



MARCH 2018

EDITION 1

 warwick-racing.ac.uk

 [@WarwickRacing](https://www.facebook.com/WarwickRacing)

 [@WarwickRacing](https://twitter.com/WarwickRacing)

 [@WarwickRacing](https://www.instagram.com/WarwickRacing)

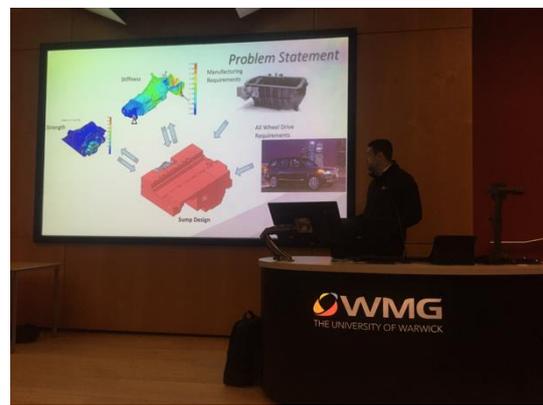
AN INTRODUCTORY WORD

Since our last newsletter there have been big leaps made on the manufacture of both the IC and electric race cars, from the new rocker suspension system being fitted to the front and rear of WR8 to the battery packs for WRE. This clearly shows the extensive range of engineering knowledge required by the team and proves the value of joining a student race team.

As always it's not just the technical team that are busy, with the business team arranging a trip to Ariel Motors and a visit from Streetdrone for Warwick Engineering Societies Connectivity conference.

Read on for the nitty gritty of the past two weeks activities.

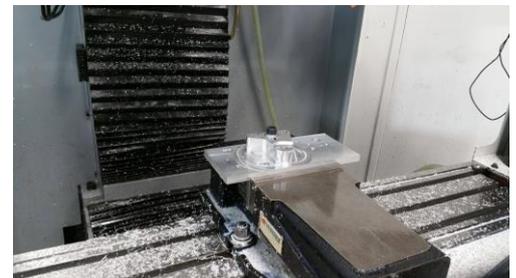
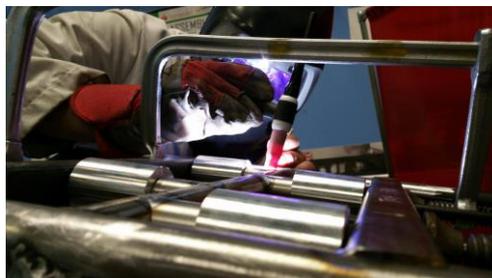
- Matt Hill, Chief Engineer



TECHNICAL UPDATE

DYNAMICS

The Dynamics team have been busy with manufacture of WR8 over the last few weeks and with the main parts nearing completion we can't wait to get this car moving! The front and rear rockers have now been manufactured and are ready for assembly, thanks to Aquajet's water jetting and the press from Baileigh's to fit bearings in each rocker. The box section supports and bosses on the front of the chassis have been fully welded, allowing us to begin setting up the front suspension. Furthermore, with brackets for the rear bulkhead also complete, there are only a few more components left to manufacture before the final suspension assembly can take place.



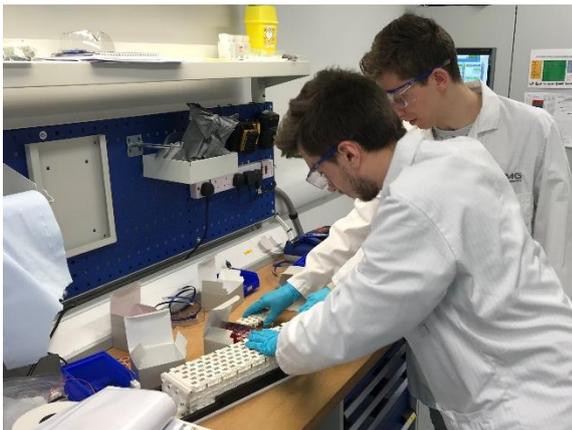
...A SPECIAL THANKS TO AQUAJET

The Dynamics team have sent quite a few parts over to Aqua Jet and we're grateful for the amazing quality of service they provide. Recent work includes both the front and rear rockers for WR8, which have been water jet to size, making it easier to machine the final touches.



ELECTRIC CAR TECHNICAL UPDATE

This week the electric Formula Student vehicle completed a vital task- manufacturing the battery packs! With the help of the first, second and third-year students the busbars were cut, the cooling conduits inserted, and the cells fixed into position. All 9 modules were assembled and are now ready for arc-welding. At the end of assembly phase, they will be tested at EIC to evaluate their performance, before they are connected to create a battery pack and then integrated with the chassis. The Chassis team have been manufacturing the side impact structure this week, accommodating both battery containers. We're also working on the wishbone mounting points, as well as the harness tabs.



Assembling the modules



Preparing busbars for arc welding



WRe chassis

OUTREACH AND EVENTS

ARIEL MOTORS VISIT

On Wednesday February 28th the team had the opportunity to visit the headquarters of Ariel Motors in Crewkerne, Somerset. Our tour guide was Design Engineer Sam Evans; he took us through the workshop while giving explanations about the process involved in making Ariel vehicles and his role in the company (he was part of his university's Formula Student team as well!), as well as answering our questions.



