ALMA MATER STUDIORUM
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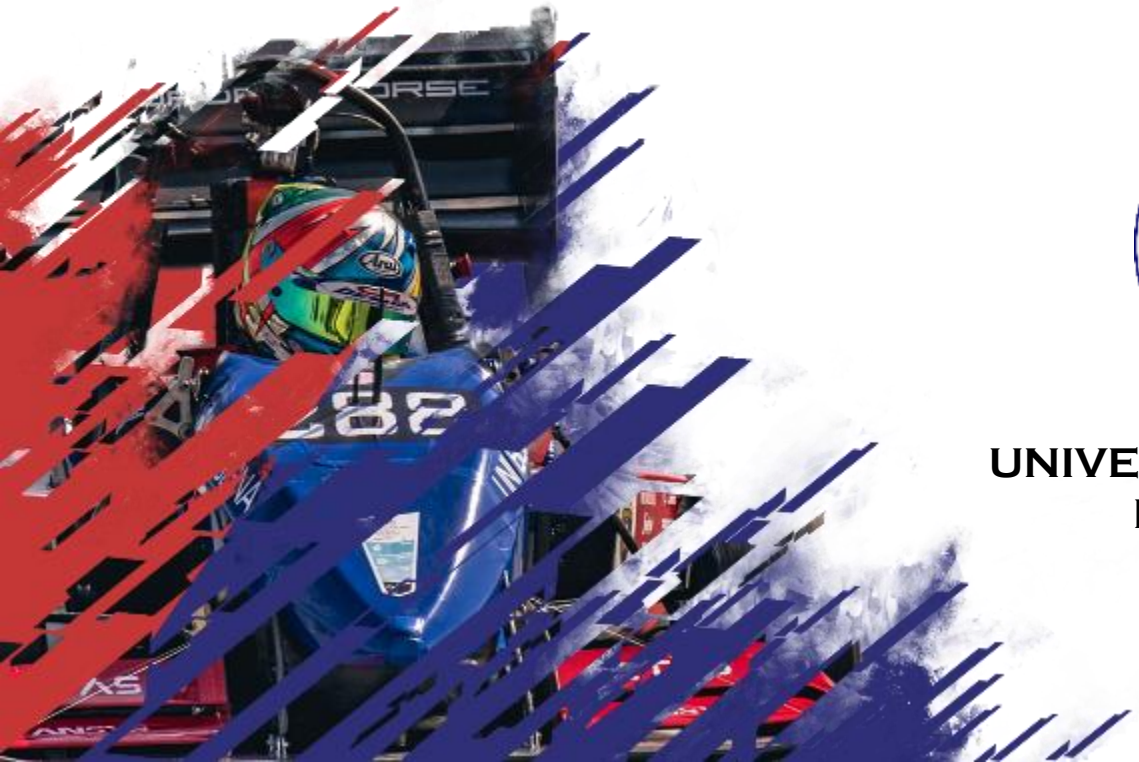

UNIVERSITY OF BOLOGNA
RACING TEAM

TEAM AND TERRITORY

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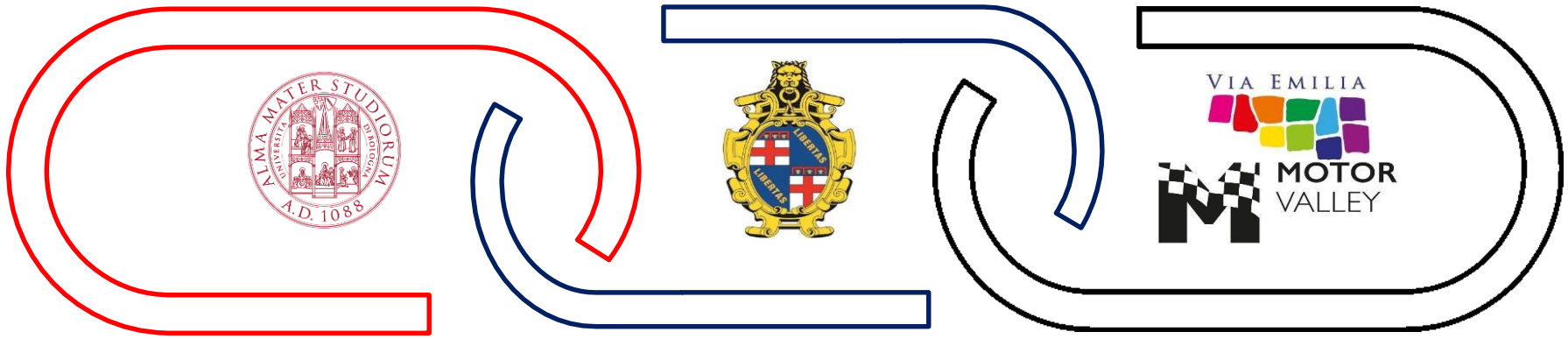
Città di
Bologna



Alma
Mater
Studiorum

Emilia Romagna
Motor Valley

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ABOUT US

UNIVERSITY OF BOLOGNA
RACING TEAM

UniBo Motorsport is the racing team of the **Alma Mater Studiorum University of Bologna**, born **11 years ago** thanks to the passion for the automotive world of some engineering students belonging to the CTM association (Club Tecnica e Motori).
Today the team boasts about the presence of **190 students** from **different faculties** of the University of Bologna: the multifaced training and the different skills allow the team to have **a corporate organization** aimed at optimizing the use of human and economic resources.

