

# Infinity Project – Supermileage SAE 2011

## The project

For their end of degree project, 14 students wish to design and build a single-seated vehicle with minimalistic fuel consumption. The aim is to maximise the output of a single liter of fuel to do 1500 km.

## Our team

Projet Infinity is a team of fourteen students from the cooperative bachelor's degree in mechanical engineering at the Université de Sherbrooke. As well as the degree's curriculum, they have developed management, design and manufacturing skills thanks to several internships in the industry and implication in various technical groups, student associations and engineering competitions.

The members of Projet Infinity are passionate about it and are aiming high for the Supermileage competition!

## Competition

The supermileage SAE competition is held in Marshall, Michigan. For 2009, 45 teams have entered and more keep adding up every year.

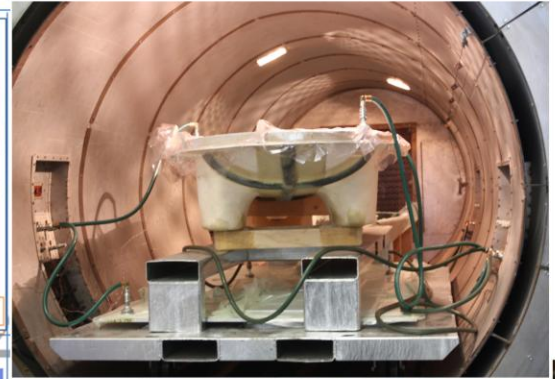
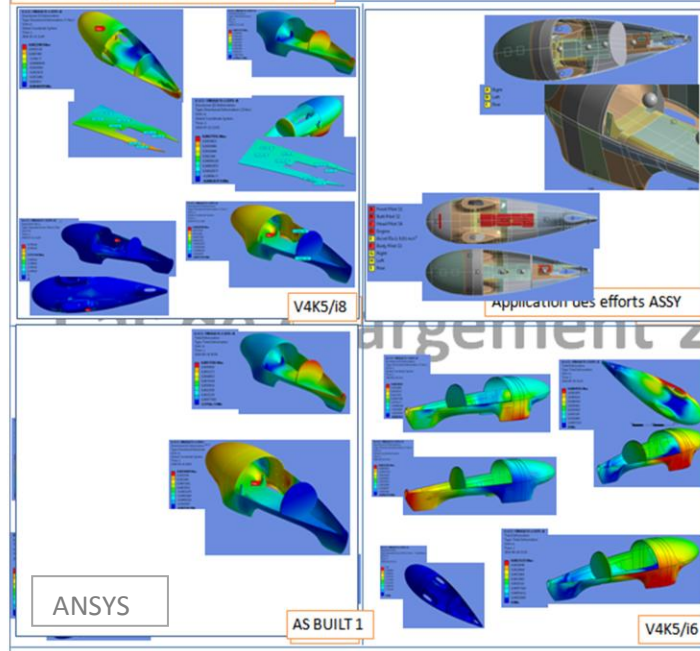
The main event at the competition is the endurance run, where teams are asked to complete six laps for a total of 15.5 kilometers to demonstrate the minimalistic fuel consumption of their vehicle. However, teams are also judged based on their team presentation, their technical report and the vehicle's design, in order to score a maximum of points to determine the winner of the competition.

Team Infinity's aim is to participate to the SAE competition in 2011 and have a fuel consumption of 1500 km/L. Considering that the current record is 1347 km/L, we are hoping to be part of the elite at this event.



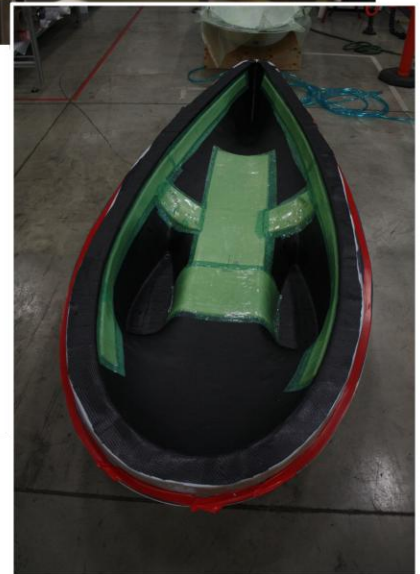
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Cas de chargement 2: Véhicule en virage



Carbon fibre monocoque frame

- External body shape optimisation (CFD)
  - Drag coefficient  $< 0,13$  (Car  $\sim 0,3$ )
- Complete structural design (FEA)
  - Validation of deflection and failure
- Realization with aerospace methods

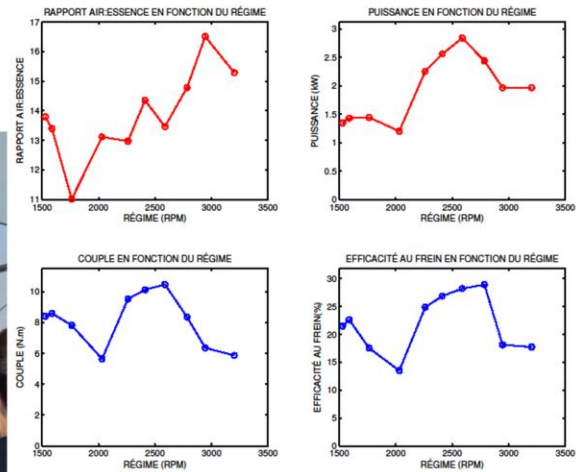
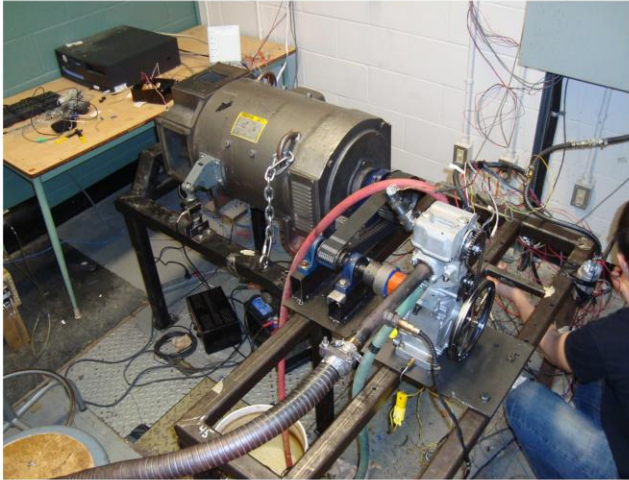


Design, validation, realization >>

complete monoplacé car frame of less than 14 kg

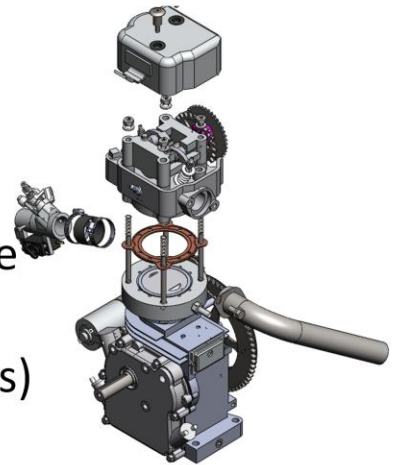


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## Modification of the Briggs & Stratton Engine

- Complete new head
  - New cam profile (Ricardo Wave Analysis)
- New electronic system and software
- Cylinder & Piston coating (Thermal analysis)



Design, validation, realization, tests >>

150cc engine with brake efficiency over 28%