CONNECTIVITY CONFERENCE

On the 21st of March, Warwick Racing invited Adrian Bedford from the Oxford-based, open-source, autonomous vehicle developer, StreetDrone, to deliver a breakout session at the Engineering Society's Connectivity conference. Adrian brought with him a Nvidia Drive PX computer, capable of simultaneously processing data from 14 cameras, Radar sensors, Lidar sensors, and various others, all needed to run a fully autonomous vehicle.

Adrian discussed how StreetDrone approached the development of the open-source platform, the technology involved, cyber-security challenges, and many more interesting topics. Having only been in business for less than a year, and with only a handful of people in employment, Adrian spoke about the many difficulties in creating a start-up. This included securing sponsorship from the industry's best companies, collaborating with researchers and institutions, and taking on a lot of responsibility.

We learnt much about the inner workings of the autonomous vehicle industry from the perspective of a start-up business. It was a pleasure to have been visited by Adrian, and we hope to see him in the future.



warwick-racing.ac.uk



[@WarwickRacing](https://www.facebook.com/WarwickRacing)



[@WarwickRacing](https://twitter.com/WarwickRacing)

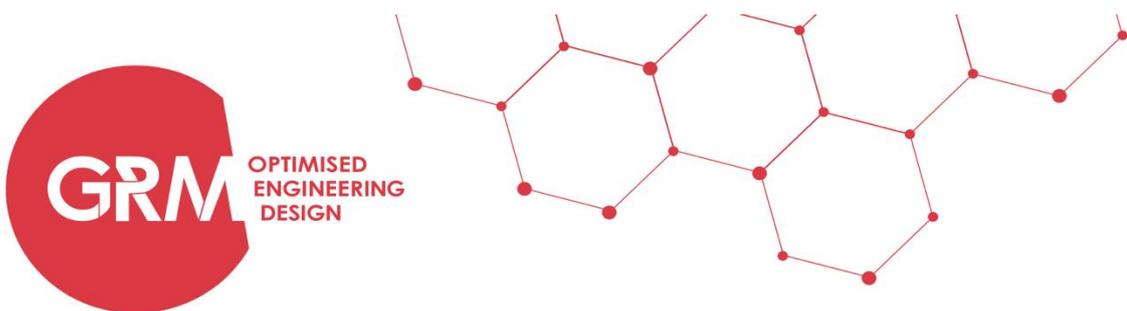


[@WarwickRacing](https://www.instagram.com/WarwickRacing)

OUTREACH AND EVENTS (CONT.)

EDUCATION SELECT COMMITTEE VISIT

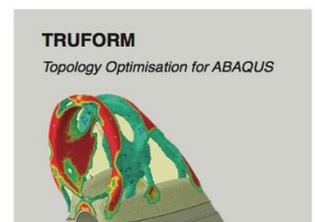
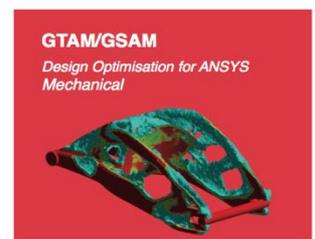
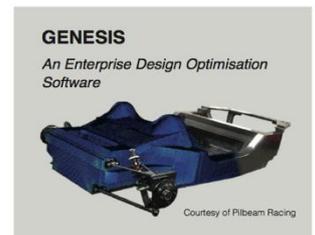
This week the Education Select Committee visited WMG as part of their enquiries into value for money in higher education, and the Warwick Racing teams were chosen to present their vehicles. The Committee were very interested in the vehicles and were impressed with how the Formula Student teams get involved with outreach programmes, and how the projects give the students great experience of managing large scale projects. Robert Halfon MP, Chair of the Education Select Committee, commented, "We were delighted to visit the world-class facilities at WMG today. Our visit has provided an excellent contribution to the Committee's current inquiries into the quality of apprenticeship provision and value for money in higher education and was a great opportunity to hear directly from students and staff".



GRM CONSULTING'S ADVANCED DESIGN OPTIMISATION SUITE



Optimisation is a necessary part of engineering design. Whether you want to make your designs stronger, lighter, or cheaper, there's almost always going to be an iterative development process to improve the design. You could do this manually, of course, but why would you when it can be done automatically? GRM's software generates theoretically optimal designs using the finite element method, and is available either as standalone programs or embedded into your existing design and analysis systems.



+44(0)1926 889300

grm-consulting.co.uk

info@grm-consulting.co.uk

warwick-racing.ac.uk

[@WarwickRacing](https://www.facebook.com/WarwickRacing)

[@WarwickRacing](https://twitter.com/WarwickRacing)

[@WarwickRacing](https://www.instagram.com/WarwickRacing)



Bosch Motorsport



BOSCH



HYLOMAR



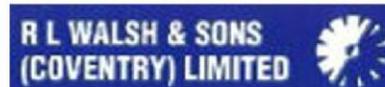
MSC Software

DCA

POWERFLEX



add² Enabling Innovation



StrainSense



CATAPULT
High Value Manufacturing

