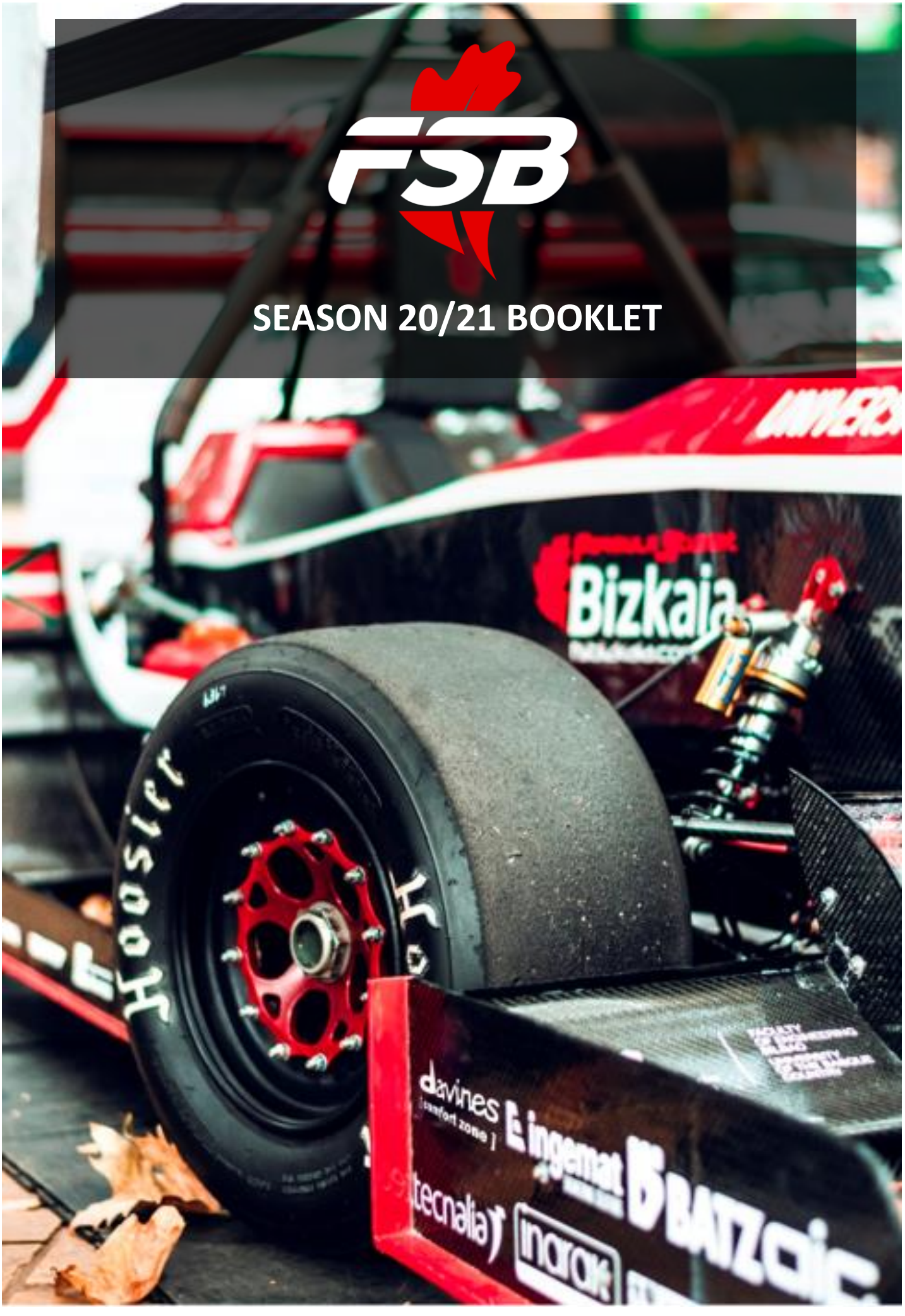
FSB
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FSB

2 FOREWORD

4 FORMULA STUDENT

8 HISTORY OF THE TEAM

12 FSB2020 & FSB2021

16 OUR TEAM

28 EVENTS

32 SPONSORS

FOREWORD

"Formula Student Bizkaia has given me the opportunity to understand that the most important part for a project to work, is to trust and take care of the people that make it up, human management is key. "

Borja G. Díez Artime
Team Leader

"Projects we have completed demonstrate what we know. Future projects decide what we will learn." – ***(Dr. Mohsin I.T, NUST Assistant Professor)***

According to Nikola Tesla's biography (Smiljan, 1856) the episode that would define the path of one of the most brilliant engineers and inventors in history happened when he was only three years old. Nikola was in the garden of his house in Smiljan, present-day Croatia, caressing his cat when suddenly there was a shower of noisy sparks from his hand and he wanted to find out why. He quickly looked for answers from his father, an Orthodox priest who could only answer that it was the same thing that happened to trees during a storm. Despite his young age, Nikola found the explanation insufficient, his curiosity ate him from the inside, so from that moment on he decided to focus all his future efforts on finding a response to this phenomenon that, unknowingly, would change the way we look at the world today.

His story is well known, he was boycotted by the great economic elites of the United States, starring in the famous War of the Currents along with Thomas Edison, and was the victim of continued harassment and theft of patents by the scientific community of the time who saw him as a nuisance. However, time would end up giving the honor Nikola deserved, despite having a conflictive personality. He was ahead of his time, thus he is considered as the father of modern electrical technology, a man determined to find answers to all his questions, and an artifice of the Second Industrial Revolution.

Formula Student Bizkaia (FSB, Bilbao, 2006) is a non-profit project within the framework of Formula Student (FS), formed entirely by engineering students from the UPV/EHU, a revolution in the field of university education. Every year, we design, manufacture and build a Formula 1 type electric single-seater car to promote the employability and training of our members. Like Nikola 200 years ago, they are driven by curiosity and their eagerness to find answers. However, being curious is not enough, after all, it was responsible for killing the cat. Something more is needed, an added bonus that concentrates all those desires on a common goal: hard work; and of that, Tesla was knowledgeable. "*If the work is interpreted as a definite performance in a specific time, I am the worst of the idlers*" (Nikola Tesla; My Inventions; 1919). It is work driven by passion and curiosity, that brings out the best of us: constancy.

