Over the weekend, Team Hydrone competed in the Shell Eco-marathon, at Queen Elizabeth Olympic Park in Stratford, London. For those unfamiliar with the Shell Eco-marathon, the competition aim is to use as little fuel as possible to complete a distance of nearly 18kms.

This is only our third year in the competition, following the pioneering footsteps of the 2014 Hydrone AB1 team. It has been a steep learning curve to catch up with universities that have been competing for over 20 years.

Since their first entry two years ago, the UCL teams have run a car powered by a hydrogen fuel cell. Not many teams use this system, due to its complexity, but the competition is a great showcase for the potential of this evolving technology.

This year's team was made up of the following final year students:

- Douglas Stridsberg
- Eduvie Chamay
- Nicolas Huzella
- Elizabeth Lawrence
- Daniel Martin-Hernadez

and Begüm Çalgüner and Jamie Robinson – all of whom you can see in the picture below.

A first for UCL, the team produced a monocoque (French for "single shell" or "single hull") carbon-fibre car. Unlike previous entries, the chassis isn't separate, so the bodywork is the car structure.

The team learned how to design and manufacture the monocoque as part of their project. So, not only did they design the car, they also learned how to use the composites workbench in CATIA and carried out a full finite element analysis of the structure before manufacture. The monocoque itself weighs only 15 kg and when fully built, the car tips the scales at under 50 kg.

Building the car was a huge task. The new chassis arrived in the workshop last Wednesday yet the team still arrived at the competition the next day with a fully built car after an epic “all-nighter” (something that is typical of motorsport!).

The competition was intense and there wasn’t much time to prepare or practice. Even so, the team did an amazing job, managing two attempts at setting an official time. Saturday’s run, with Lizzy Lawrence at the wheel, ended prematurely when a speed sensor failed, cutting the motor. Torrential rain then disrupted the event, leaving us with no time to get back out on track.

This meant that everything rested on the final session on Sunday. Despite being at the head of the queue after a 6am start, the fuel cell suffered a hydrogen leak, which needed a swift repair. Begüm Çalgüner then took the wheel. Things were going well in the early stages until an unscheduled pit-stop caused confusion with the track officials, who didn’t allow the car back out on track before the time ran out.

Despite the disappointment of missing out on a recorded time, the team can be very proud of what they achieved. The course included a sizeable hill, which many teams didn’t even manage to climb. Hydrone had no such problems.

For anyone who is interested, the will be car on display in Roberts 410. You’ll be able to look at the monocoque itself, car drawings, and other schematics that give an insight into the hard work behind it.

Special thanks go to Forward Composites, JH May and Arcola Energy for helping to build the car. Thank you also to the professional services team and Martina; the workshop staff under Peter Kelly; Kee Lam, in particular, for doing the all-nighter with us, and Lee and the security team for the numerous late nights in recent weeks. The team also owe a debt of gratitude to Julius Partridge and Wei Wu for their help and guidance throughout. Above all, thank you to Yiannis Ventikos and Sian Lunt for your support in these early years to get the project off the ground.

Finally, I’d like to say how proud I am of the team, who have had to overcome some major issues behind the scenes, especially with the power system. When others let you down and walked away, you stepped up to the mark. Just getting to the competition was a huge success with what you were faced with and you did it! You have created a *beautiful* car, which will contribute to the team’s future success for the coming years. From the last week alone you have got enough stories to last a lifetime and I look forward to sharing them with you in the years to come.

Tim Baker

Team Principal
UCL Racing