SHEFFIELD FORMULA RACING

NOVEMBER NEWSLETTER

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YOUSSEF ELESSAWY
EDITED BY ZOE PAPADAKOS

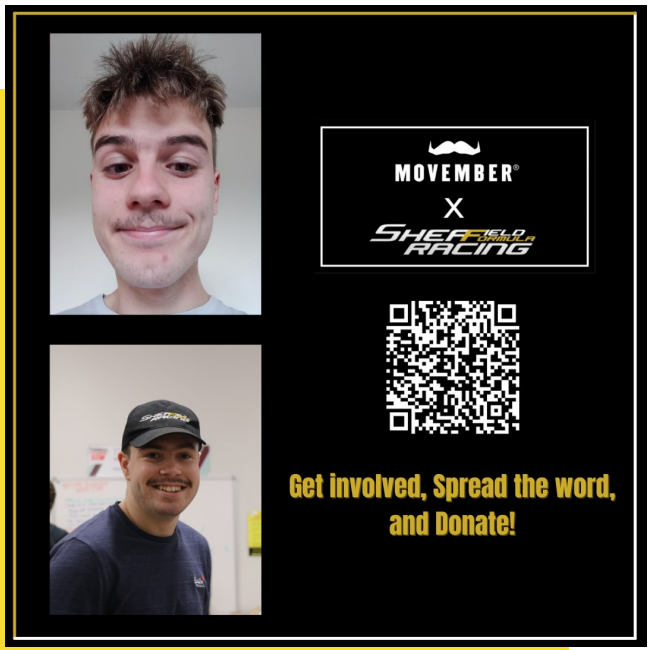
1st Year Integration

It's that time of year again, time to welcome our new recruits! After a long and challenging recruitment process, we are proud to welcome 15 of the best engineers Sheffield has to offer - it's a shame we can't accept more into the SFR family.

The successful 'freshers' get stuck straight in, being allocated to one of their preferred sub teams where they're taught the Siemens NX CAD software. They're then given a smaller, but vital, project to work on and help the rest of the team.

However, getting to this point wasn't easy for them. The application and selection process is long and arduous, designed to test applicants on their technical knowledge, team working skills, and to gauge their enthusiasm.

We'd like to thank all applicants for applying this year, as an outstanding 230 people applied for 15 places and it was no easy job narrowing it down.



Movember

This month SFR grew some crazy facial hair in support of Movember and raising awareness for men's mental health. The fundraiser aims to reduce the rate of male suicide by 35% by 2030, and we would love all the support we can get to help with this cause. So far this month we have only raised £20, but there is still time to help us reach our goal — **scan the QR code to donate and help a good cause!**

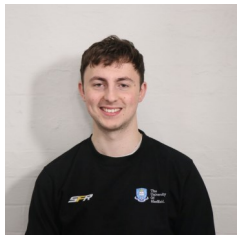
Our New Recruits


Edward Melvin


Max Dawson


Sam Coffey

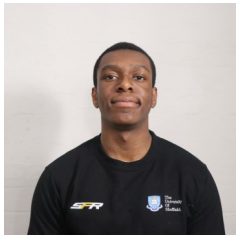

Matt Parkes


Toby Brown


Edward Priestly


George Brown


Edward Davenport


Daniel Hazel


Luke Malcom


Alex Macwaters


Stuart Hassall


Kaitlyn Henden


Tobias Smith


Alexander Waldron

Design Review

Recently SFR undertook the first design review of the year, where all parts are reviewed by the technical director to check performance and give the designers feedback.

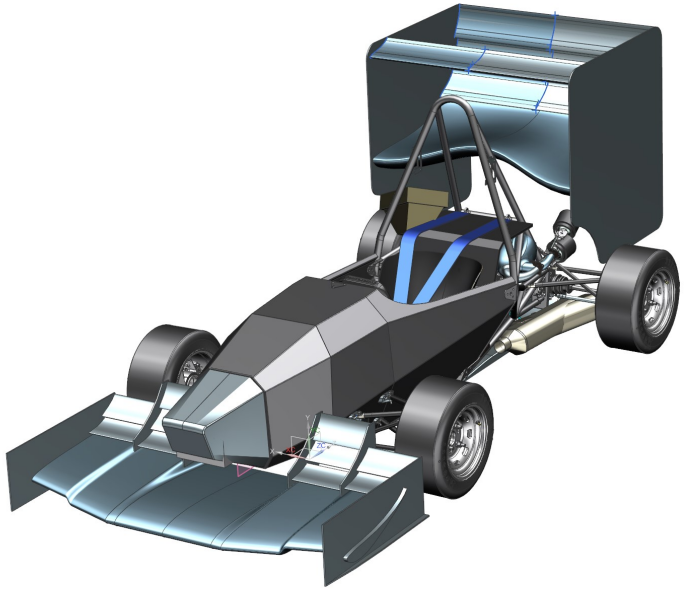
The main focus of this year's efforts is our monocoque chassis. Having stuck with a spaceframe design since the birth of SFR in 2010, and having just claimed the title of FSUK Champions, the team feel now is a better time than ever to make the leap! Whilst maintaining some safety by only having the front of the car made of carbon fibre, the efforts of 2 years of research and development will hopefully significantly reduce the weight of our (competition winningly light) car.