In the 14 years of life of the project not only students have been trained in the technical field, but also in the staff, teaching values such as dedication, humility, cooperation and respect. Values, which have allowed us to settle within the automotive industry as one of the classic competitors and referents of Formula Student, continuously innovating and growing, facing the unknown.

It was the "future" projects that gave answers not only to Nikola, but also to humanity, laying the foundations of modern society. Likewise, Formula Student, always tireless, will seek to propose new challenges that contribute to the advance of technology and wellbeing, creating a network of professionals with a common culture, goal and commitment: finding answers to the unknown. Will Formula Student be the next future educational revolution? What will we discover?.

Driving Bilbao, November 14th 2019.

Gran Vía de Don Diego López de Haro, Bilbao.

Monoplaza FSB2019.

FORMULA STUDENT

"There are still two innovative forms of racing: Formula 1 and Formula Student" – Ross Brawn.

The origin of what we know today as Formula Student, or Formula SAE, takes place in the United States in the early 1980s, by the hand of the SAE (Society of Automotive Engineers) in Houston, Texas. After a few years of consolidation and development, the competition comes to the UK under the name of Formula Student in 1998 by the IMechE (Institution of Mechanical Engineers). During its 21 editions it has done nothing but grow reaching figures of more than 130 participating teams and more than 3000 students involved from universities around the world.

In addition, this event, which since 2007 has taken place in the international circuit of Silverstone and has Ross Brawn as director, has set a precedent for other entities across the continent, such as the Spanish STA (Society of Automotive Technicians), with the creation of the competition Formula Student Spain (FSS) that takes place in the circuit of Barcelona.

Today, we can find similar events in countries such as Germany, Austria, Australia, Spain, Italy, Czech Republic among others, proving that the Formula Student phenomenon has grown exponentially to establish itself as the largest international engineering competition for students.

The course of a competition is governed by extensive regulations detailed by the organizer of each event. On the basis of all the restrictions necessary to ensure the safety of pilots and provided that the design carried out follows good engineering practice, the regulation allows considerable freedom in the design and preparation of the tests, trying to awaken the entrepreneurial and innovative abilities of engineering students.

In addition, with the aim of evaluating the engineering designs, and not only the performance of the car itself, the total score of 1000 points of the competition is divided into two different blocks: dynamic and static events.

Formula Student Spain (FSS), Montmeló, 2019

FORMULA STUDENT

"Formula Student's concept is brilliant, as it creates a complete automotive engineering and business experience. Everyone has to face the reality of financial and resource limits with extreme time pressure and make tough decisions." – ***Willem Toet***

"Formula Student not only gives you work ethic, it gives you practical knowledge of what goes where and what type of key to use." – ***Leena Gade***

"The level of work is extraordinary. Fantastic cars are being produced, and the technological level is amazing." – ***Paddy Lowe***

DYNAMIC EVENTS

These tests evaluate all the functional characteristics of the vehicle that are assessed on 675 points. The vehicle must complete the *acceleration, skidpad, autocross, endurance* and *efficiency tests.*

The last two are carried out together and through them the acceleration, vehicular dynamics, and the reliability and efficiency of the prototype are evaluated.

Furthermore, the vehicles, before the dynamic tests are carried out, are subjected to a thorough technical inspection which includes the review of braking capacity, the roll-over stability test and, in the case of electric vehicles, the rain test.

5000 Students

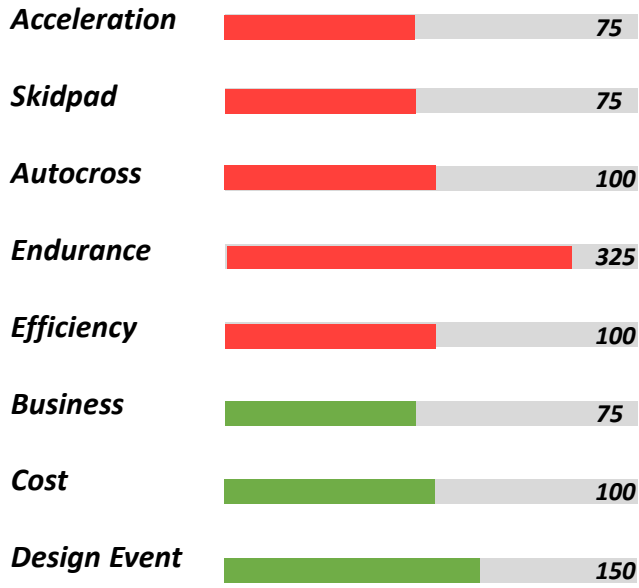
816 Teams

19 Competitions

STATIC EVENTS

Refers to those tests in which the vehicle is off and stationary in the box and they are evaluated on a total of 325 points: *Business Case, Cost Event and Design Event*.

They examine respectively the soundness of a business plan developed on the vehicle concept, the justification of production costs considering aspects such as manufacturing processes and sustainability; in addition to the validation and correct justification of each of the design decisions that have been taken throughout the process to reach the final result. All these tests go beyond technical knowledge and require a high degree of creativity.



Formula Student
Bizkaia
fsbizkaia.com
teknalia
Bilbao
davines
comfort zone
inarak
BATZ
aic
aluNID
SENER
ingemat
Hoosier
Gurit
ABRIMOVA
Inzar
Gestamp
FORMULA STUDENT
MECHANICAL ENGINEERS
E48
LEMA
SCHAEFFLER
IMEDUSA
GEDOREF
akunza

Formula Student Spain 2019, Montmeló

HISTORY

FSB2008

FSB2009

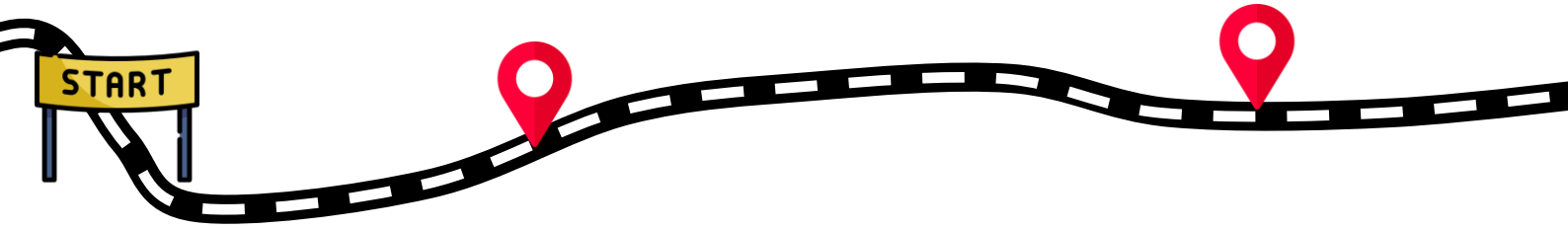
FSB2010

FIRST YEARS

The team was born in 2006 as an innovative project of the Bilbao School of Engineering (UPV/EHU). After two years of preparation, the first internal combustion prototype was completed in 2008 and was able to participate in all static tests. In 2009, the second car's evolution amazed the judges and managed to participate for the first time in the dynamic tests.

