

# THE SPARTAN RACER

AUGUST 2022

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## Completing SR-22

The team has been working hard these past couple of months, and finishing SR-22 has been the main goal for everyone. Since April, the progress has been unbelievable, with the entire car being manufactured and assembled since then, the team is looking to have a strong fall full of testing.

The team climbed a large, uphill battle over the next couple of weeks, working as hard as they could to prepare SR-22 for competition. The amount of progress in such a short amount of time was Unbelievable!



The team pushed as hard as they could, assembling nearly the entire car. Unfortunately, there was simply not enough time, and the team called off assembly the night before MIS. However, the team was still incredibly proud of their hard work, and it was amazing to see the work that everyone put in over the final 2 weeks.

## Fall Recruitment

Fall recruitment is always an exciting time of year. With August 31st being an action-packed day of the Engineering colloquium in the morning, midday team pic-

tures, and then Sparticulation to end the day. Freshman and Sophomore engineering students attended the Engineering Colloquium, where they could meet different en-



Meet your 2022-2023 MSU Formula Racing Team!

gineering-centered student organizations at MSU, and see SR-22 up close and personal.

The team stopped by the Sparty statue on campus for team pictures and headshots before setting up in Cherry Lane Field alongside the Solar and Baja racing teams for Sparticulation. Here, all students at Michigan State had the opportunity to meet the team, learn about how they can



SR-22 drawing a crowd at Sparticulation

contribute as new recruits, and see SR-23 up close and personal. The team even had the chance to start SR-22 up a few times to draw the attention of anyone passing by.

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The day ended with over 200 recruits signed up and ready to attend the team's introductory meeting on September 14th. That will quickly be followed up by system introduction meetings the following week and then an exciting 1st shop visit at the end of the month or in early October!

## Pittsburgh Shootout

Despite a slow and simple first drive for SR-22 the team had a desire to compete and made the trek to the Pittsburgh International Race Complex for an autocross shootout against a handful of teams from the US and Canada.

The team passed technical inspection on the first night, promptly followed by the brakes test the next morning. Everyone



SR-22 Queued up for a lap at the 2022 Pittsburgh Shootout

was eager to see the car throw down some laps and see SR-22 pushed to its limits for the first time. After a slow shakedown lap for the weekend's driver, Nicholas Coubard, to learn the track, he was ready to

tear up the track in SR-22 and show off ev-



everyone's hard work. The team had a great time on Saturday, and for the second time ever driving, SR-22 ran nearly flawlessly. With only a couple of dead batteries and a single issue on the final lap of the day, the team had a very successful weekend. Placing 14th out of 24 teams, and 10th for internal combustion cars! SR-22 was also the quickest car without an aerodynamic package! With a successful weekend at Pittsburgh, the team is now focused on maintenance and lots of testing as the fall semester rolls around.

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**Name:** Sam Evans  
**System:** Electronics  
**Hometown:** Frankenmuth, MI  
**Major:** Electrical Engineering  
**Class Standing:** Senior



### What are you most excited about for this upcoming racing season?

I am most excited about our R&D/test bed manufacturing for our EV tractive system this year! EV has always been an interest of mine, but now I get to finally get a project where I can dive deep into the projects. Specifically, I am finding the accumulator design to be challenging, but a topic that has very much drawn my interest.

### What do you find most challenging about being a member of the team?

The most challenging part I have found of being a member of the team is the time commitment. When I first joined the team, I was very hesitant about whether I would stay as a team member. Thankfully, the time requirements at the shop slowly increased, so it gave me time to figure out my time management skills.

### Do you have any professional work experience? If so, where have you interned? (give a brief description of your role and accomplishments)

This past summer I was an intern at Textron System on their Air Systems team. I was given multiple projects throughout my time there, but my most memorable project was assisting in bench testing of VTOL electric motors. I learned a lot, and I am applying those skills on the formula team. I am also currently interning at Pratt Miller Engineering, and I have already been given a multitude of fun projects. Those projects entail reviewing wire harness schematics and designing a procedure for bench testing a couple of components meant to go on their products.

