February 2018 Newsletter

FORMULA STUDENT Institution of MECHANICAL ENGINEERS

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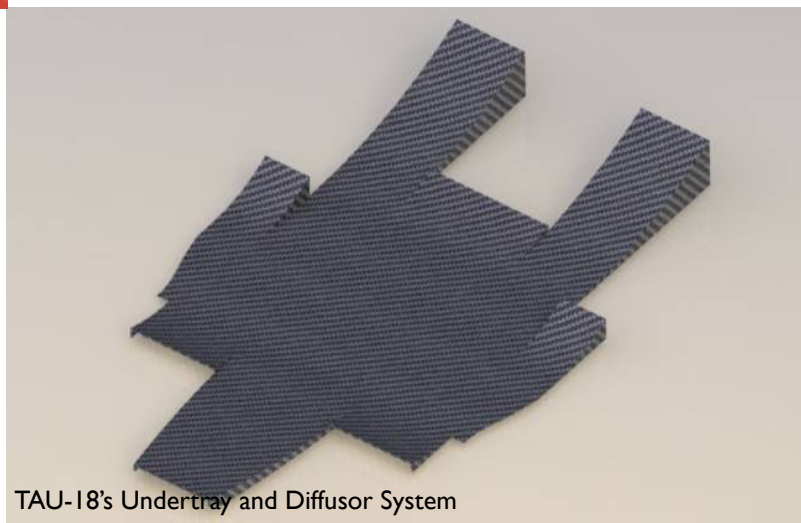
After a busy Christmas period, the TAU Racing team is now settling in to the start of TAU-18's manufacturing phase. With all data and lessons from our previous testing sessions being implemented into final design work, the semester ahead will be busy for the team in preparation for the IMechE Formula Student UK competition, scheduled from the 11th-15th of July this year.

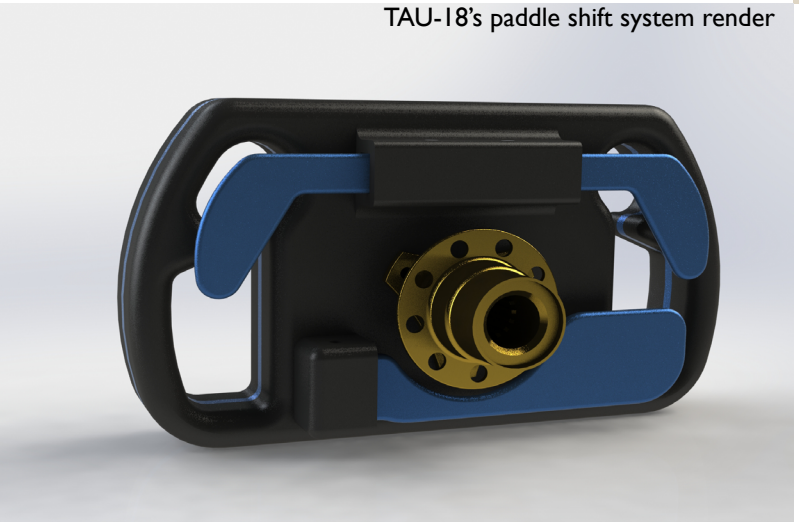
Grampian Fasteners with TAU-18's management

At the end of January, TAU Racing hosted a successful event: "Bolted Joints – How hard can it be?", in partnership with the team's long-standing sponsor, Grampian Fasteners, at the University of Aberdeen. The guest speaker of the night, Richard Waddington from Nord-Lock Group, gave an amazing educational presentation on the importance of best bolting practices. Using a Juncker vibration machine, Richard also demonstrated comparison testing of various secondary retention methods under dynamic load conditions, whilst describing the issues of accuracy in torque tightening and the impact of using adhesives and lubricants upon the reliability of the bolted joint.

The upcoming aero package for TAU-18 has undergone further development, by running 2D flow simulations on the undertray diffuser design in Ansys CFD software. With positive results, the composites and aero team have selected their final design. Work is ongoing on 3D simulations, to provide further validation during the design event at competition. Whilst awaiting manufacture of the mould, the department are now concentrated on material selection and manufacturing methods, to ensure structural integrity on the track.

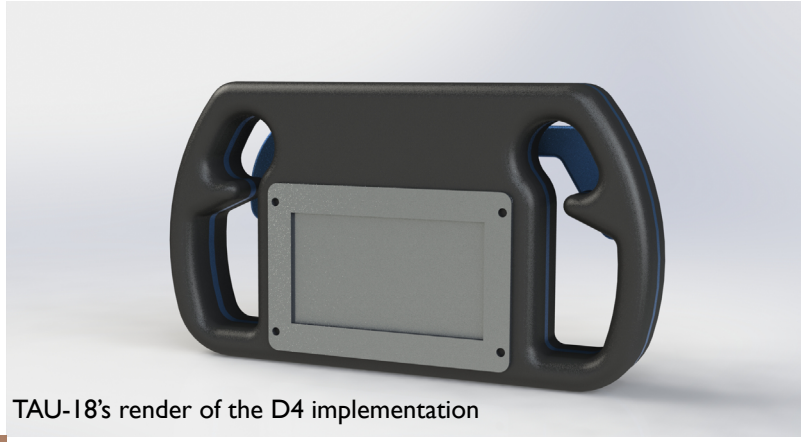

TAU-18's Undertray and Diffusor System

TAU-18's paddle shift system render



The Powertrain team has continued with the development of a new pneumatic paddle shift system. Over the Christmas period, a full array of background research and validation was carried out to ensure the system would work to its full potential. The department is in the final stages of validation, currently conducting bench tests to gather data for the Design Event at competition and prove the reliability of the system. In tandem to this, the department are directing their focus towards finalising a packaging solution for the pneumatic components in the TAU-18 chassis.

To improve reliability whislt running, the team has implemented a new Life Racing D4 Dashboard display. The new device will display car's RPM, gear, and wheel speed, whilst being conveniently mounted within the steering wheel assembly. This device provides much larger flexibility compared to previous solutions used. The D4 dash can be programmed to display vital engine telemetry data to the team's engine tuners during configuration, as well as being easier to find and analyse any issues affecting the engine.



TAU-18's render of the D4 implementation

TAU-18's manufactured flanges and trumpets

After last year's successful engine swap, the Engine Department has been working hard to improve the air intake and exhaust systems, to get more power from the Triumph 675 Daytona. Based on previous year's data and experience, the airbox size was increased to slow the flow down, after passing through the regulation restrictor, to develop a clean air flow into each cylinder. As a whole, this will increase the efficiency of the system, resulting in a significant increase of power output.

The team was delighted to have the opportunity to display the car at Subsea Expo again this year. TAU-17 was showcased from the 7th to the 9th of February at the AECC. This event was really helpful for the team members to extend their network in the local engineering industry, but also provided exposure for the team and our sponsors. The team would like to express out thank you to Subsea UK for providing us with a stand.

Team members at Subsea Expo UK

The TAU Racing team has been working hard to ensure a smooth manufacturing period, which allow time for testing before competition. As well as this, the team is planning to attend several events in the upcoming months. To stay updated visit TAU Racing's website, Facebook and Twitter!