

*raceup* 2020

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# WHO WE ARE

Race UP is the Formula SAE team of the University of Padova

70 students from different faculties collaborate to build two single seater racing cars that compete in international circuits

## VALUES



innovation



team working



passion

## My experience

"Race UP acts as a bridge between the University and the job world. It is made possible through race cars. What's better?"

Giacomo Ballotta  
*dallara*

Our team includes people interested in motor sports, the world of industry, digital, information technology and engineering; we are motivated to embark on an ambitious project. Sacrifice and a great willpower are fundamental elements to make a profound experience. Our ambition is to become the next generation of industry experts



Carbon fiber  
aeropack



Honda Engine  
CBR 600 RR



OZ wheels  
13"



Pirelli low  
profile tyres



203 kg

# MG 14.19



The engine  
develops 64kW  
at 13500rpm and  
65Nm of torque at  
9000rpm

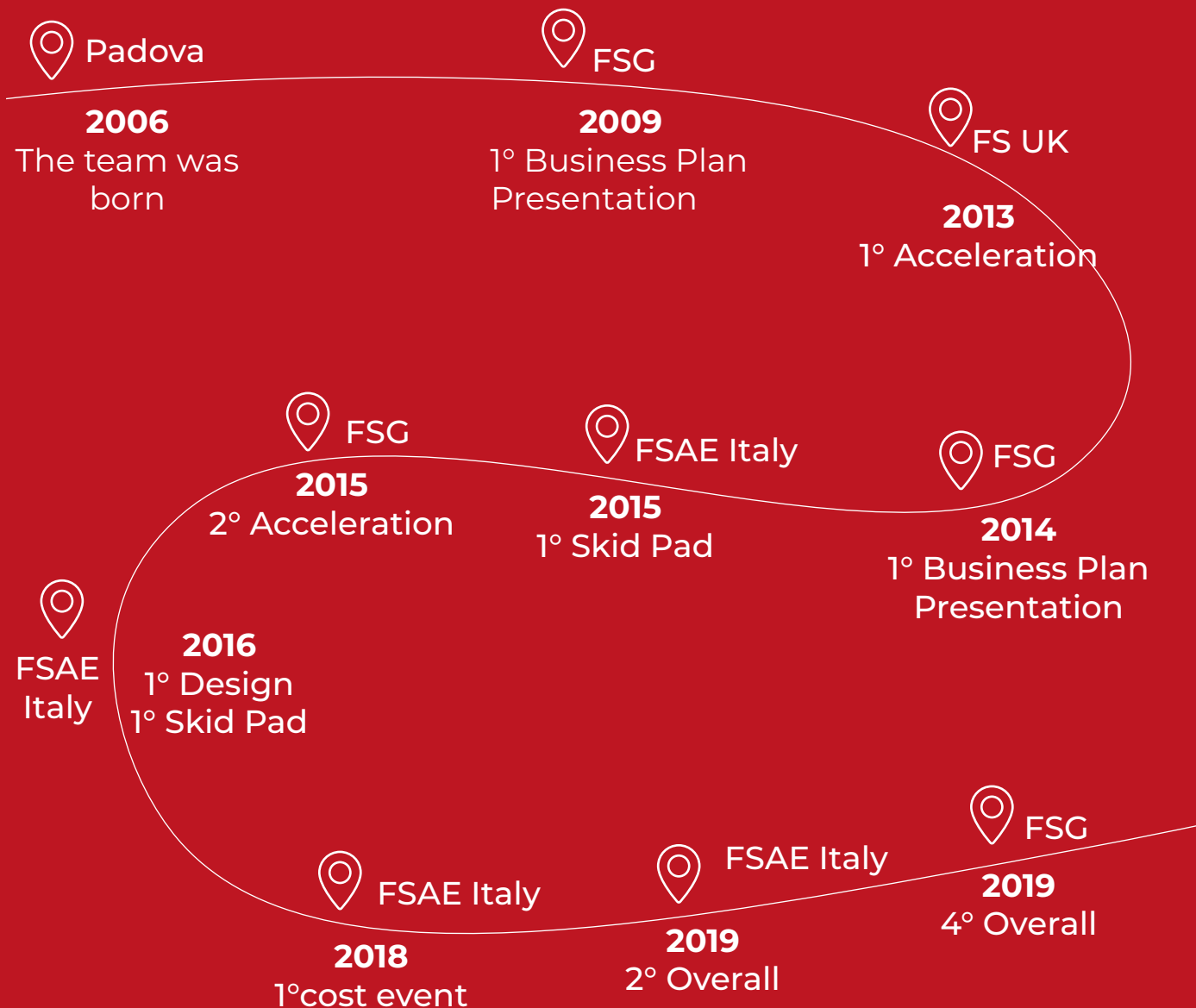


Up to 2,5g of  
lateral grip



450N of downforce at  
50 km/h

# HISTORY and RESULTS of COMBUSTION division





Carbon fiber  
aeropack



4 synchronous  
electric motors



OZ magnesium  
wheels 10"