**Name:** Cameron Hesano  
**System:** Chassis, Operations  
**Hometown:** Lake Orion, MI  
**Major:** Mechanical Engineering  
**Class Standing:** Junior



### What are you most excited about for this upcoming racing season?

I am most excited about the design and manufacturing of the new electric vehicle, being able to build the first electric car for the team is going to be a historic moment for us and I look forward to being a part of it.

### What do you find most challenging about being a member of the team?

Throughout my years on the team, one of the most challenging things I have seen has been time management. While balancing a job, school, and the team has been challenging learning to manage my time wisely has been invaluable.

### What are some of the accomplishments you are most proud of since joining the team?

I am most proud of designing and manufacturing the ergonomic system last year, being able to see my creations come to life and work how intended was very rewarding and motivating.



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**Name:** Abhyuday Rastogi  
**Hometown:** New Delhi, India  
**Degree:** B.S. Mechanical Engineering (2022)  
**Years on the team:** 2020-2022  
**Roles:** Dyno & Calibration Lead (2021-2022)

### What is your favorite memory from the team?

My favourite memory on the team would be seeing (and hearing) the engine run on the dyno stand for the first time after redoing the oiling system multiple times. Also getting the dyno mechanically functional (only for a little bit) after spending a lot of months on it.

I also loved our pizza nights and the late night shop conversations and inside jokes.



Abhy taking SR-20 out for a spin during new member drive

### What is your current professional role? (include a short description of what this role entails)

I am currently working as a Powertrain Software and Calibration intern for Mercedes-Benz Research and Development North America. The team I am currently on is responsible for In house software calibration functions for the engine control module (ECM) and Central Powertrain control module (CPC). I am responsible for assisting the engineers on the torque coordination, sensors/actuators and thermal management sub teams. I am also responsible for some hardware in the loop simulations for these teams (HiL). Currently, I am also creating a training page for the entire powertrain

community in North America which includes training for software/tools used by the teams and technical training for each subsystem (emissions calibration, drivability, in house SW, SW coordination etc.)

I am now pursuing a master's degree at Uni-



Abhy and fellow leads watching SR-20 drive for a strong 3rd place finish at the 2021 Pitt Shootout

versity of Michigan where I will focus on automotive controls while working part time for Mercedes-Benz R&D.



Abhy learning how to review vehicle data during testing days



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**Name:** Altair.

**Location:** Troy, Michigan

Altair is an American information technology company that was founded in 1985 in Troy, Michigan, they are still headquartered there today. The company was founded as an engineering consulting firm, before moving into the computer-aided engineering(-CAE) industry with its various software.

Altair has countless different software that is applicable in many different engineering applications. Some of their most well-known products include HyperWorks, Monarch, Altair CFD, OptiStruct, and HyperMesh(the primary Altair software used by MSU Formula Racing).

Altair has been a huge help for Michigan State Formula Racing when it comes to composite design and manufacturing. Using Altairs software, HyperMesh, the team has been able to run simulations on many composite parts of the car. This aid has allowed everyone to optimize their systems to the maximum capability. Altair's support is greatly appreciated by the team and their kindness is always welcomed.

**Name:** Magna

**Location:** Aurora, Ontario, Canada

Magna International was founded by Frank Stronach in 1957. The company operated in various industries until 1981 when Magna sold its aerospace and defense divisions to focus on the automotive industry.

Now, Magna operates in many different realms of the automotive industry, supplying parts for various automotive manufacturers. Magna also recently announced a partnership with ridesharing service, Lyft, where they agreed to supply various kits to give normal cars self-driving capabilities.

Magna's help to the team is greatly appreciated by all members. With their monetary donation, the team has the flexibility to search for the best, highest-performing parts to aid in the transition to an electric vehicle platform for competition in 2024. Overall, Magna is a great partner to have, and their presence as an automotive supplier in Michigan is always an exciting aspect.

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