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FORMULA SAE

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Formula SAE, organized by the Society of Automotive Engineers, is the automotive competition that focuses on students' ability to create a **racing prototype**.
They are not only called to create a **performing vehicle**, but also to focus on **economic issues**, evaluated through specific tests.
Students, putting themselves to the test, combine the **knowledge learned** from studies with **practical skills** expendable in their future professional career.

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MOTOSTUDENT

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Motostudent, promoted by Moto Engineering Foundation and Technopark Motorland, is a university motorcycle competition divided into the **MotoStudent Petrol** and **MotoStudent Electric** categories.
Starting with a kit provided by the organization, students must create a **fast and performing vehicle** also paying attention to the **economic aspects**, thus putting into practice what they have learned in their studies.

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FORMULA SAE MAIN PARTNERS

UNIVERSITY OF BOLOGNA
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LAMBORGHINI
SQUADRA CORSE

Alma Automotive

MARPOSS

CIMA
a coesia company

G.D
a coesia company

BETA
SIMULATION SOLUTIONS

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MOTOSTUDENT MAIN PARTNERS

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FONDAZIONE DUCATI

Engines Engineering

3D METAL
ADDITIVE MANUFACTURING

Alma Automotive

MARPOSS

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PARTNERS

UNIVERSITY OF BOLOGNA
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MARCHESINI GROUP

SIMSCALE

LEMO

EGS LOBART

DI LODOVICO SRL

EC International Italy
Rapid prototyping

ETAS

Segafredo ZANETTI

Valtecne
High Precision Mechanical Industry

brembo

PAN COMPOSITI

SKF

capit

BERARDI
BULLONERIE dal 1919

md
WWW.MDSRL.IT

Lv8
ELEVATE

asita
TECNOLOGIE DI MISURA

PHOENIX
pcb provider

Beta

sit

SmartCAE
SIMULATE MORE, INNOVATE FASTER

REGINA CHAIN

CEBORA
welding&cutting

AESSECOM
Sistemi di Comunicazione

GIEFFE RACING

ALMET
ITALIA

GRUPPO MORINI
LEXUS BOLOGNA
TOYOTA T MOTOR BOLOGNA

CEA
ESTINTORI

MODELLERIA BOLOGNESE
di Baratti Giancarlo & C. snc

Weller

AR
AVIO RACE

IMOLA
Autodromo Internazionale Enzo e Dino Ferrari

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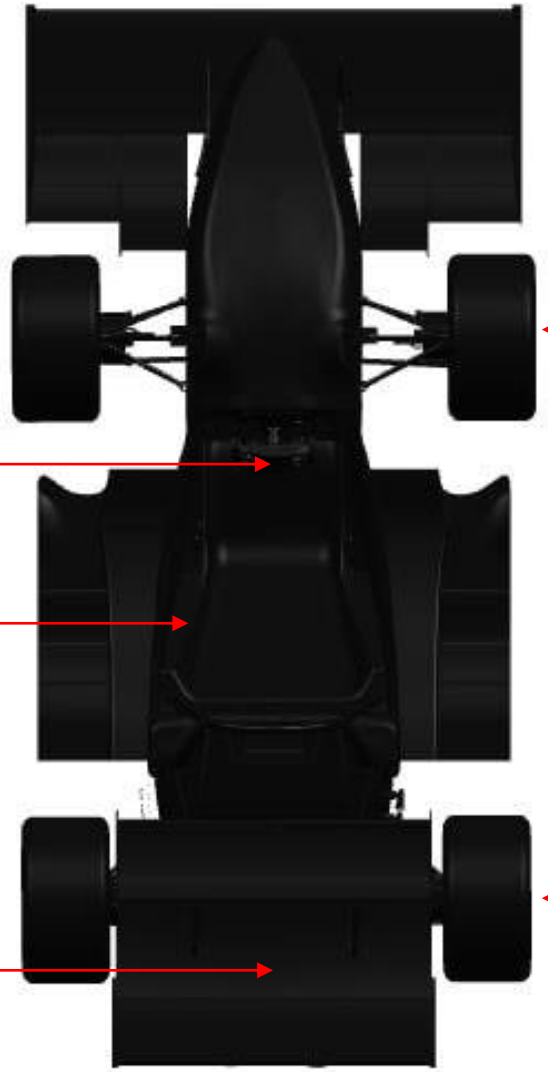
NEW ELECTRIC FS PROTOTYPE

