



ninaut
engineering

NEW INTEGRATED

AUTOMOTIVE

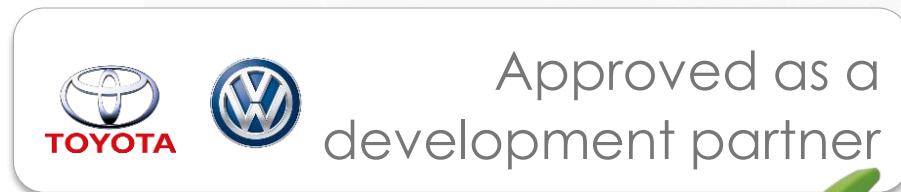
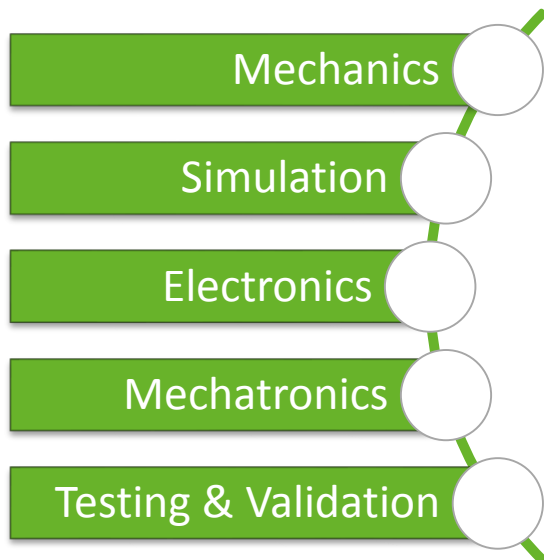
edai

engineering
developments
for automotive
industry

September. 2018

Who we are.

- **NINAUT** is a company which was born from EDAl, taking over a part of it.
- **NINAUT** is an advanced development company.
- Different services at **NINAUT**:



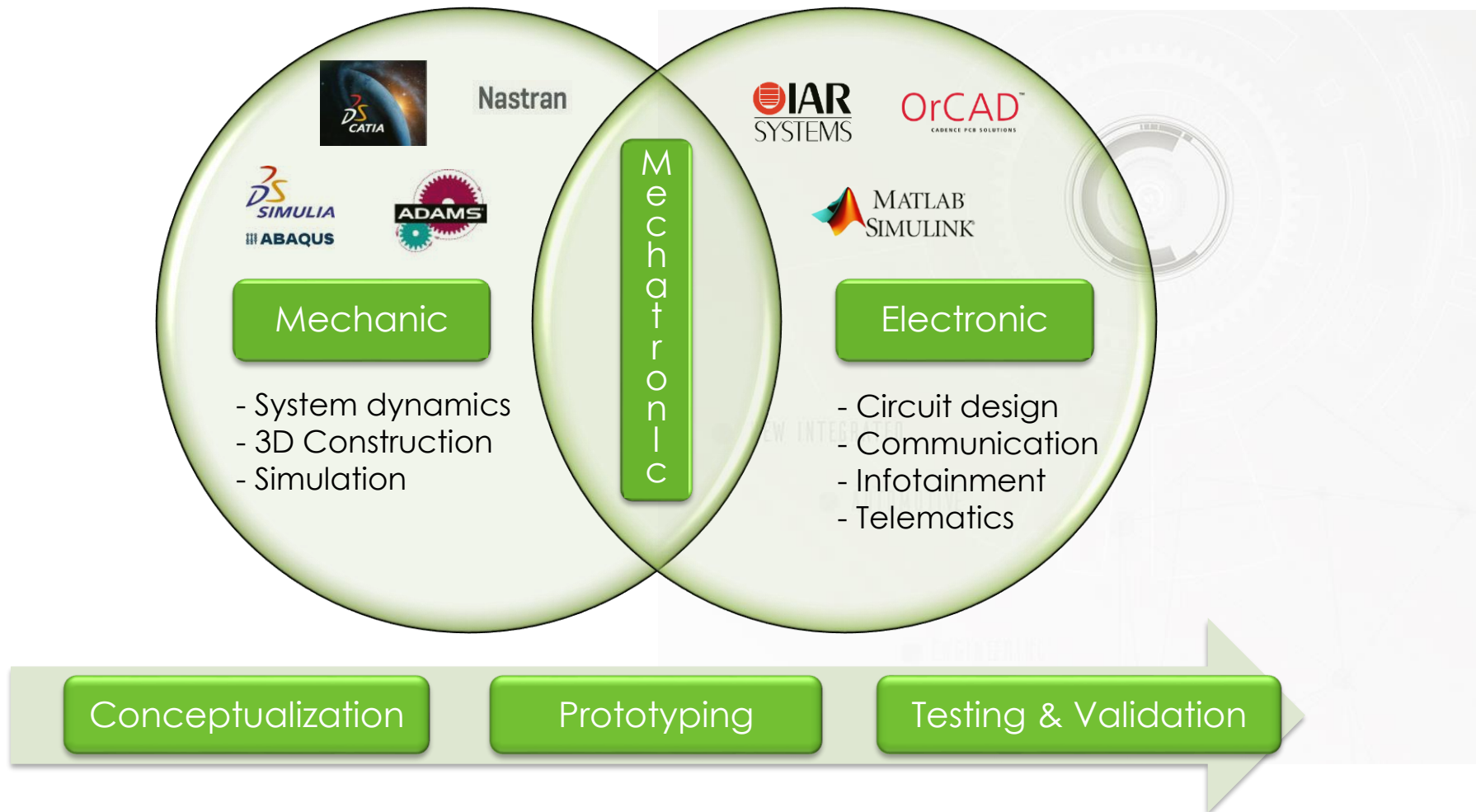
- Experience with OEM-s. (VW, Toyota, BMW, PORSCHE, KTM, ...)