CONSOLIDATION

In 2010, the third vehicle was built focusing on doing well in the dynamic events. The design of the FSB2010 was a great leap forward in all aspects: weight, power, maneuverability... This was reflected in the improvement of the position, finishing in 57th place.



FSB2017

FSB2018

FSB2019

SEARCHING FOR THE PODIUM

The year 2017 was an important milestone in the fluid dynamic study, manufacturing and mounting and appendages in the car. The FSB2017 has been the most successful car in the team's history, achieving first place in the Business Case Event, second in the acceleration test, fifth in the Design Event, sixth place in the Cost Event and receiving the "*GKN Lightest Weight and Best Value Electric Vehicle*" award. In 2018, the FSB2018 again got a first place in the Business Case Event and third in the Cost Event. That same year, with all the knowledge and experience accumulated after so many years of work at Formula Student Bizkaia, a solid foundation was achieved that has led to another great technological leap in 2019. Having a reliable, high-performance car has allowed the team to level up, implementing innovative technologies that had not been used so far, such as energy regeneration, use of complex torque vectoring control or the implementation of a carbon suspension.

HISTORY

FSB2011

FSB2012e

FSB2013

FIRST YEARS

In 2011 a new internal combustion car made a qualitative leap by participating in two competitions, adding *Formula Student Spain*, held at the *Circuit de Catalunya*, to the traditional *Silverstone* competition where eight positions were climbed again. The fourth place achieved in Montmeló is the best position that a Spanish team has ever achieved in this competition. In 2012, the jump was even higher, as two totally new cars were built. An internal combustion engine, following the line of past seasons, which participated in the same two circuits as the previous year obtaining the best result until then in *Silverstone*, ending in 39th place.

The other, an innovative electric powered car that participated in the *Circuit de Catalunya* overcoming all the tests in the first attempt, constituting as the first of the saga of electric vehicles. In the 2013 season, for the first time, it finished first in the Business Case Event. Good results were achieved in Montmeló too, finishing second at national level.

FSB2014

FSB2015

FSB2016

TECHNOLOGICAL INNOVATION

The FSB2014 focused on reliability, it achieved the best results obtained by the team up to then: first place nationally, first place overall in the *Fuel Efficiency test*, and fourth place in the Business Case presentation. The year 2015 marked a significant leap in technology, with the introduction of composite materials in most vehicle elements. The main exponent of this leap was the monocoque carbon fiber chassis developed that gave way to a new era in Formula Student Bizkaia, using materials that are the future in the aerospace and automotive sectors.

The FSB2016 was another technological leap from its predecessor, the change to a traction system based on two electric motors instead of one and the decrease from a 13-inch wheel set to a 10-inch one. These technical modifications, coupled with a profound change in the team's methodology and image, allowed for the best mark in the acceleration test in the team's history, with 3.9 s, and a new record in static tests highlighting a sixth place in the Cost Event test.

▶ *Feria Eco Rallye Bilbao Petronor, Bilbao*

UNIVERSITY OF THE BASQUE COUNTRY
Formula Student
Bizkaia
fsbizkaia.com
fem eder
Gurit
AERnnova
Irizar
ENERGIAREN EUSKAL ERAKUNDEA
ENTE VASCO DE LA ENERGIA
Gestamp
LEMO
SCHAEFFLER
GEDORE
Transportes Lakunza
48
Hoosier
cnalia

