



# THE SPARTAN RACER

## GO GREEN! GO WHITE! GO FAST!

MAY 2021



## Team Updates

### *Knowledge Event Finals*

Late last month, the team attended the SAE Knowledge Design Event where the team was judged on specific sub-systems and the overall system integration. After the initial presentation, the team was awarded one out of eleven spots in the final presentation round. After finals, the judges awarded the team fourth place in design, and fourth place in static events overall, which is a major accomplishment given that the team has not had access to a vehicle in over a year.

The team competed in different design sections such as system integration, safety, body, and aerodynamics.

While only fifteen leaders were allowed to participate, the presentations were recorded so that the rest of the team could review them at a later date.

### *Update on Shop Access*

Over the past few weeks, team leadership has been working closely with university administration to converge on a solution that would allow for team members to resume working on this year's vehicle. As the plan moves forward, team members are proactively completing and refreshing university safety trainings required to work in campus laboratories.

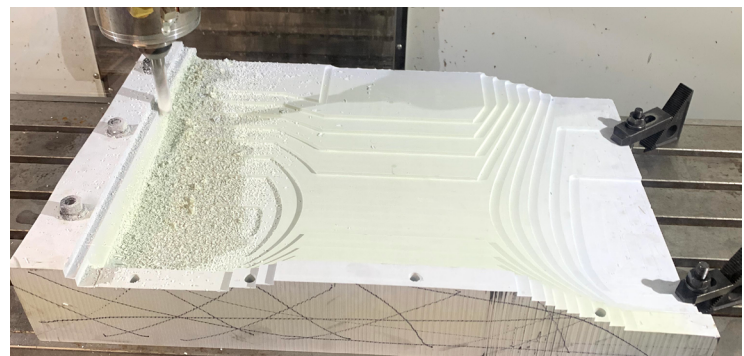
Additionally, new team members are currently being taught how to use the shop machinery. When the time comes, the team will be ready to hit the ground running.

## Manufacturing Continues

While the shop remains closed, a small group of system and project leads have been manufacturing as much of the car as possible utilizing the university's Manufacturing Teaching Laboratory (MTL).

Even with limitations on manufacturing, the team continues to use the resources at its disposal to produce as much of the car as possible and stay on track with the vehicle's design and manufacturing schedule.

As seen below, aerodynamics molds are being CNCd to prep for carbon fiber layups. The aerodynamics package is the last piece of the puzzle needed to complete SR-20.



## Team Elections

Later this month, chief engineer and graduating senior, Nick Kopec, will oversee team elections. The team will have the chance to decide on a new leadership structure, and new team members will be given the opportunity to run for elected positions. These elections give the team a chance to grow and promote important knowledge transfer throughout the year.



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## Featured New Members

**Name:** Ryleigh Turner

**System:** Chassis

**Hometown:** Dearborn, MI

**Major:** Mechanical Engineering

**Class Standing:** Junior



**Name:** Noah Benson

**System:** Powertrain

**Hometown:** Bloomfield Hills, MI

**Major:** Mechanical Engineering

**Class Standing:** Sophomore



### Why did you choose to join Michigan State Formula Racing?

I chose to join Michigan State Formula Racing because, growing up, I have always been interested in cars and it seemed this team was a great way to learn the process of designing and building a car.

### What is your favorite part about being a member of the team?

My favorite part about being a member of this team is how much I have learned this year. I was able to get a lot of great feedback during the office hours and I also really enjoyed hearing about all the other projects during design team meetings.

### Why did you choose to enroll at Michigan State University?

I chose to enroll at Michigan State because my mom is a Michigan State engineering alumni and worked at Ford, so I've always dreamed of being an engineer at Michigan State like her and working in the automotive industry.

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

If some of the covid restrictions get lifted, I would say next year I am most looking forward to seeing more hands-on participation in the vehicle. I am also looking forward to meeting all the great people on the team.