Team & Location.

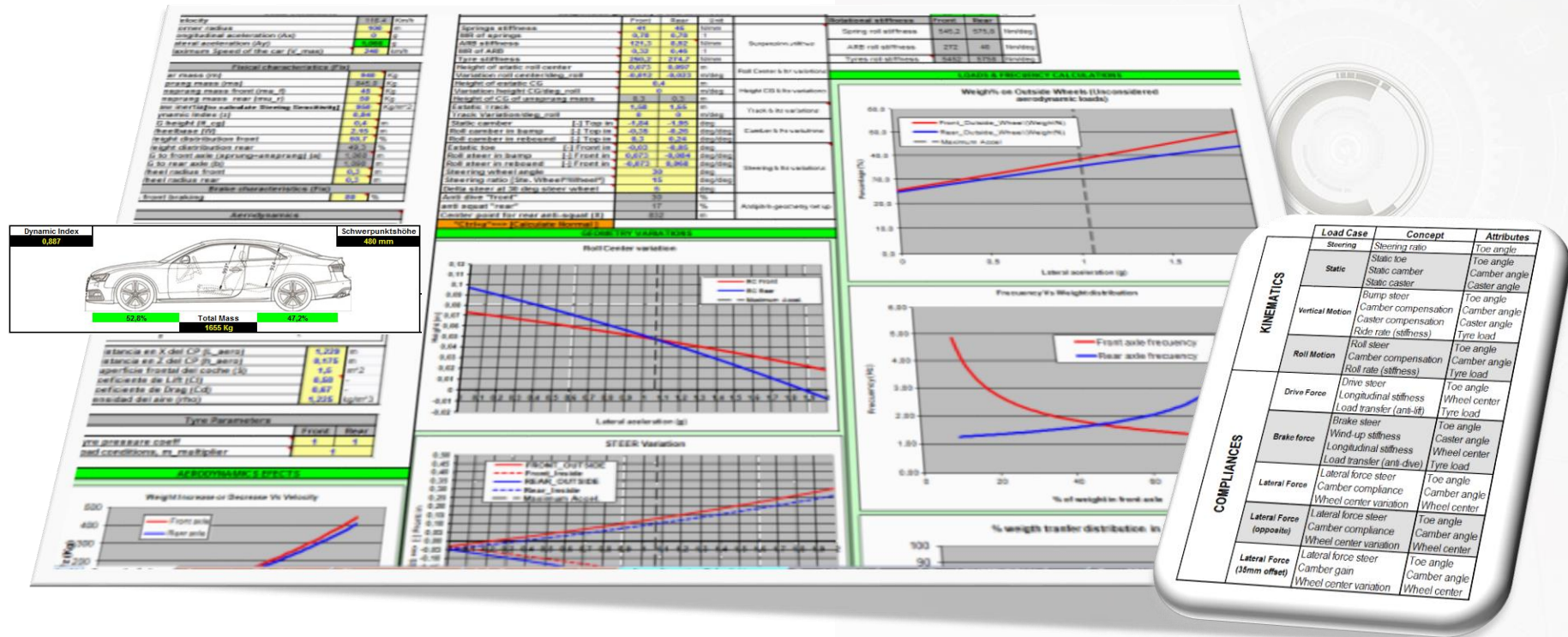
- 17 People.
 - Licensed.
 - Technical.
- 2 Location + 1 next year
 - Bizkaia (2 places)
 - Girona.
 - Wolfsburg.



Technical Structure.