FSB2020

EV 2-RTW
Emrax 188

108s2p LiPo
6.4 kWh

212 kg

107.5 km/h
0 - 100 km/h
3.8 s

Optimized steering

Sensor reading standardization

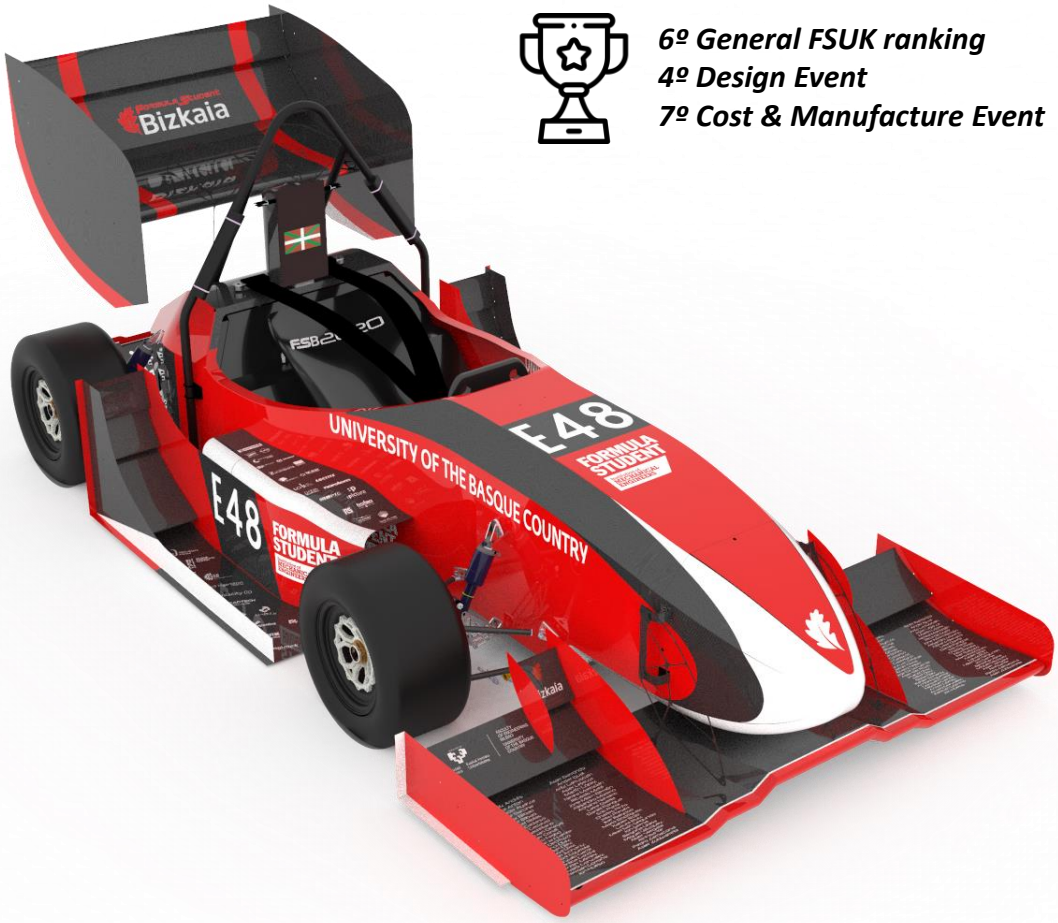
Monocoque manufacturing in stages

Wi-Fi based telemetry

AIMING HIGH

After the results of season 18/19 with the FSB2019 car entering the top 10 of Formula Student UK and Formula Student Spain, the team concluded that a last push was needed to stay in leading positions and continue to improve. To this end, an in-depth feasibility study was carried out in which different alternatives were analyzed in order to reach the highest technological level of the competition. Thus, a two-year project was born that would involve the design and manufacture of two totally different single-seaters in parallel: the FSB2020; a RWD (Rear-Wheel Drive), and the FSB2021; an AWD (All-Wheel Drive).

The FSB2020 is the most advanced RWD car developed by the team. The years of experience since the jump to two engines in 2016 and the Know-How based on the team and its members helped to optimize and exploit the maximum performance of its successful predecessor, the FSB2019. However, the COVID-19 pandemic forced to cancel all the events of Formula Student, and the FSB2020 could not compete in its corresponding season in the dynamic tests. Still, the team pulled enough muscle and motivation to compete at the FSUK virtual static events in full lockdown and from our respective homes, showing once again the reliability and dexterity of Formula Student Bizkaia in these tests, reaching a fourth place in the Design Event and seventh in the Cost & Manufacture Event. The team finished in sixth place in the overall ranking, among more than 67 teams. In the end, the FSB2020 will be launched at the beginning of the 20/21 season.



6º General FSUK ranking
4º Design Event
7º Cost & Manufacture Event

FSB2021

On the other hand, the FSB2021 is the first AWD developed by the team, a technology that is beginning to be known within the Formula Student and that very few teams have managed to implement in their respective cars. Unlike the FSB2020, the design of this car started from scratch, that is why it was considered essential to have enough time to design and test it, so that the team had enough time to carry out a reliable and competitive car, in addition to making this major technological leap.

This single-seater has 4 Fischer TI085 motors of 35 kW each, coupled to the wheel reducer subsystem without the need for paddles or drive shafts. The range of the vehicle has been increased due to its new electrical configuration, specially selected to get the maximum performance from the set of four motors. These design innovations, together with the adaptability and freedom of movement of a decoupled suspension, the reliability and flexibility provided by the battery management system of its own design, the optimization and validation of cooling systems and the notable improvement in control algorithms, make the FSB2021 the vehicle with the most competitive potential to date.

Although the future of the FSB2021 is yet to be seen, it is already at a very advanced stage, having already begun its manufacturing stage. By the end of the academic year the team has as a milestone to finish the assembly of the whole vehicle. Are you going to miss it?

Loading ...

EV AWD
Fischer TI085

144s2p LiPo
7.2 kWh

202 kg

135 km/h
0 - 100 km/h
3.4 s

Decoupled suspension

In wheel gearbox

Self-designed BMS

Optimized cooling

Torque vectoring control

DELL
FSB
Bizkaia

Stilo
COMPOSITE

OUR TEAM

TECHNOLOGICAL ADVANCE

The parallel development of two single-seaters during the previous season was the team's statement of purpose, revealing what it is truly capable of and it was only slowed down by the COVID-19 pandemic. This year, the team aims not only to finish both vehicles, but also to establish AWD technology in its range of electric cars, improving the technical and dynamic features of the car.

ALUMNI NETWORK

The team has an extensive network of former members, also known as "Alumni Network" in which all former team members stay in touch. This way, we help create a community among former and current team members. This is a key factor, since keeping the "Know-How" is a difficult task, so being able to count on the exchange of information on both sides helps promoting constant training of our Members.

DESIGN FOR COMPANIES

Project partners meet with the team members in an event organized each year, in order to rehearse the "Design Event" of competition. In addition students present the designs they have carried out throughout the season and in return get feedback from the attending sponsors.

NETWORK PRESENCE

Formula Student Bizkaia has been creating new content on its social networks for a while now and is constantly publishing to keep its followers informed. In addition, weekly news and feature articles are posted on the team's website to report on the latest developments and innovations.

"Perseverance is like electricity, makes no noise but makes the difference"
- Mario Rodríguez, Technical Manager Electric

"We develop the ability to solve any problem in this project, and if there are none, we create them to avoid getting bored"
– Ander Gómez, Technical Manager

"There is nothing more educational than participating in a real project with limited resources and there is nothing more motivating than competing globally."
-Josu Presilla, Technical manager

"Valuing the future, challenging the present, studying the past. Our actions have consequences that we must learn to solve."
– Imanol Díaz, Financial Manager

"Every bit of sand that each one brings is the best and that is the key of the team. If you want to go fast walk alone, if you want to go far go accompanied."
– Ainhoa Ye Xu, Organization Manager

"Both engineering and designing a single-seater, try to find simple solutions to modern problems"
– Eric Parra, Technical Manager

OUR TEAM

HUMAN RESOURCE MANAGEMENT

For the team, the health, motivation and bond between the different people that make up the team is essential. That is why many advances in human resources management have been made over the past few seasons, both in the technical and personal areas.

