

UP RACING

NEWSLETTER

Mar 2018

Welcome

We would like to welcome all our alumni, current and previous sponsors, and all our other supporters. A lot has happened since our last update with mass recruitment, new team structures and lots of new innovative designs for the car

Season Review

The team worked extremely hard from September 2016 to July 2017, our season ending at Silverstone, to design and build an entirely new car. Taking on over 20 new team members and training them so that they are competent on CAD, understand the design process, materials and engineering behind the design. Then learn technical drawings, contact our sponsors, and meet with them to organize the manufacture of components. Bearing in mind every team member is studying a full time degree, including coursework and exams. After their exams, coming back to University when everyone has left for summer to build the car. It was an incredible feat to be able to do this as a team of mainly engineering students, who would give up any spare time to help each other learn and progress. The team finished at 43rd out of 75 teams with an overall of 166.1 points.



"The team is working tirelessly to complete the design phase, where we produce all parts using Computer Aided Design and marry the designs together in a final full car model assembly. Our aim is to learn from our mistakes from the previous year and to build on those experiences of the team to create a fascinating and ever evolving car."

Adam Tunbridge

Team Lead



UP RACING

UPR-09 Car

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Team News

This year, UPR-10, started with a large recruitment, growing our team to about 60 students. We have had many CAD tutorials for all our new design team students before assigning our part design. This has led to some brand new ideas and concepts.



Ed Clapham - Vice Team Lead



Jowan Chapman - Chief Engineer



Will Waterston - Operations Lead



Lois Kirk - Sponsorship

"This year is a very exciting time for the operations sector of UPRacing. It is the first year we have had a dedicated business section of the team and I am really excited to be working on it. We're focusing on building strong relationships with sponsors and increasing the amount of events we attend. We want to take advantage of the time that remains before the rollout, which requires the total commitment of all team members"



Chris Hughes - Design Lead



Liam Rudd - Manufacturing Lead

Events

We have had a variety of team events since the start of the year in September, getting the whole team together to bond of the labs. They have been really successful and we are continuing to arrange many in the next few months.

Scavenger Hunt

Shortly after the team was built, we started to meet regularly, the first team building activity was scheduled. One sunny day in November, we met at the University with all the team members. The team were split into small groups and were handed a checklist of places to visit, with locations and specific tasks awarding different point weightings. The objective was to return within the time, with the most points and by following the rules to become champions and receive the coveted prize!



Team UPRacing, having completed a city wide 'scavenger hunt' type, team building exercise.

It was a huge success since all members demonstrated and improved their communication, teamwork and problem solving abilities; in an environment different to their norm in engineering and business as well as having a lot of fun.

UPR-10 Car Updates

Electronics

The Electronics team approached this season optimistically and are making essential advancements and improvements to ensure that the car can succeed reliably. Optimization has been the key theme for the electronics team this year; they have been working on additional sensors that will monitor the oil pressure level, water temperature, radiator effectiveness and transmit all this data on the dashboard in front of the driver. The cooling system effectiveness can now be quantified by analysing inlet and outlet temperatures providing more data for the design process. Designing our own Controller Area Network (CAN) has allowed us to reduce the overall weight of the wiring harness, by reducing the number of wires exiting the electronics box and the size of connectors. The system provides a backbone that our sensors and switches can tap into, rather than all feeding every wire into the electronics box. A wireless connection for the ECU through a Bluetooth module will help the electronics team to reprogram, remap or read the data from the ECU from a distance. This will reduce time in the pits during testing and development. A "fly-by-wire" system has been in development since 2015, with a working prototype completed in 2016 as a 3rd year student project. This is an avenue which the team is now free to explore and further develop. All this makes for a promising, well optimised, electronics system and hopefully our best yet.

Steering, Suspension and Brakes

Our Suspension, Steering and Brakes (SSB) section have reached the end of their design period with some exciting new concepts. After reducing wheel size, from 13inch to 10inch, and a change in suspension geometry, last year; much of SSB this year, has been optimisation of the previous system and ensuring it works as efficiently as possible. Brakes, on the other hand, has faced a large overhaul, including several new disc designs, new brake lines and a much improved pedal box that will give more braking force with a more dynamic braking bias.

Chassis and Powertrain

This year we have a few new features, including a new fuel tank and fuel system. Further to this, we have made further modifications to our dry sump for this year's car to continually supply oil without a drop in pressure. We are also working on improving our carbon fibre air intake by re-resining it to improve its efficiency. A new water cooling system, with new pipe routing, has been designed and will be implemented. One of our biggest jobs this year is rebuilding the engine, in house, including; port and polished cylinder head, skimmed head, hand lapped valves, re-honed cylinders, and polished crankshaft, with the rest of the engine being cleaned and rebuilt.

Message to our sponsors:

UPR-10 is only possible due to the help of University of Portsmouth and all our sponsors. We are really grateful for all of the services our sponsors provide and all the time and resources you have given us. Our car requires lots of external machining and sourcing materials which is helping us to build what we hope will be our best car yet!



Pall Corporation



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