



CUSTOMER
STORY

FST Lisboa

The next generation of
formula racing



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«When building race cars, the requirements for components are low weight and high durability – SLS allows us to achieve both.»

The Formula Student Team FST Lisboa from Portugal makes use of various 3D printing technologies to build next-generation electric and autonomous driving race cars. For their current prototypes, Sintratec has sponsored multiple laser sintered components to the students.

The formula student team FST Lisboa was founded in 2001 by 10 students and has been developing racing vehicles to compete all over the world since then. Today, around 60 Portuguese students from various disciplines are working hard on the. One of them is Miguel Lourenço, electrical and computer engineering student at the university of Lisbon and technical director of electrical systems at FST. «Our vision is to be within the top 10 electrical teams in Europe», Miguel says. In 2021 the students are developing two race car prototypes.

High material requirements

Low density, light weight, water tightness, high durability and – for power train parts – specific temperature and insulation ratings: considering the speeds and resulting forces, material requirements for race car components are high. Selective Laser Sintering (SLS) is one of the few 3D printing technologies that can meet these demands. Looking for support in this field, the students reached out to Sintratec. Subsequently, several parts of the two FST cars were 3D printed on the Sintratec S2 system with stable PA12 material and sponsored to the team.

Better aerodynamics with SLS

The Sintratec technology is used in both vehicles for electronics containers, camera and display holders, as well as for ducts of the cooling system. Because SLS allows for highly complex geometries and does not require any support structures, the students were particularly free in their design process. For Miguel, apart from the low weight and the robustness, another advantage became evident: «The SLS technology made a difference especially for the cooling components since the parts have an excellent surface finish, improving the overall aerodynamic performance of such areas», he emphasizes.



Intended for end-use: laser sintered parts are built directly into FST Lisboa's race cars.



3D printed PA12 nylon parts are used for camera holders, electronics containers and cooling ducts in the vehicles.



Ready for the start: both prototypes will compete in August 2021 against other European student teams.