For the correct coordination between the departments, it was decided to start moving towards a more process-oriented approach, to use tools within the scope of "Cloud Computing" and to organize meetings and events such as "Creative Design" to promote it.

On the other hand, Team Building activities that the team organizes weekly help to promote interpersonal relations.

SUSTAINABILITY PROGRESS

Promoting sustainable living is one of the areas where the team works at the hardest. It would be impossible to understand the activity of the team without mentioning the importance of sustainability in it. The project has found in the EHU Agenda 2030 for Sustainable Development and the IKD i3 strategy the road map to promote university values such as collaboration, equality, critical thinking and social commitment among its members. Currently, FSB is a clear reference when considering SDGs in the world of engineering, recognized as Educational Innovation Project by the Vice Rector of Innovation.

STEAM EUSKADI 2020 LABEL

This year, the team had the privilege and honor of being recognized with the STEAM Basque Country label for its participation in the STEAM Euskadi Sariak, organized by the Department of Education of the Basque Government in collaboration with the Basque Agency for Innovation, Innobasque. The STEAM label seeks to promote scientific and technical education and training at all stages of education, involving socio-economic actors; to inspire vocations and professional aspirations in the STEM field, with special focus on female students; and spread scientific-technological culture among the Basque citizens".

MANAGEMENT

FACULTY ADVISORS

Charles Pinto

Javier Corral

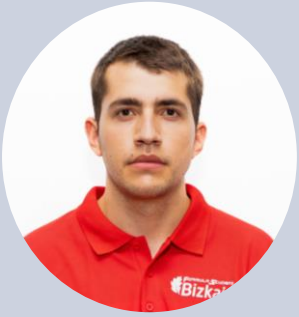
Asier Zubizarreta

Mikel Díez

TEAM MANAGERS

Borja G. Díez - Team Leader

Eric Parra - Technical Manager



Mario Rodríguez - Technical Manager Electric

Ander Gómez - Technical Manager Mechanical

Josu Presilla - Technical Manager Mechanical

Imanol Díaz - Financial Manager

Management group is responsible of leading the project, requiring a more global perspective of the team. They are responsible of overseeing the different groups, detecting possible problems that may arise, coordinating all members and organizing the team externally. It is made up of faculty advisors, professors from the UPV/EHU whose task is to advise and help the students who are part of the project. In addition, it also has the presence of the figure of Team Leader, Financial Manager and Technical Managers, who focus more on the rest of the tasks described. "

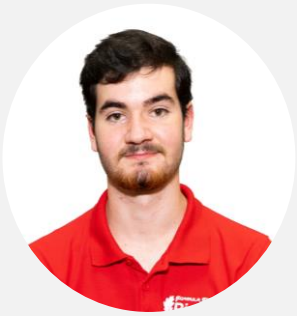
AERODYNAMICS

Iker Castellano - Aerodynamics Manager

Gonzalo Fernández de Castro

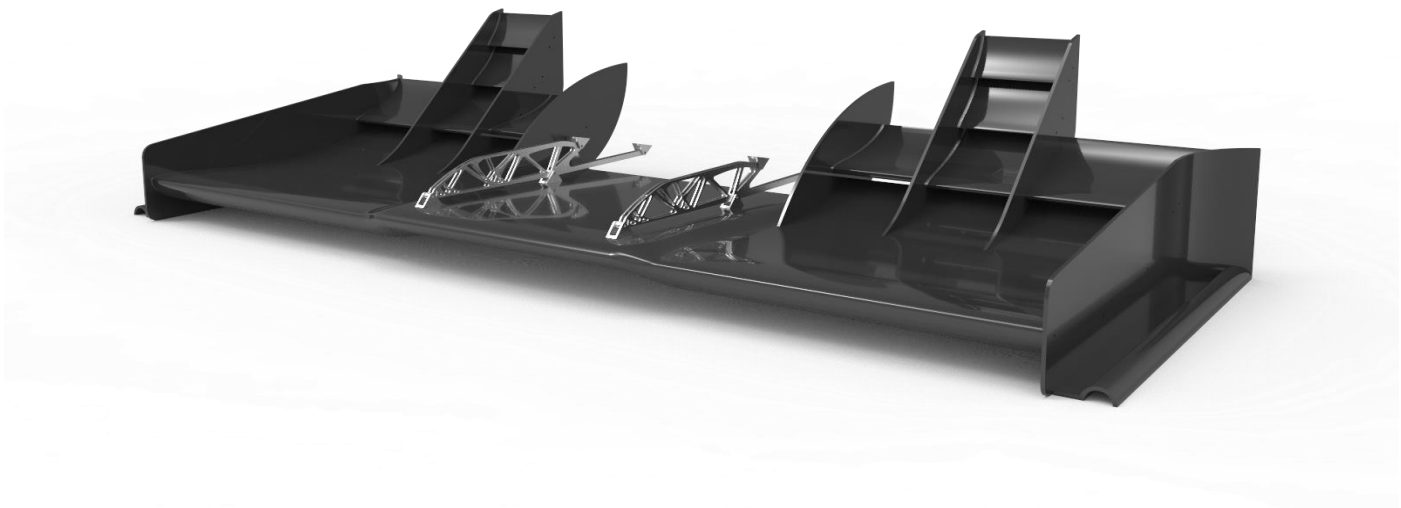
Unai Sordo

Adriana Rodríguez

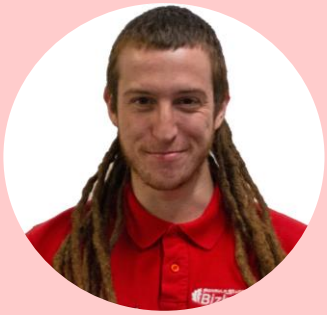


Jorge Orrite de Alba

Aerodynamics & Cooling is in charge of designing, calculating and manufacturing various parts of the vehicle. The elements they develop range from the aerodynamic devices including the front wing, sides and rear wing, to the diffuser.
On the other hand, they are also responsible of the cooling of the electrical power system.
They aim to reduce lap time by increasing cornering speed and improving maneuverability. For that reason, they create downforce while maintaining a good lift-to-drag ratio.