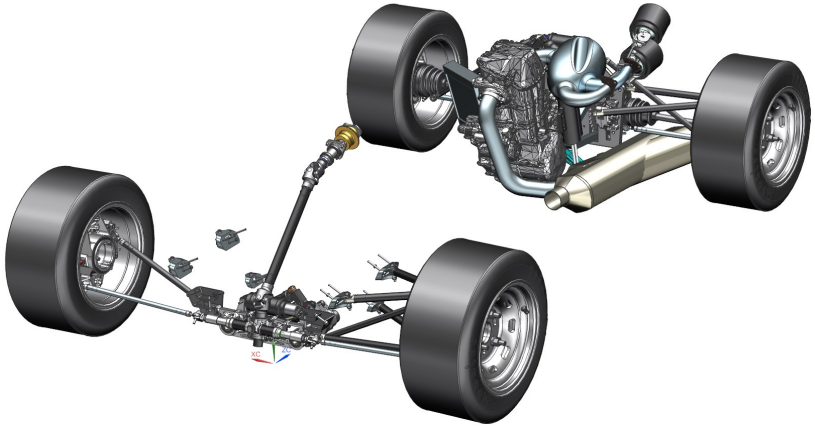
The monocoque will be made by 'laying-up' sheets of pre-preg carbon fibre into a mould, after which it will be placed into an autoclave where the resin in the carbon fibre can cure and set the chassis into position. Whilst not only being lighter, the stiffness of our chassis should also increase, due to the Young's Modulus (a material stiffness property) of carbon fibre being significantly greater than that of the existing (good ol' Sheffield) steel.

For the Aerodynamics sub-team the focus of this year is adding in a diffuser to the design. A diffuser is an underbody tunnel that, if done correctly, generates large amounts of downforce. Downforce is the vertical force which gives the car additional grip in cornering, meaning the driver can turn at much greater speeds. This will also be made from prepreg carbon fibre and cured in an autoclave.

The Powertrain and Vehicle Dynamics team are full speed ahead with their components, having designed a lot of their components already and are now in the process of refining. Vehicle Dynamics are work hard on creating carbon wishbones this year and are working on repackaging a lot of the suspension components to work with the new carbon monocoque. The same can be said for the Engine Systems sub-team, who have completed many CFD simulations to crack a new and improved cooling system.

With design season in full swing, we can't wait to begin manufacturing and show you, our readers, the end result!





Sponsor Showcase

stratasys

Stratasys is an international engineering company that specialises in industry-leading additive manufacturing technologies. Stratasys works with global leaders in various industries, from aerospace and automotive, to innovative medical startups. Stratasys have been a proud sponsor of Sheffield Formula Racing for several years now and have helped us with various high-precision components over the years such as aero elements, aero internals, and our SLS printed steering wheel.

Stratasys is constantly innovating and pioneering additive manufacturing technologies and offer a wide range of solutions for clients including: SLS (Selective Laser Sintering), Stereoliphography, MJF (Multi Jet Fusion), and SAF™ (Selective Absorption Fusion). They also offer conventional manufacturing methods such as: CNC machining, injection molding, and Urethane casting.

This year we plan to continue our work with Stratasys to produce custom fitted CV boots (a cover around mechanical joints made from a flexible rubber) for our drivetrain components. Additionally, we plan to manufacture various aero components with Stratasys including ribs and spars for aero package internals which will be at a high finish accuracy. Last year they provided the Aerodynamics team with the front wing elements, manufactured using FDM 3D printing, meaning we could have a complicated geometry that would be difficult to manufacture with carbon fibre. They provided great downforce to the drivers, with them saying “We could really feel that front wing sticking to the ground!”

A big thank you to Stratasys for their continued support especially through COVID-19. We are grateful for our partnership and hope to strengthen it further in the upcoming years.

Our steering wheel for the FSUK 2021 winning car, SFR10B, was SLS printed thanks to Stratasys.

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iForge
MK
EMKAY PLASTICS LTD
G&M GROUP
LINCOLN ELECTRIC
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