Self-developed touchscreen dashboard with graphic interface

Carbon fiber monocoque

500 V Battery Pack with self developed BMS



4 in-wheel permanent magnet synchronous motors

Cooling system with heat channels within the motor housing

Torque vectoring system

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ALPHA LEONIS

Self-developed touchscreen dashboard with graphic interface

Lithium-ion battery and Self developed BMS

Carbon fiber fairings

Optimized swingarm made in additive manufacturing SLM

Electric engine heat exchanger made in additive manufacturing

Bidirectional real-time telemetry system on LabView Self-developed software

Chassis frame made of carbon fibre

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RESULTS

MotoStudent Aragòn 2018

- **3rd place Overall Electric**
- **Best Rookie Team Electric**
- Best Acceleration Electric
- Best Gymkhana Electric
- 2nd place in Brake Test Electric
- 3rd place in Best Design Electric

Battery pack

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With what criteria we assembled the battery pack:

•Electrical resistance: the *target value* for the connection between cells has been set to be ≤ 50e-6 Ω.

•MotoStudent 2018 Regulations: It is not allowed the direct connection between cell terminals.

•Structural solidity of the package: Mechanical resistance to possible impacts.

Thanks to the support of the University of Bologna, it was decided to start an inter-university collaboration with Gruppo Laser for the welding of the cells of our battery packs.

Test samples of the 2018 battery pack

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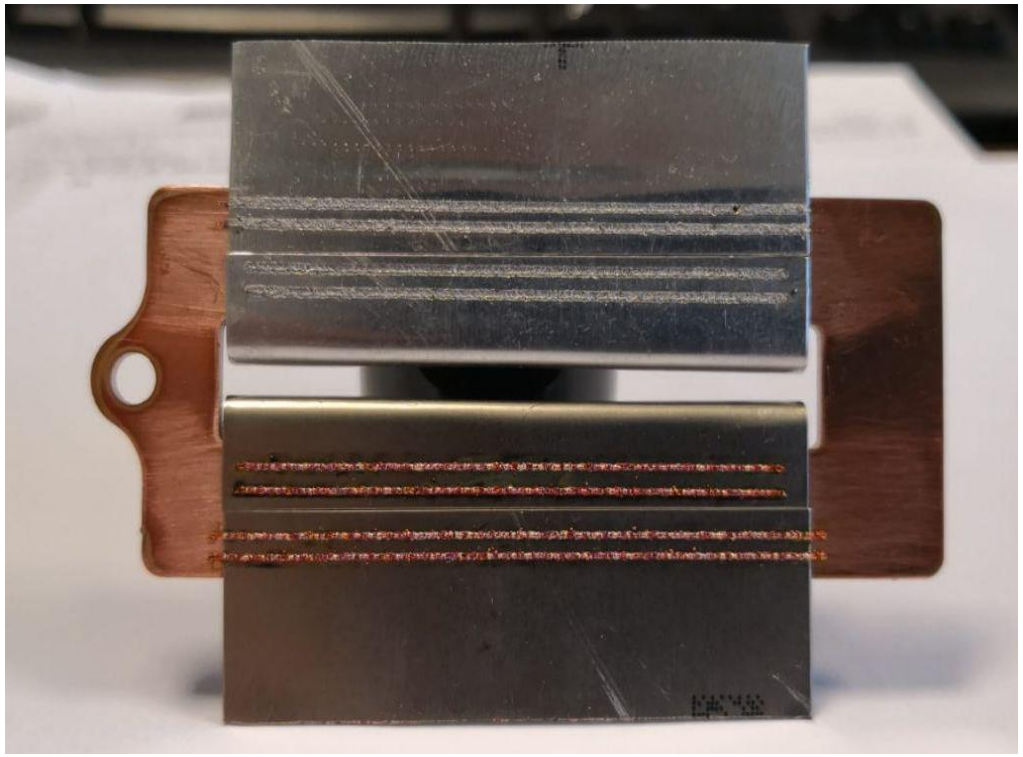
Realization of the 2018 specimens:

- Cell tabs made of copper and aluminum on Copper buckles.
- Flat surface welding with possibility of perpendicular welding.
- Mask added for optimal welding.