CHASSIS



Asier Vergara - Chassis Manager

Kerman Gorroño

Xabier Rojo

Álvaro González

Ainhoa Franco

Lander Angulo

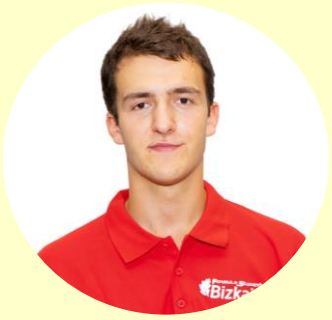
Jon Turrillo

"Chassis is responsible of the design, calculation and manufacture of the various structural parts of the vehicle. The elements they develop range from monocoque to smaller pieces such as the seat, roll arches, nose or head rests. Year after year, they pursue the goal of reducing weight, keeping the pilot safe by also improving ergonomics for greater comfort and reliability. This way, every year they innovate in the design of these parts as well as in the materials and manufacturing methods used."

DYNAMICS

Daniel Pangua - Dynamics Manager

Ander Igual

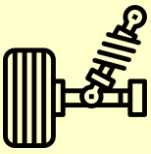


Luka Aldalur

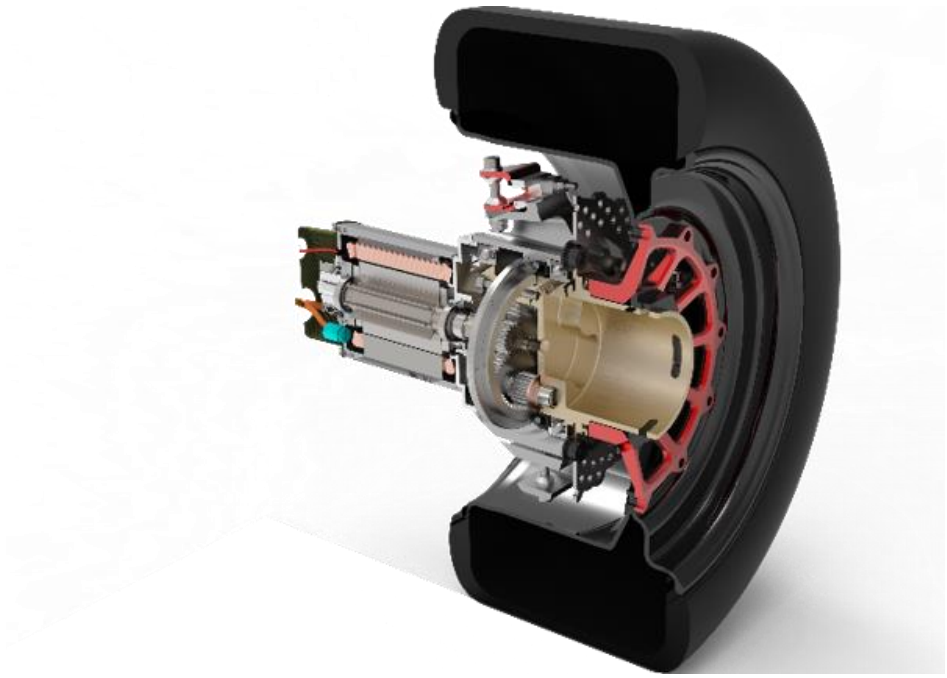
Fernando Bidea

Alex Cabello

Martín Zaballa



"Dynamics is in charge of the vehicle dynamics, as well as designing, manufacturing and maintaining the mechanical assemblies that make up the vehicle's unsprung mass like corners and suspension. It is also responsible of the steering set, brake system and pedal. Thanks to this group, the wheels follow perfectly the profile of the asphalt, achieving better maneuverability and that the vehicle is predictable for the pilot and obeys all his actions. "



ELECTRONICS

Jon Serna - Electronics Manager

Xabier Echániz

Egoitz Andrés

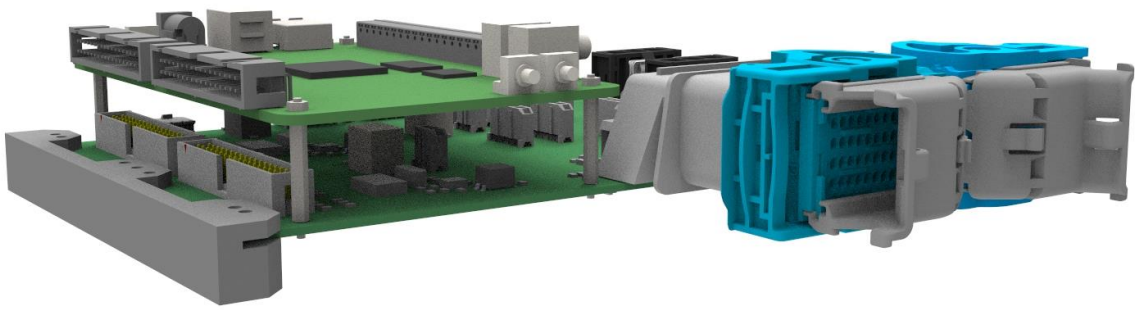
Alejandro Moreno

Aritz Arroita

Abraham Elcorobarrutia

David Ortega

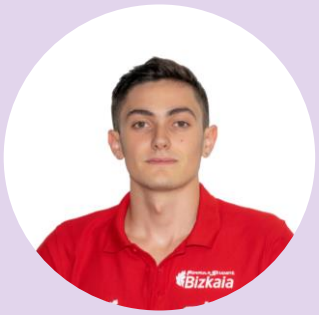
"Electronics handle all the elements that make up the vehicle's low voltage system. They are responsible of the design and manufacture of the electronic cards of the single-seater, as well as the programming of the control algorithms that are implemented in them. Their function is to collect information from the different sensors and components distributed throughout the car to ensure effective control over the behaviour of the vehicle and also the safety of the driver and those close to the car."



