

# *Newsletter* **2020**

*October*

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# ***Back in Business:***

This year has not been easy, in April our workshop access was stopped and we were forced to work online. In July, we participated very successfully in a virtual Formula Student session in which a multitude of competencies were assessed. Being well prepared, we managed to secure top positions in all disciplines.

After that, we slowly and safely restarted physical work on the car. We must thank the executive board of WMG, the University of Warwick and Steven Leemon from WMG for helping us return to the workshop safely.

## ***Cost and Manufacture***



***out of 77***

## ***Dynamic performance***



***out of 77***

## ***Static performance***



***out of 66***

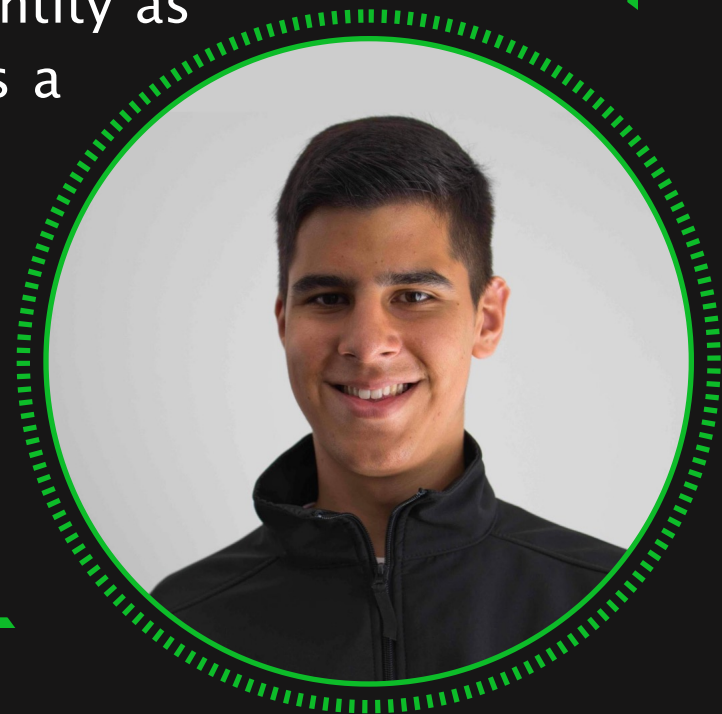
# *Management:*

“

Our new business team has been busy at work this year. We have upped our manpower and realigned our business goals. My job this year is to ensure the good running of our Marketing department as well as keeping our Finances up to date. Marketing has been working towards increasing our social media presence, creating video content and keeping our website ([www.warwickracing.org](http://www.warwickracing.org)) updated. Furthermore, we will be focused on creating a powerful visual identity as well as portraying Warwick Racing as a strong, united team.

”

**Joshua Shenoy**  
Business Development  
Manager



# *Human Resources:*

“

When searching for new team members, my principal goal is to recruit students from all demographics, backgrounds and degree disciplines to ensure diversity of thinking and an inclusive environment. Time and time again, research has found that diversity in the workplace leads to an improvement in creativity, productivity and the decision-making process, all by acknowledging an individual's potential and encouraging them to thrive in our collective. I look forward to keeping you updated on our efforts to increase diversity at Warwick Racing.

”

**Margherita Palumbo**  
HR Officer



# *Powertrain:*

“

Most of the work done on the powertrain side this year relates to optimization of the motors and upgrades to the battery systems. We're aiming to reduce troubleshooting time spent at the track, as well as make working on the car an easier and less complicated task. Installing a new VSC, reducing battery panel thickness or lowering the number of cables used all goes a long way towards making WRe1 as efficient and reliable as possible.”

”

**Rens Bossers**  
Chief Powertrain  
Engineer



## Control System

We have decided to enhance our VSC (Vehicle Supervisory Controller), upgrading from an Arduino to a system from **Embed Limited**. This update will give us greater control over the car's performance as well as allowing more data collection from various sensors on the car.

## Overall Changes



***Faster  
acceleration time***

**6%**



# Dashboard Display

We are also looking into adding a dashboard display to ensure the driver is better informed of current conditions of the car.

## Battery

Decreasing overall battery mass and optimising battery wiring will help us run better times and make the design easier to work with.

## Lighter car

**5 kg**



# *Chassis:*

“

A good motor helps you go fast in a straight line – if you also want to corner well, you need a well developed chassis. As WRe1 heads into its second year of life, we are continuing the optimisation work on its chassis by reducing weight, installing safety systems and improving driver position. In the following months, we'll be putting the finishing touches on WRe1 and transitioning into working full time on WRe2.

”

**Angel Marco-Asenjo**  
Chief Chassis Engineer



## New Headrest

We modified the headrest so that it better protects our valuable test drivers.

## New Brakes

Bigger brakes means better stopping – we have increased the size of our rear discs and installed new calipers to match.

## Overall Changes



**10%**

**More  
room in  
the pedal  
box**

## New Pedal Box

The team mounted in a new pedal box, both to give the driver more room and to protect them better.



**25%**

## Lighter uprights

## New Uprights

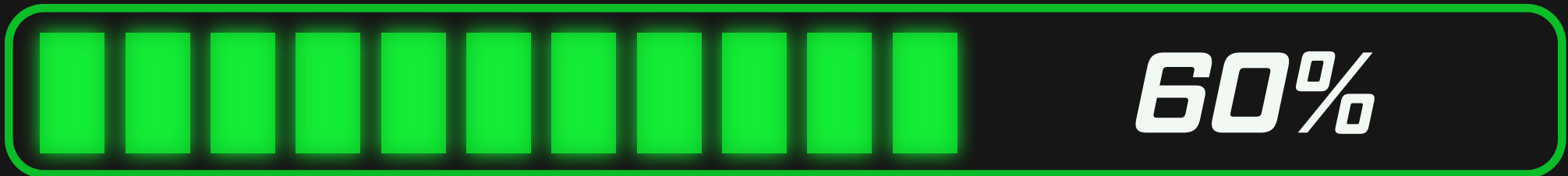
We have machined new uprights, both front and rear, to achieve weight reduction, allowing the car to reach a higher speed.