### Why did you choose to join Michigan State Formula Racing?

I have participated in FIRST robotics for most of my life. FIRST is the main reason that I am pursuing an engineering degree now and the main reason that I joined Michigan State Formula Racing. After graduating high school, I felt like I had way too much free time on my hands after spending nearly every day at my team's shop. This led me to reach out to the formula racing team here at Michigan State and ask how I could get involved. One thing led to another and I was able to work with many new people on the formula team and expand my knowledge far past what I had learned in FIRST.

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

For this upcoming season, I am most excited to meet the team. With the current pandemic, I have not had an opportunity to meet everyone and interact with them face to face. From what I have seen in meetings, everyone seems incredibly knowledgeable and welcoming. All the current members also have a very deep passion for the team and it is clear that they will work as hard as they can to ensure the team's success. I am so excited to work together with everyone and build a formula car!



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## Featured Alumni

**Name:** Alex Johnson

**Hometown:** Oxford, MI

**Degree:** B.S. Mechanical Engineering (2018)

**Years on the team:** 2014-2017

**Roles:** Powertrain Team Leader (2016-2017)

Driveline Project Leader (2015-2016)

Powertrain Team Member (2014-2015)

### How did you contribute to the advancement of MSU Formula Racing?

My biggest contribution would be the part I played in the development of the in-house engine dynamometer we had at the shop, then more specifically, the spark table we were able to update from its use. I was able to create a Design of Experiment (DOE) to aid in determining the spark plug's ignition timing for Maximum Brake Torque without providing any engine knocking. The table was validated in the car and used in competition.

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

My favorite memories on the team all revolve around the places we have traveled as a team including Florida to test the car on spring break, the cross-nation treks to Toronto, Canada, and even the vast cornfields of Lincoln, Nebraska. My favorite of them must be one of our trips to the Toronto Shootout where we achieved the fastest lap time of the day.

### What is your current professional role?

I now work as a Battery Thermal CAE Engineer at General Motors. My job responsibilities include assessing coolant flow evaluations and transient thermal analyses on our high voltage battery packs by the development of physics-based virtual/CAE models.



### How did your experience as a member of MSU Formula Racing help to shape your future?

My time spent in FSAE contributed to where I am today and my foreseeable future in many ways. Aside from the CAE software's we used on the team which directly relate to my current profession, I developed useful critical thinking and problem-solving skills that should be in the mindset of every engineer. Seeing a project through from start to finish includes developing time management, technical, personal, and many more skills. I have not gone into one interview without talking about my experience(s) on the team. Also, from a personal standpoint, many of my friends today were all member of the FSAE team.



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## Featured Sponsors



**Name:** Alro Steel  
**Location:** Jackson, MI

Alro Steel is a metal, plastic, and industrial supply distributor. One thing that sets Alro apart from other distributors is their extensive processing options; ranging from waterjets, lasers, precision sawing, and more. With over 25,000 customers and counting, Alro continues to exceed both their customers' and our expectations.

With their online store, cut to size metals, and next day delivery, the team can always rely on Alro to provide us with quality custom cut materials.

Alro has recently supported the team by supplying most of the aluminum and steel that is required to complete SR-20. Since 85% of the vehicle is student designed and manufactured, having a supportive sponsor like Alro is critical to the team's continued success.



**Name:** Engineering Student Council  
**Location:** East Lansing, MI

The Michigan State Engineering Student Council (ESC) is an engineering student organization that represents the students of the College of Engineering. The ESC also acts as an umbrella organization for numerous engineering clubs across Michigan State University.

The ESC has supported the team in many ways; such as acting as a bridge between the team and the administration, managing college wide engineering events, boosting team membership, and generously providing some of the funds necessary to purchase parts and supplies that the team is unable to get sponsored.

Thanks to their continued support, ESC enables the MSU Formula Racing Team to focus time and energy into areas of competition neglected by others, as evident by the team's great success in the virtual SAE Knowledge Event this year.



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