ORGANIZATION

Ainhoa Ye Xu - Organization Manager

Sofía Artola

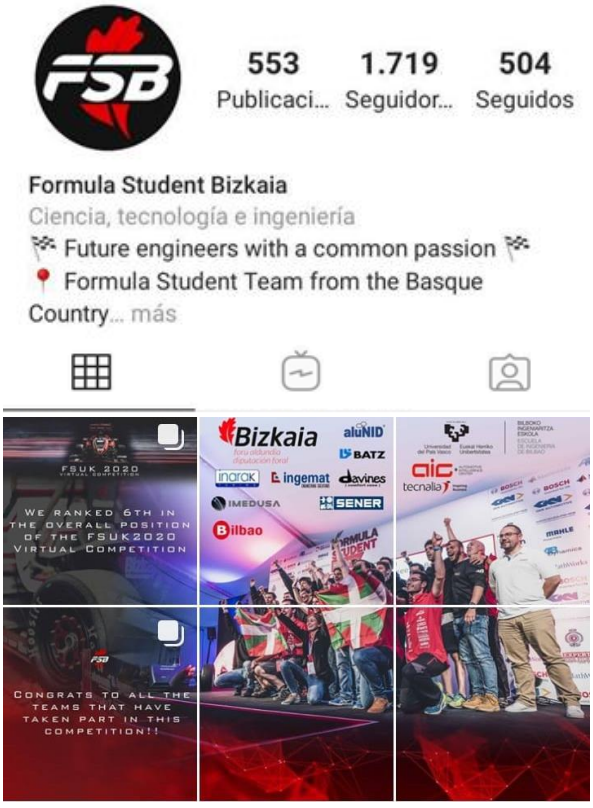


Javier Trueba

Paula San Pelayo

Asier Celorrio

"Organization is responsible of managing both organization and communication. Their task is essential, as they are the voice and image of the team in social networks. They are in charge of managing the coordination of the different members at events and conferences, as well as, handling marketing and multimedia strategy by innovating and creating new content."



POWERTRAIN

Asier Bilbao - Powertrain Manager

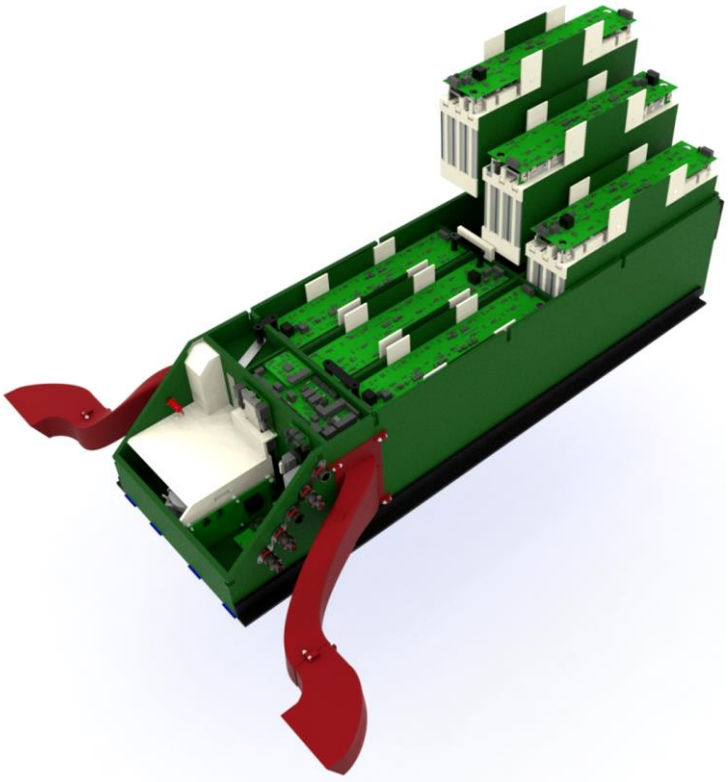
Ricardo Maté

Martín López

Miguel Vázquez

Javier Urquijo

"Powertrain is responsible for the high voltage system, consisting of the energy accumulator, motors and inverters. They are responsible for the successive processes that take place to convert the chemical energy stored in the electrochemical cells of the accumulator into electrical energy, and later transform it into mechanical torque. Thanks to this group, the vehicle gets the necessary power to be able to move. They also work with composite materials to ensure galvanic insulation of the high voltage electrical elements of the rest of the vehicle."

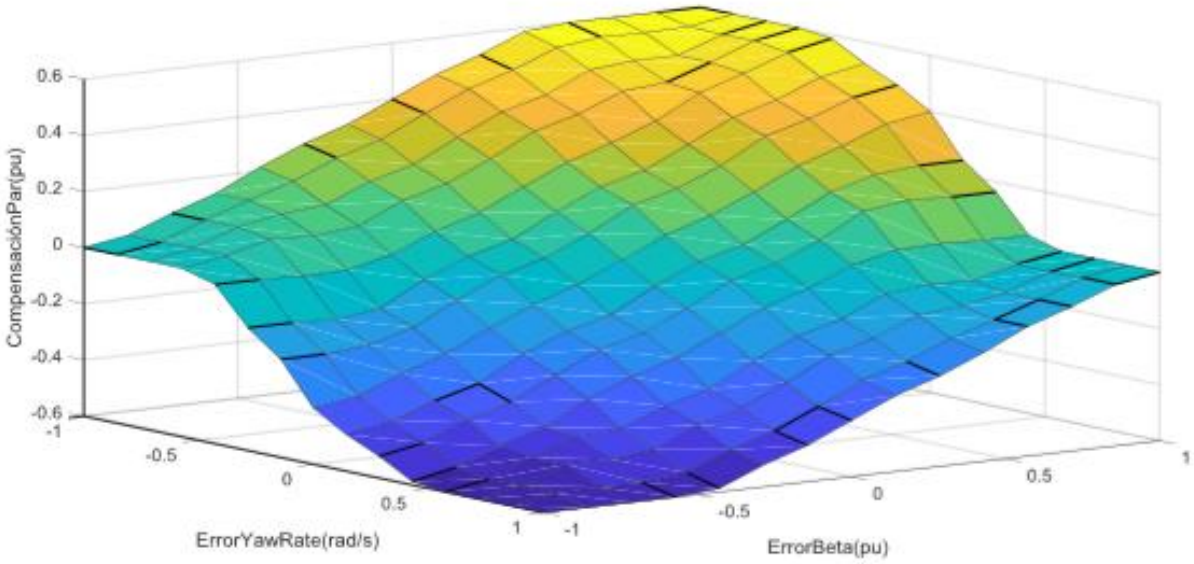


SIMULATION & CONTROL

Mónica García - Simulation Manager

Aitor Nieto

"Simulation is in charge of maximizing the potential of the car. It is responsible for the modeling, analysis and technological development of the vehicle. Many of the designs are based on the mathematical and theoretical studies of this group, and at the same time serve as a starting point to create the complex control algorithms that govern the car and improve its dynamics and behavior."



stilb
Bizkaia

This side up
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Bizkaia
Hoosier

Bizkaia
F48

GUESS
MORENO
UNIVERSITY OF THE BASQUE COUNTRY
Bizkaia
davines
[comfort zone]
FORMULA STUDENT
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Gurit
Irizar
Gestamp
SCHAEFFLER
GEDOREF
ingemat
BATZ
aic
tecnalia
inarak
SENER
aluNID

This side up
E48

Feria Eco Rallye Bilbao Petronor, Paseo del Arenal, Bilbao, Bizkaia.