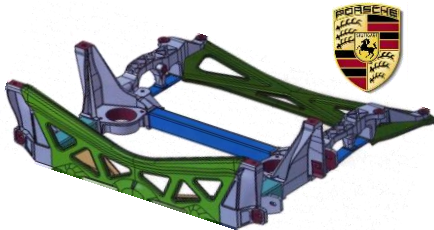
“System dynamics”. Capabilities to define and transform the behaviour of different platforms (passenger-car, public-services, race-car, ...) and systems based in **“Vehicle Dynamics”** knowledge. System DNA definition.



Elasto-cinematic properties of the system for the best compromise between, performance, comfort, stiffness, damping,... All criteria are applied as in OEM-s development centers.

“3D Construction” Knowledge and creativity to develop components/systems understanding OEM-s requirements. (Some examples developed)

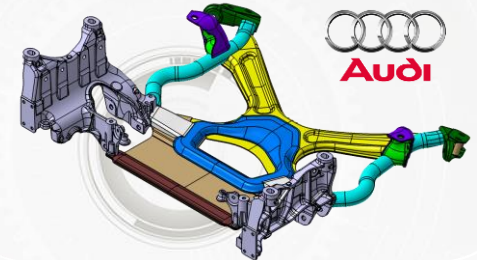
Aluminum Front Subframe.



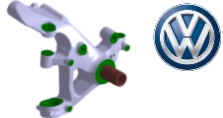
Dashboard.



Steel/Alu Front Subframe.



Aluminum Knuckle

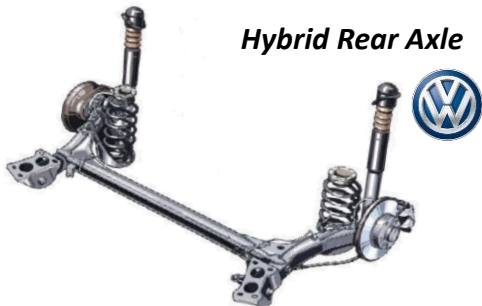


COST / WEIGHT / FUNCTION
as key figure for designs evaluation

Hybrid Link.



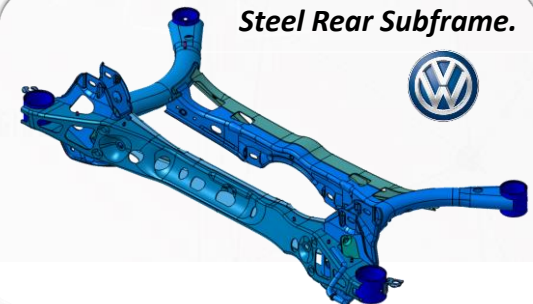
Hybrid Rear Axle



SmartKey.

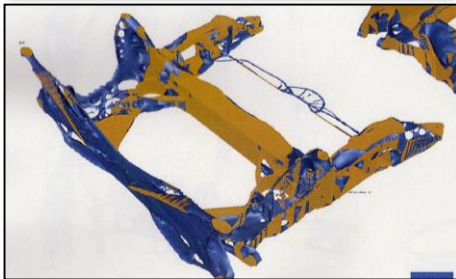


Steel Rear Subframe.

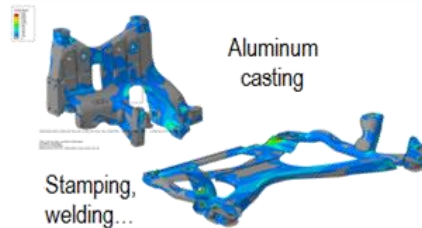


“Simulation” Part/System functionality. Simulating all critical requirements for the components and the systems. Experience in Steel, Aluminum, Plastic, Glass Fiber, Carbon Fiber,...

0. Topological optimization



1. Lineal Load case



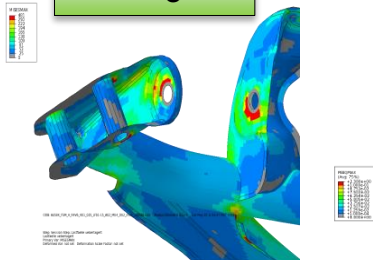
2. No-Lineal Load case

Betrag in µm	LF27	LF28	LF29	LF30	LF31	LF32	LF33	LF34	LF35	LF36	LF37
PNT-HRV-LI	0	0	3	0	11	1	5	0	0	6	42
PNT-HRV-RE	0	1	2	1	7	2	3	0	0	7	23
PNT-HRM-LI	0	0	2	0	7	1	4	0	0	2	36
PNT-HRM-RE	0	1	1	0	6	2	2	0	0	3	25
PNT-HRH-LI	0	1	1	0	7	5	2	0	0	6	17
PNT-HRH-RE	0	0	3	0	10	1	9	0	0	4	22
PNT-HRQ-LI	0	1	1	0	7	5	2	0	0	6	19
PNT-HRQ-RE	0	0	3	0	10	1	9	0	0	5	24
PNT-HRQ-LI	0	2	2	1	3	3	4	0	0	6	3
PNT-HRQ-RE	0	0	2	0	7	2	6	0	0	2	20
PNT-UI-LI	0	2	6	7	7	6	5	0	0	77	43
PNT-UI-RE	0	1	4	1	119	2	10	0	0	12	433
PNT-US-LI	0	5	1	3	6	14	2	0	0	6	14
PNT-US-RE	1	0	0	0	12	1	23	0	0	4	19
PNT-TI-LI	0	3	14	1	14	6	6	0	0	22	80
PNT-TI-RE	0	2	5	1	18	3	9	0	0	17	67
PNT-LENG	0	3	16	3	32	5	6	0	0	26	129