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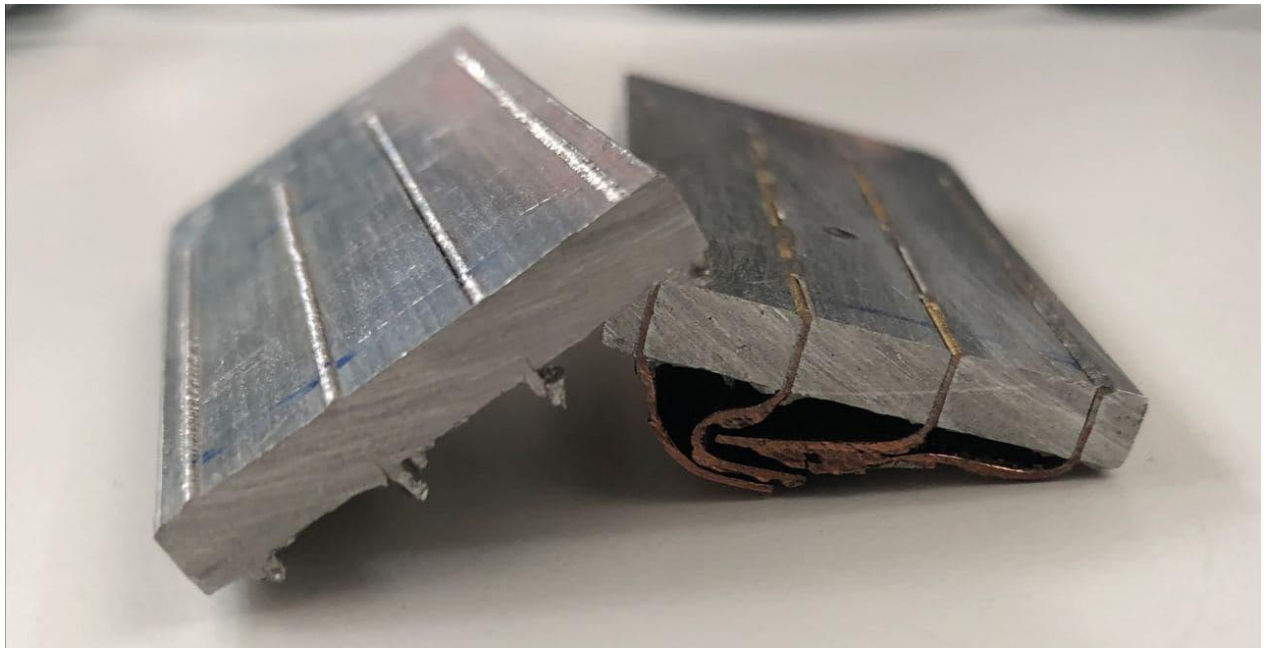
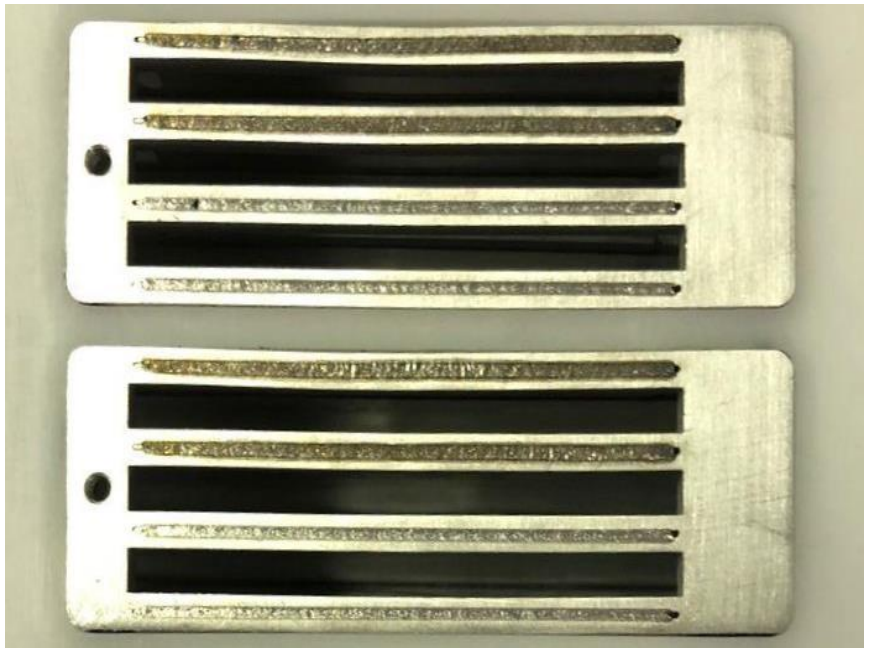
Test samples of the 2020 battery pack





Power [W]	Linear speed	Breadth [mm]	Overlap [%]	Vtan [mm/s]	Frequency [Hz]	Inclination
850	40	0,6	60	471	250	30
850	60	0,6	60	471	250	30

THANKS
FOR THE ATTENTION