 9th to 3rd place!
- 3) Dr. Cloud... enough said.

What is your current professional role?

I am the Senior Director of Commercial Operations/Product Lifecycle Management and Program Management at the Hershey Company.



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Featured Sponsors



Name: Atlassian

Location: Sydney, Australia

Atlassian is a software development company that creates applications for project management, team organization, and agile development. One of the tools that Atlassian makes is Jira, a widely used task management and organization web application. With our team's sponsored Jira license, leaders can easily create goals and tasks, assign work to an individual task, and keep track of overall team progress. After the team went to fully-remote operation, the need for better task management was evident, which is why Jira has been an incredible asset to our team.

When the team returns to the shop, members will be able to view a main task board via Jira that will display all tasks required to meet a particular team goal – whether that's competing in California or another routine testing day.



Name: General Motors

Location: Detroit, Michigan

General Motors has been pushing the limits of what is possible in transportation and technology for the past 100 years. GM is hard at work preparing for an all-electric future and with the unveiling of Factory ZERO, an assembly center manufacturing and producing EVs right in the heart of Detroit, they are well on their way to this goal. While this mission is difficult, GM is dedicated to a clean future, and with plenty of team alumni working for GM, it is safe to say MSU FSAE believes in GM's mission as well.

GM has been a platinum-level sponsor of the MSU Formula Racing Team for many years, and without their generous financial contributions, the team would not be at the level it is today. We thank General Motors for their continued support.



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