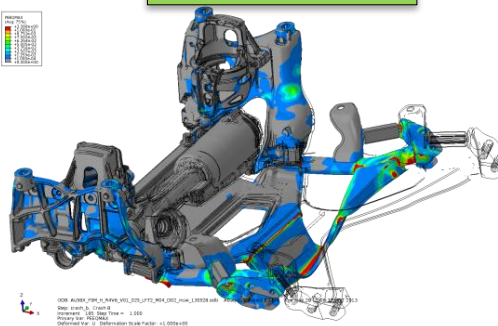
3. Static natural Frequencies

Mode	1st	2nd	3rd
1	42,3	94,4	79,5
2	85,4	165,0	90,6
3	106,3	184,4	120,3
4	125,6	202,6	173,9
5	132,9	219,3	183,0
6	166,5	230,8	196,7
7	208,9	296,5	242,8
8	234,5		252,3
9	243,1		291,6
10	259,8		298,0
11	278,8		
12	296,2		
13	303,7		

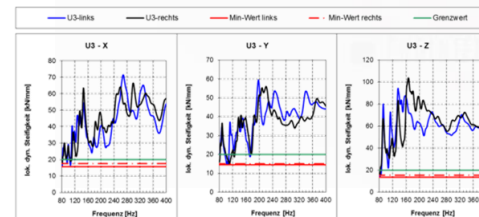
7. Fatigue



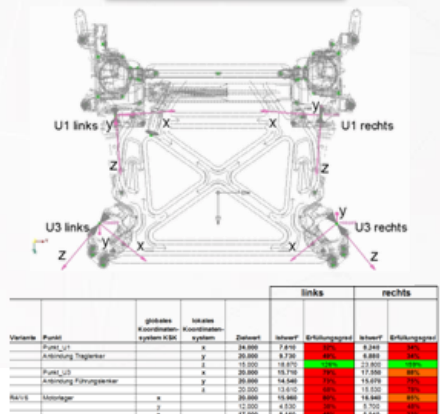
6. Crash test



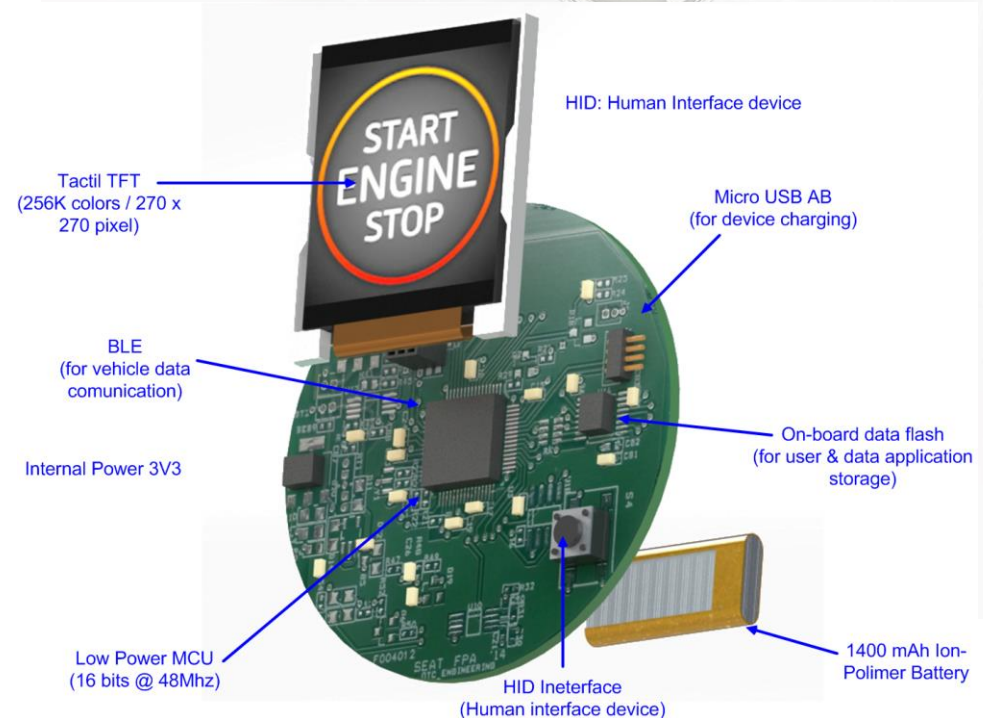
5. Local dynamic stiffness



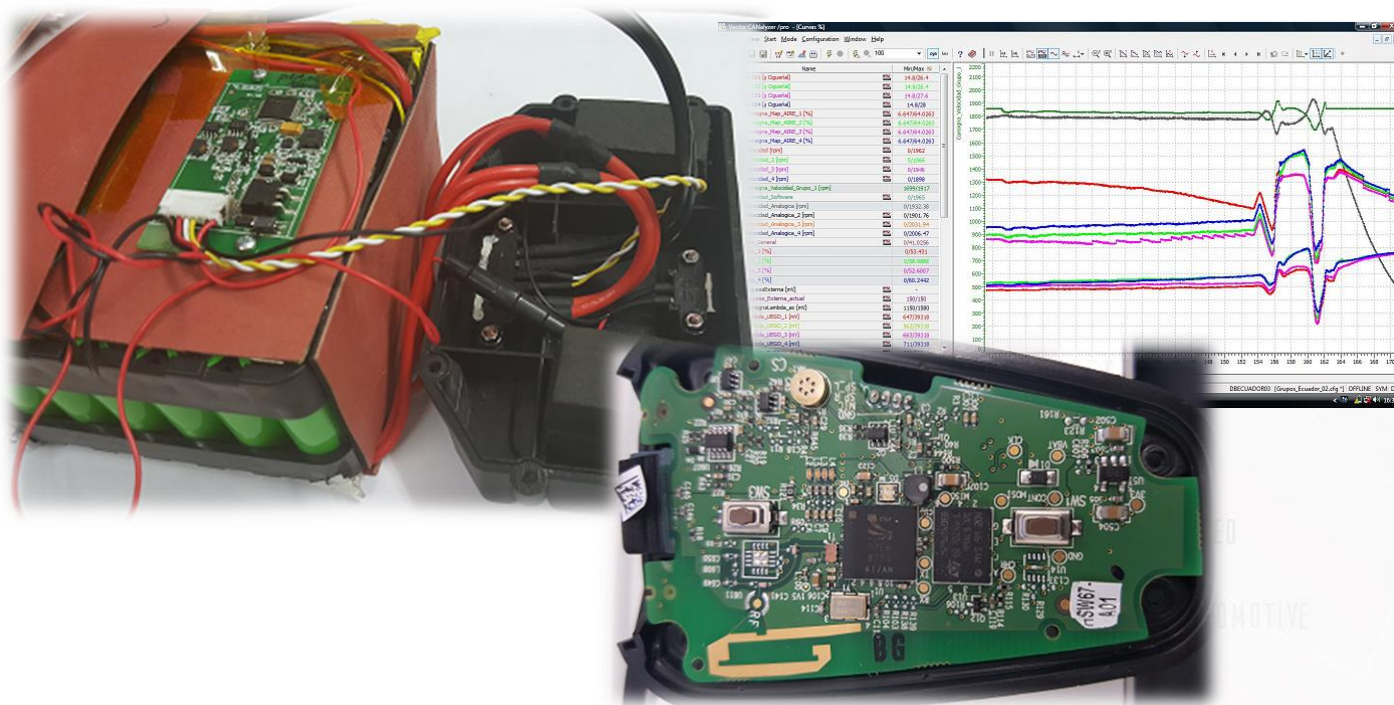
4. Stiffness



“Electronics” developing Smarter Solutions with the latest technologies to create new products and solutions for automotive sector. (SEAT 20V20)



“Communications” our best knowledge and expertise. Integrating the latest IT technologies into automotive sector.



CAN



LOCAL INTERCONNECT NETWORK



androidauto



Communication experts: Approved to work with its communications. Implementing raw and proprietary protocols.



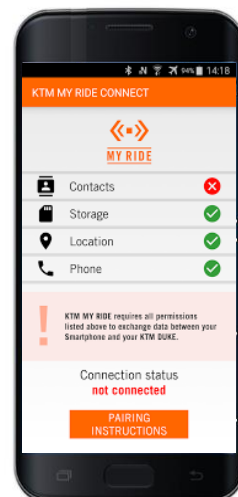
“Infotainment” we integrate and develop classis Bluetooth with audio routing capabilities to connect and communicate the Headset and the Smartphone to the dashboard at the same time, thus the user can manage Call-in functions and Multimedia player from the handlebar . (KTM DUKE 390)



CALL-IN functionality: user can manage any incoming call from the DashBoard and the Handlebar. Incoming call information are displayed on the dashboard.

Multimedia player: user can manage multimedia player from the dahsboard and listen the music directly on the headset. Track information are displayed on the dashboard.