Batz Innovation Summit, AIC, Boroa-Amorebieta, Bizkaia.

Zientzia Astea, Bizkaia Aretoa, Bilbao, Bizkaia.

Día de la Industria, Aula Magna UPV/EHU, Bilbao, Bizkaia.

Davines Fans, Beovipiel SL Davines, Urduliz, Bizkaia.

EVENTS

Committed to STEAM technology and promotional events

The project has a strong presence in all the events promoting STEAM vocations in our environment, both those promoted by the UPV/EHU and the Engineering School of Bilbao, as well as by public institutions and private entities. Every year, we participate in many of these events attended by professionals from the sector, as well as prospective students from the technical scientific field. In fact, the team gives several conferences and training talks in Vocational Training Centres and Secondary and Baccalaureate Education Centres in the Basque Country to bring engineering closer to students.

Driving Bilbao*
1500 Attendants
14/11/2019

Zientzia Astea*
8000 Attendants
6/11/2019

BATZ Advanced Manufacturing Innovation Summit 2019
17/10/2019

Davines Fans*
50 Attendants s
13/10/2020 & 2/02/2020

Naukas Kids
2000 Attendants
22/09/2019

Industy day *
600 Attendants
22/11/2019

Electric car Fair *
12/03/2020

Congress on Sustainable Urban Mobility
20/02/2019

Eco Rallye Bilbao Petronor
13/10/2019

First Lego League Euskadi
1500 Attendants
16/02/2019

Classic vehicle Fair
46.300 Attendants
16/11/2018

Open Day *
500 Attendants
4/03/2020

AIC Open Day*
200 Attendats
12/05/2018

***Annual Participation**

Driving Bilbao, Gran Vía de Don Diego López de Haro, Bilbao

FORMULA STUDENT
Bizkaia
FORMULA STUDENT
Bizkaia

SPONSORS

	BRONZE	SILVER	GOLD	PLATINUM	SOFTWARE	TECHNICAL CONSULTANT	SUPPORT INSTITUTION
Broadcast of the collaboration in social networks	✓	✓	✓	✓	✓	✓	✓
Media presence in the event signboards	✓	✓	✓	✓	✓	✓	✓
Company logo on the team website, link to your company's website included	✓	✓	✓	✓	✓	✓	✓
Sponsor visibility on the car		✓ *Mid*	✓ *High*	✓ *Very high*	✓ *High*	✓ *Mid*	
Mention of the sponsor in press releases			✓	✓	✓		
Company logo on the official team polo shirt			✓				
Availability of the car for company's own events**			✓				

****Depending on the car's availability**

Contributions depending on the level of agreement and collaboration with the team.	**BRONZE**	**Up to 999 € or equivalent**
	SILVER	**From 1000 € or equivalent**
	GOLD	**From 3000 € or equivalent**
	PLATINUM	**From 10.000 € or equivalent**
	SOFTWARE	**Software licences**
	TECHNICAL CONSULTANT	**Consulting and information**
	SUPPORT INSTITUTION	**Facilities, venues and practice circuits**

MAIN SPONSOR

Bizkaia
foru aldundia
diputación foral

ACADEMIC INSTITUTION

Universidad del País Vasco · Euskal Herriko Unibertsitatea

BILBOKO INGENIARITZA ESKOLA
ESCUELA DE INGENIERÍA DE BILBAO

PLATINUM SPONSORS

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SISTEMODEL · MADIT

GOLD SPONSORS

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SILVER SPONSORS

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IZAR CUTTING TOOLS · PTC Escuela perfeccionamiento y técnicas de conducción · NG Brake Disc · trafag sensors controls · Getecno INDUSTRIAL PRODUCTS · iparprint

BRONZE SPONSORS

BENDER The Power in Electrical Safety · smart materials 3D · Plastiform CRONOLAB ESPAÑA, S.L. · Engimek Ingeniería CAD-CAE · easycomposites · EURO CIRCUITS

TECHNICAL CONSULTANTS

GTS Gear Transmission Solutions · Álava Ingenieros GRUPO ÁLAVA · innovalia METROLOGY · GKN · CADTECH CT SOLUTIONS · alterity · GAIKER ik4 research alliance

SOFTWARE

ANSYS · Altium · CD-adapco www.cd-adapco.com · DASSAULT SYSTEMES · MATLAB · KISSsoft Drivetrain Design Solutions

VOCATIONAL TRAINING INSTITUTIONS

san viator sopuerta elizbarrutiko irakas-gunea · ZULAIBAR ARRATIAKO LANBIDE IKASTEGIA · salesianos · BIDEBIETA FORMACIÓN PROFESIONAL LANBIDE HEZIKETA · eskurtze instituto de educación secundaria bigarren hezkuntzako institutua · lea artibai ikastetxea · ArmeriaEskola ondo egindako lana
LAUDIOALDE LANBIDE ESKOLA · maristak Durango Ikastetxea · CIFP NICOLÁS LARBURU LHII Centro Integrado de Formación Profesional Lanbide Heziketako Ikastetxea Integratua · somorrostro · Barrutialde INSTITUTUA · Txorierri · CIFP-LHII TARTANGA ERANDIO · ZORNOTZA

SUPPORT INSTITUTIONS

ARTEA · LEKV · BEC! BILBAO EXHIBITION CENTRE

#AlwaysDrivingTogether