Formula Student is the most prestigious engineering competition in the world. It consists of a competition where engineering students from around the world design and build a Formula 1 style car, and then participate in different events. There are currently three categories in the competition; Combustion, Electric and Driverless. This last one was introduced two seasons ago in Germany.

The competition is divided into static and dynamic events. In the first ones, the judges evaluate the engineering knowledge of the students in different fields associated with the development of the vehicle. The main static events are the Business Plan, the Cost Report and the Design, with 475 points out of 1000 in total. The other 625 points are associated with dynamic events where the current performance of the car is measured.
Driverless UPC is a team formed by 26 undergraduate and master’s degree students of ETSEIB and ETSETB, from the Polytechnic University of Catalonia (UPC), that designs and builds a driverless car. This team is part of ETSEIB Motorsport, which also designs and builds a formula-type electric car.

The team is characterized by always focusing on the new technologies and the new challenges that are currently being presented. Sample of this is that we were the first team to build an electric car and the first driverless prototype in Spain.

This project offers students a great experience in the world of engineering that can not be obtained through university studies. The competences obtained are not only technical but also transversal and indispensable skills in the professional field such as management, communication, teamwork, leadership, etc.

26 members, 1 goal
ETSEIB Motorsport is a team that always aims to progress and be one of the best. For this reason, our values represent this desire for improvement season after season. Our members are known for being the most committed and hardworking, as they dedicate their free time to the project. As an example of the passion for innovation is the fact that this past season we started a Driverless team, being the first Spanish team to introduce this project.

In addition, if we study the evolution of the team over the years, it is clear that ETSEIB Motorsport is thriving apart from remaining one of the best teams in the world.

Also, you can see that popularity has increased and every year there is more competition due to new teams.

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<th>Year</th>
<th>Vehicles Elèctrics</th>
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<td>2012</td>
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On the other hand, based on our principles, a large part of the team is renewed every season. Good knowledge transfer is essential to continue being able to innovate in all aspects and remain reliable. The most important aspect is communication and great teamwork, and that is the best way to achieve any goal.

All this and much more makes ETSEIB Motorsport the team it is now.
In order to build Xaloc, the first driverless prototype, the members of Driverless UPC studied how to adapt CAT10e, the electric car of ETSEIB Motorsport of the 2017-2018 season, in order to make it an autonomous car. In this way they saw that the following items should be incorporated:

**LAST PROJECT ACHIEVEMENTS**

In charge of the car’s vision – the cones limiting the track are detected through data fusion from cameras and LiDAR sensors.

Recreating the environment of the car through the data provided by the Perception department, as well as controlling the vehicle.

In charge of adapting the electronic system and chassis so that it fits the needs of an autonomous driving car.

**Software Architecture:**

ROS

(Robot Operating System)
Xaloc is the first Formula Student Driverless developed in Spain. This car aims to be reliable and robust to successfully complete all the tests of the competition.

The basis on which the autonomous system has been implemented has been the CAT10e, the electric car that competed two years ago. There are three types of sensors: a LiDAR, a stereo camera and an IMU + GPS, the car is able to acquire all the necessary information from its surroundings. In addition, three different actuators have been designed and installed to the car so that it can drive itself.

This autonomous car would not have been possible without the cooperation between students of the industrial and telecommunication schools of the UPC. The knowledge of these two schools has been the perfect combination to create the first autonomous vehicle of the team.
The CAT12e is the twelfth car built by ETSEIB Motorsport. It is also the eighth to be electric.

CAT12e has proven to be more competitive than its predecessors, but reliability issues have not allowed it to show its full potential. At this time, the team has renewed for the following season and is working hard on the design of the CAT13e, an optimized car compared to its predecessor.

**Range**
- 22 km

**Weight**
- 194 kg

**Max Power**
- 80 kW
El ETSEIB Motorsport, un proyecto de I + D en estado puro

- El equipo, compuesto por más de 40 estudiantes de Ingeniería Industrial de la Universitat Politècnica de Catalunya, pasea los sueños de sus integrantes por la Fórmula Student.

**La Fórmula Student en marcha**

- 1.700 jóvenes ingenieros divididos en 68 equipos, se enfrentan a las duras pruebas de la Fórmula Student España.
- La competición, que se alarga toda la semana y acaba el domingo día 30, se celebra en el circuito de Montmeló.
Formular Student | Monoplaza eléctrico de ETSEIB Motorsport | Prueba / Review en español | coches.net

32,465 visualizaciones

Publicado el 1 ago. 2010
Probamos un monoplaza eléctrico de carreras: no es un Formular E, de seguros desarrollado por el alemán de la ETSEIB Escuela Técnica Superior Ingenieros con mejor aceleración de 0 a 100 km/h: solo 2,6 segundos.

Seat León Cupra vs. CAT09e: 290 CV frente a un eléctrico de estudiantes