NEW INTEGRATED
AUTOMOTIVE



“Telematics” Capability to apply the latest IT technologies into automotive sector to develop the future of automotive intelligence.



- ✓ Real time vehicle data
- ✓ Driving profiles
- ✓ Use data
- ✓ Brand community
- ✓ Trip planning
- ✓ Keyless
- ✓ Online diagnostics
- ✓ Car settings & customization
- ✓



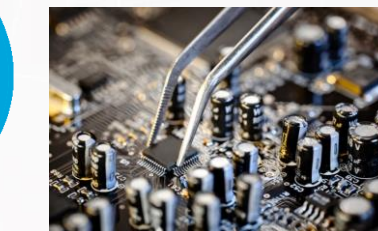
**Smartphone Software
(iOS & Android)**
New services for your costumers



CONNECTECH

The technology that
enables the future of
automotive

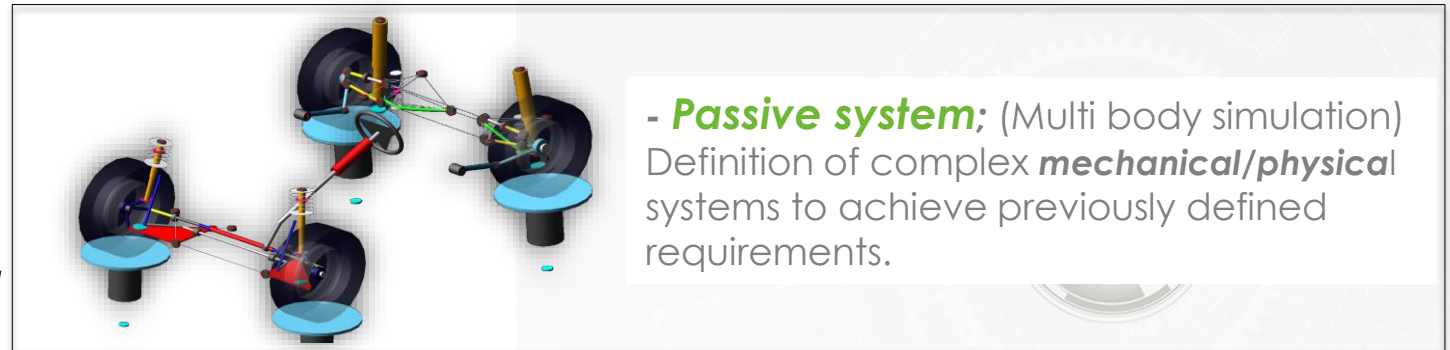
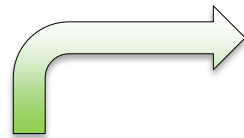
Cloud service telematics platform
Manage vehicle data, users, keys,
bookings and so on...




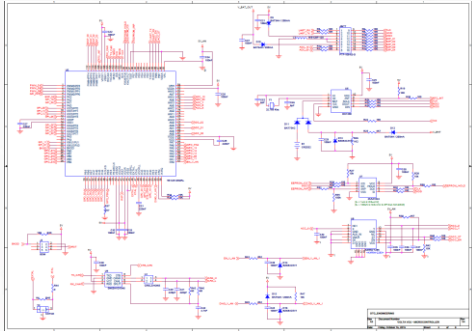
OTC Telematic Units
To connect your vehicles
into the world in a real time.



“Mechatronic systems” Concept design to define configuration/strategy between active and passive systems. **“Mechatronic simulations”** to validate mechanical characteristics adding control software in concept phase. TCS, ABS,...



- **Active system;** (Software simulation)
Software programming capability's to develop virtually the right control strategy in complex mechanical applications. The Hybrid and Electric systems need **electric & electronic** control strategy for the active safety systems.

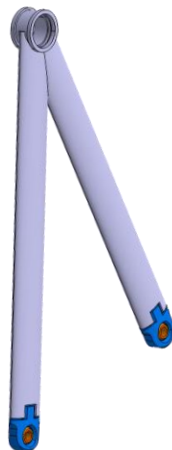



We predict exactly the behavior of the system, defining previously all **actuators & sensor** to control correctly the systems.

“Functional prototypes” From first ideas to final prototype. We take into account ratio between price, weight & system functionality. We pre-calculate in each development the costs of production.