# WRe 2:

## *A Glimpse into the future*

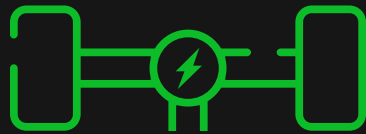
WRe2 is our team's next endeavour. Designed to be faster, more reliable and with better range, this new car will take Warwick Racing to new heights and hopefully towards our maiden Formula Student win.

We aim to race WRe2 at the 2022 Formula Student Competition – so that means we have 2 years of hard work ahead of us. So far, we have designed around 60% of the chassis and the motor and we're slowly, but surely starting the manufacturing process.



## 2 Motors

WRe2's rear wheels will be driven by two high powered electric motors, which will allow us to achieve torque vectoring, further improving the handling of the car.



## Torque Vectoring

## Frame

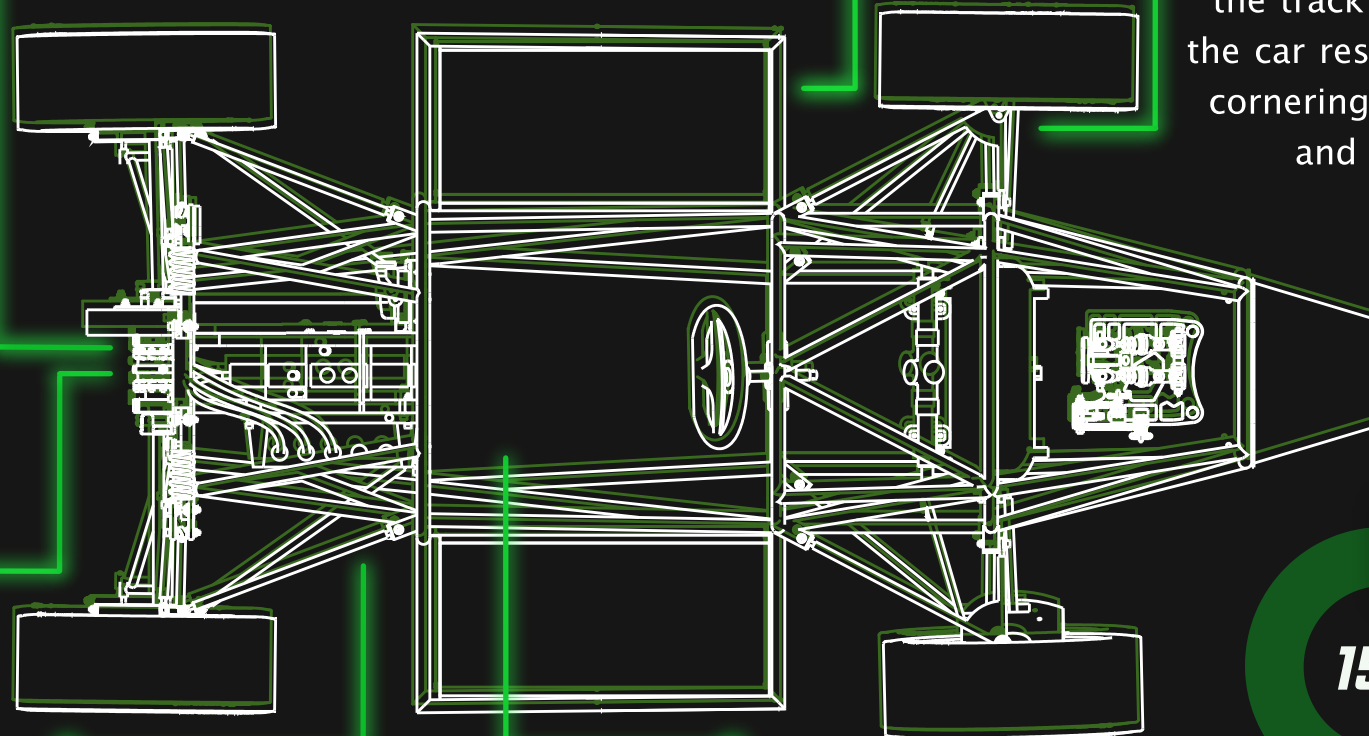
We're designing the steel tubular frame of the chassis ourselves, but having it made in an expert facility, so that it can be stiffer, lighter and safer.

## Battery

Batteries and range are an integral part of any Formula Student car, so we decided to equip WRe2 with better cells (a pouch design) that will give us a higher power density.

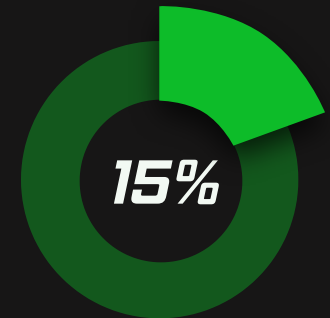
## Suspension

The suspension has been upgraded to be adjustable depending on the track and to make the car respond better to cornering, acceleration and braking.



## Driver compartment

We've enlarged the driver compartment by 15% so that our test pilots have more room to maneuver.



**Larger  
driver's  
compartment**

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