

Aerodynamic optimisation of the sidepod area of a Formula Student type race car



We are looking for motivated master students Engineering Technology

Project description:

Formula Electric Belgium (FEB) is a team of highly motivated engineering students that build an electric formula student race car. Just like Formula 1 the team builds a brand-new car each year to compete in multiple international competitions during the race season. Formula Student is the largest international engineering and design competition in the world. The competition is characterized by combustion vehicles, electric vehicles and since recently also autonomous vehicles. Formula Electric Belgium strives towards innovations and the raw performance of technologies. It is for this reason that the team will focus on the autonomous/electric race cars. Research and development applications will be made by postgraduate students in collaboration with thesis students from the KU Leuven and bachelor students from Thomas More.

Thesis description:

Each year the aerodynamic department strives to improve the aerodynamic efficiency of the car. Increasing the downforce generated by the car improves cornering speed thus improving the overall lap time. However, it is important that the increased downforce does not disproportionately increase the drag of the car, to make sure a high top speed can be achieved.

The sidepod area of the car is defined by the region between the two wheels when looking at the race car from the side. Because we use an electrical powered car, we do not need all of the cooling intakes and radiators which are present in a combustion powered car. This frees up the entire sidepod area for aerodynamic devices to be placed. Because this region is also very close to the centre of gravity, it is very beneficial to generate the highest possible downforce at this location.

Thesis objective:

The goal of this thesis is to design and optimize a new structure which can be mounted on the side area of the car. This structure is optimized by use of CFD software. In the end the design should increase the aerodynamic efficiency of the car.

Profile:

- Interested in CFD
- Interested in aerodynamics
- Creative
- Team player

What do you gain?

- A unique engineering- and team experience where hard work and team atmosphere are central.
- Work with innovative technologies in a realistic environment/application.
- Create added value for your curriculum and the team

Are you interested? Please send your resume with accompanying motivation to:

recruitment@formulaelectric.be

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