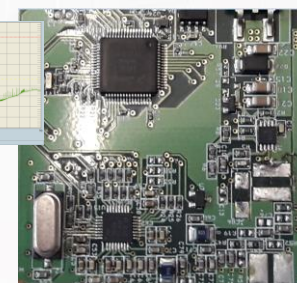
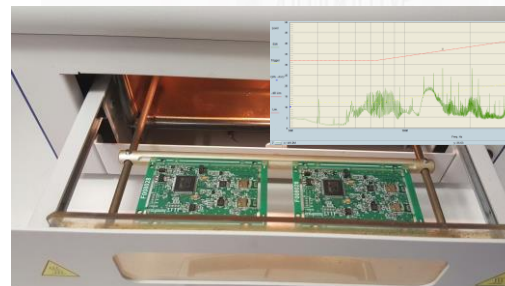
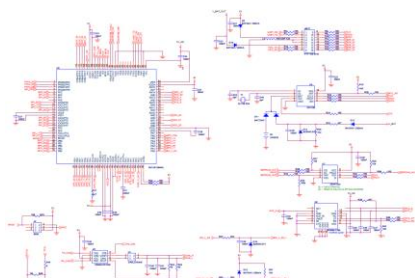
High complex Aluminium structural parts.

Extreme light weight.
Combination between different Aluminium material, welding lines,...



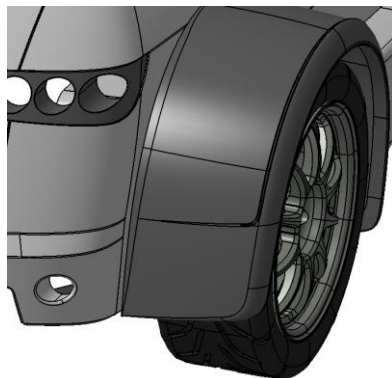
Complete PCB solution

Control system from Software definition to circuit construction.
From first sketch to final integration.

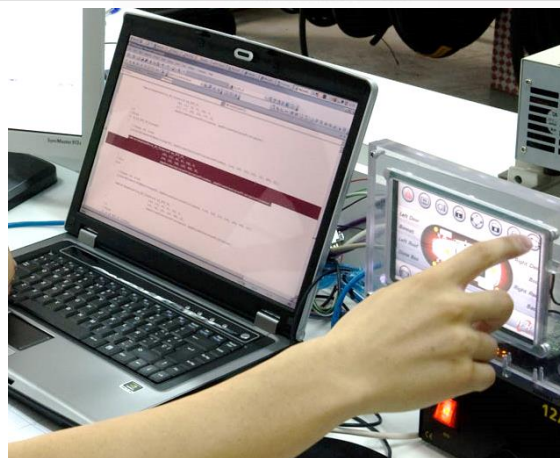
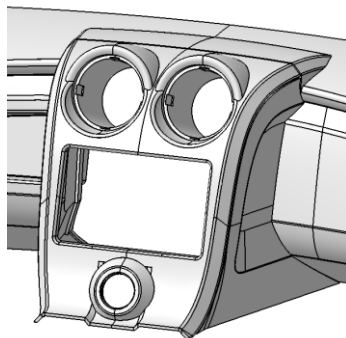


“Functional prototypes” From first ideas to final prototype. We take into account ratio between price, weight & system functionality. We pre-calculate in each development the costs of production.

Special Hybrid
Carbon-Fiber/Kevlar/Honeycomb
structural components to reduce weight and protection against the impacts of stones.

