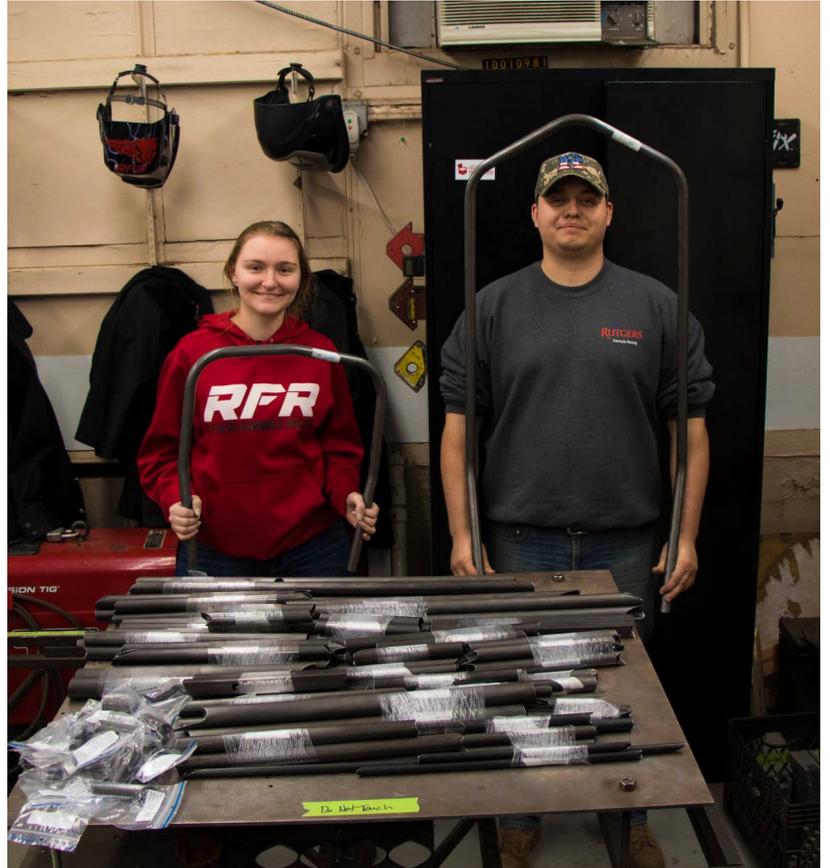


A THANKFUL TIME OF YEAR



Thanksgiving weekend was a wonderful opportunity for team members to both refresh and reflect. We'd like to thank every donor who helped contribute to our crowdfunding campaign, which came to a close on November 30th. The team raised \$4,425, all of which will go directly to stock and materials for the 2019 race car. This time of year is an especially appropriate time to thank all of our sponsor and donors. Our success would not be possible without your generosity. From our tables to yours, happy thanksgiving!

GETTIN' 'JIGGY' WITH IT



Chassis tubes are in and jig-making is well underway! Jig pieces and towers are the structures that keep the chassis in place during the tacking and welding process. Stay posted for progress on the 2019 chassis! A special thanks to Cartesian and VR3 for cutting and notching our chassis tubes. We appreciate the swift delivery and manufacture will start soon!

LOOKING AHEAD TO COMPETITION SEASON



The team is excited to announce that the RFR 2019 is registered for FSAE Michigan as car #55 and FSAE North as car #34. RFR is 2nd on the waiting list for FSAE Lincoln, so expect to see RFR as car number 6 in Nebraska this summer!

Last season was the first time in several years that the team competed in three competitions. This year, all three competitions will be FSAE official! Formula SAE North, formerly Formula North, is now an official competition organized by the Society of Automotive Engineers (International).

FORMULA SAE MICHIGAN

TECHNICAL SPOTLIGHT

Aerodynamics

Early this season, the aerodynamics subteam sought to reduce the weight of wing elements by investigating alternative rib materials. These materials included 3D printed plastics and a carbon fiber laminate in place of aluminum ribs. After running simulations and tests, the aero members chose to construct ribs from a carbon fiber laminate and to distribute them in hollow wing elements. In order to precisely manufacture the ribs, the aero members considered using a CNC

router or waterjet. Aluminum inserts were placed into the ribs so that they could be mounted onto the car. As a final test, the aero subteam developed a prototype hollow rear wing element using carbon fiber ribs and tested them on the car during a drive day. During the testing, the wing, ribs, and inserts did not fail due to stress. By performing extensive tests, the aero subteam was able to reduce the weight of aerodynamic components by 52%.



*Written by Nasef Junaid
Composites Lead, Class of 2020*

Powertrain

As a first-year powertrain lead, the most common advice you'll receive is "Don't change the engine your first year, work with what you already know"; an unknown engine will naturally lead to more risk and requires a lot more effort. Well, naturally the first thing we did when I got the position was purchase a brand-new engine, a KTM 450 SX-F better known as 'Katie'. One of the things I was most concerned about with our new beast was being able to tune it to control a comfortable idle while optimizing the potential power in transient states. The engine's tune is only as good as the data acquisition

methods being utilized to send various signals to the car. Because of this, we are taking significant measures to improve the quality of our engine's tune while simultaneously improving reliability. For example, last year's air intake had an unreliable throttle position sensor and relied on single pressure and temperature sensors far from the actual engine. This year we will be building our own 3D-printed throttle body, increasing the volume of the geometry, and using a combination of sensors in various locations in order to collect more valuable data.



*Written by Anthony Rodrigues
Powertrain Lead, Class of 2021*



Rectangle
HEALTH

NISSAN

JAKTOOL



SIEMENS



3M



MAJESTIC HILLS, INC.



YAMAHA



LASERDESIGN

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