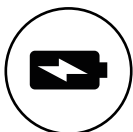
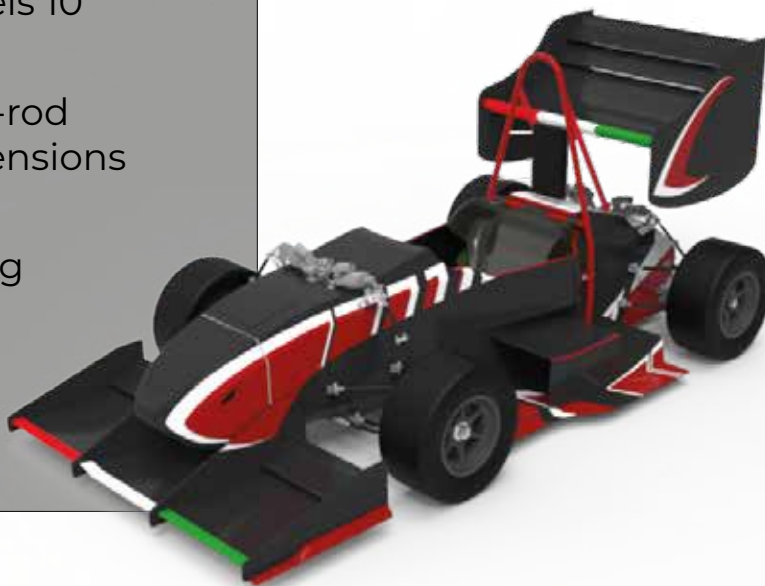


Push-rod  
suspensions



200 kg

# SG-e 03



Lithium 6.7kwh  
battery



Up to 2.5g lateral  
load



275N downforce at  
15m/s

# HISTORY and RESULTS of ELECTRIC division



**2014**  
the adventure  
starts



**2016**  
Origin-e took part in  
the competitions



**2018**  
2° cost event



**2017**  
1° Design e BP



**2019**  
6th Overall



**2019**  
Cost Final  
Top Ten Design  
per SG-e 03

**A year in the  
team**





## Recruitment

New team members are selected

## New car design

From October to January the CAD model is designed

## Manufacturing

From January the team builds the car, either in the workshop or at sponsors' facilities

## Official presentation

The car is unveiled in a dedicated event

## TEST

The car is tested and its settings tweaked

## EVENTS

The Race UP team compete in static and dynamic events against other universities

## New Goals

At the end of the season, new goals are define for the new year

# The Competition

**“Formula Student encourages very diverse innovation. In many ways Formula Student has the potential to be more innovative than FORMULA 1.”**

Ross Brawn, Formula Student Patron

**Formula SAE** was born in 1981 thanks to  
Society of **A**utomotive **E**ngineers

Every team, composed of university students only, designs and builds a race cars which is later evaluate by experts in automotive field in permormance (**dynamic test**) and from an engineering and economics point of view (**static test**)



Natalia Balbo  
2015-2019

Having the chance to race in such important circuits as Hockenheim leaves a mark. The efforts made throughout the year are paid off as soon as the wheels touch a tarmac with a history like this one. It gives remarkable emotions as well as being a great experience!



The Team 2019  
MG 14.19  
SG-e 03



# STATIC events



**75 pti**

## **BUSINESS PLAN PRESENTATION**

An automotive-focused business case is presented in front of a jury of experts. Novelty as well as feasibility are evaluated, taking into account the presenters' performance.



**100 pti**

## **COST & COST UNDERSTANDING**

A BOM for the entire car is redacted; it includes processes' costs for some components. Students must be able to take Make or Buy decisions, show the financial plans' feasibility and the risks associated with managing such a project



**150 pti**

## **DESIGN**

The whole team must account for the engineering decisions taken during the year, backing them up with real data from tests and simulations.



Marco Baraldo  
2017-2018

**dallara**

Thanks to  
Formula  
Student I was  
able to  
experience the  
practical side of  
what I was  
studying in  
class: it's not  
easy! It  
complemented  
my studies and  
it added value

# DYNAMIC events



## ACCELERATION

straight, 75m acceleration test

**75 pts**



## SKIDPAD

cornering test. In a 8-shaped circuit, timed laps are performed

**75 pts**



## AUTOCROSS

Fast lap. The track is 1 km long and it's full of turns and short straights

**100pts**



## ENDURANCE

It's the heart of the whole competition: the single seater has to race for 22km while being in perfect condition all the way to the end. Drivers are swapped mid race.

**325pts**



## EFFICENCY

At the end of the endurance test, fuel consumption is evaluated

**100pts**

**1000 TOTAL points**



Marco Gomiero  
2015-2016



Being in the frame department has allowed me to deepen my knowledge in composite materials. Race UP is the perfect bridge between university and the workplace, especially for who's interested in the automotive sector.

# Sponsorship

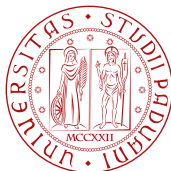
This project would not exist if it wasn't for the companies that support us. Thanks to the collaboration with local and international companies our dream can become a reality.

“In OZ’s R&D department, team spirit and hunger for victories are values that are shared between all of its collaborators. Our company supports and makes available it’s resources to Race UP. We know how complex it is to develop a performing product and to keep alive a critical and ready to overcome hurdles spirit. This is not just a formative project, but also a very influential experience which will impact positively each Race UP’s team member.”

**Romano Reffo, HR e Safety Manager, O.Z. Spa**







UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA

# Powered by



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**EULITHE**



DUE PI  
GRECO



METAL TECH  
metalworking excellence



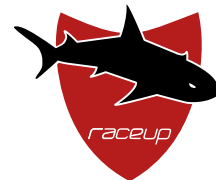
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# Powered by



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**G. ANGELONI**

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# CONTATTI



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Race UP Team



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NOTES

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