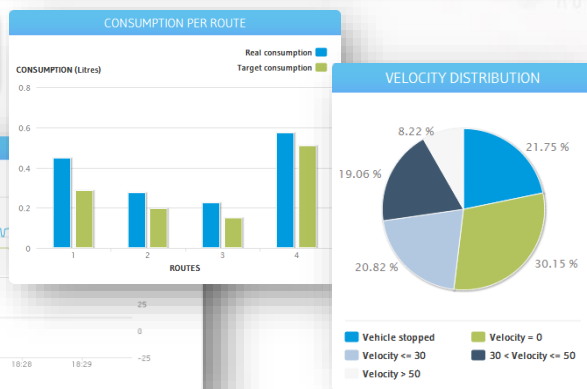
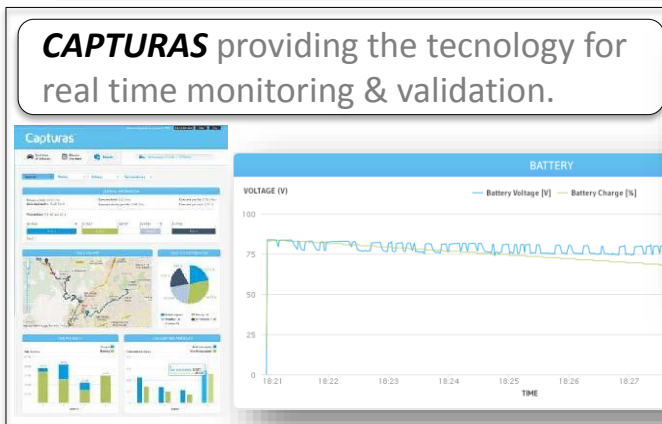
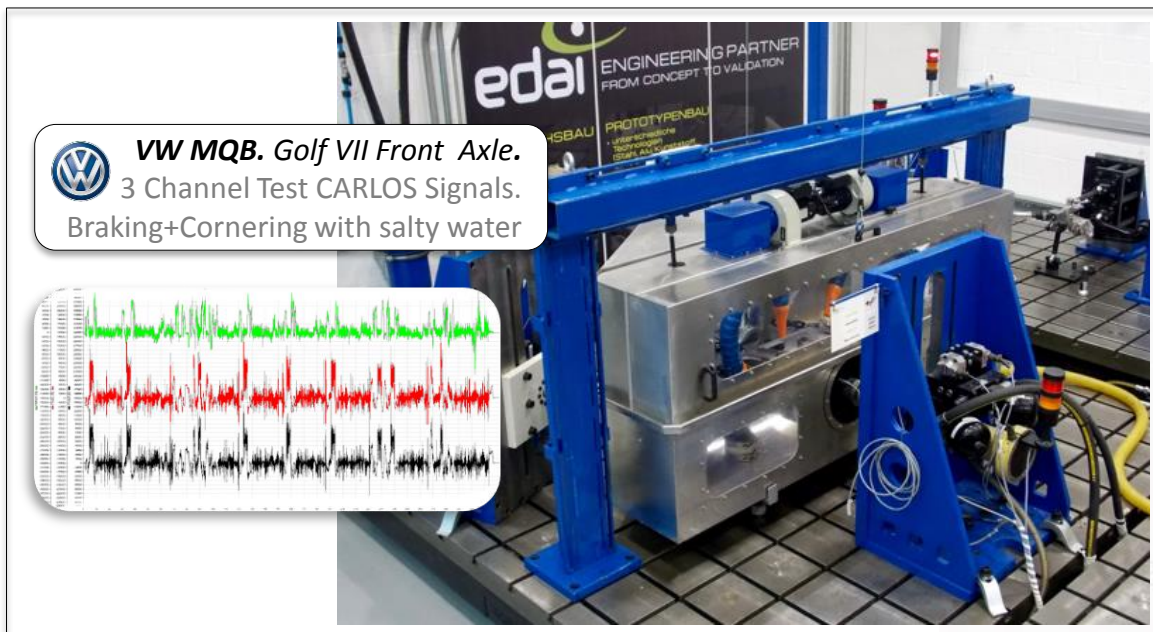


Perfect integrated
Telematic and mechatronic
components. Avoiding electro compatibility problems, conductivity, noise, vibrations,...



5. Testing & Validation

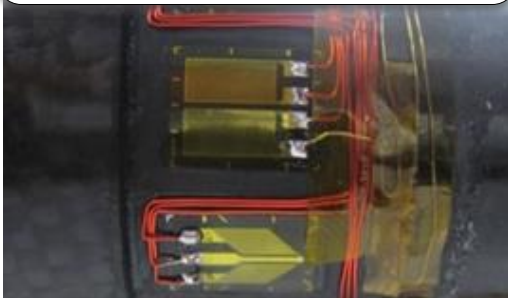
Capability to design and build up complex test rigs to validate the active and passive system.



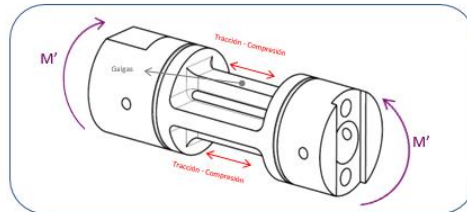
Capability to design and build up complex test rigs to validate the active and passive system.

Static Correlation ; Stiffness & Stress-Strain

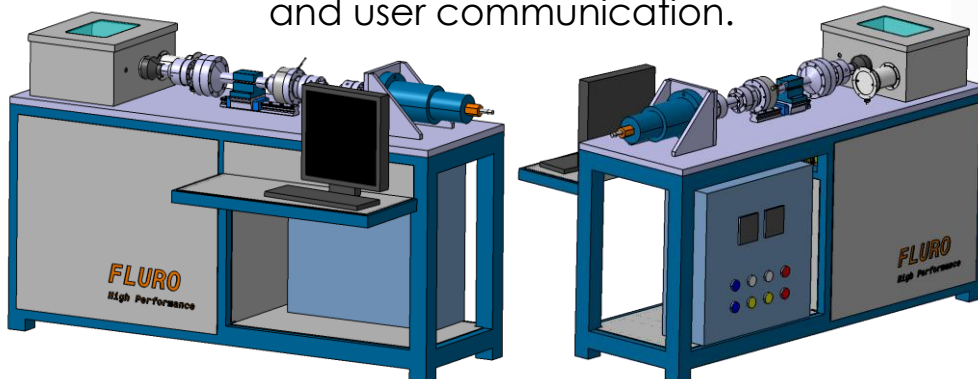
Correlation of tension levels between prototype and virtual simulation, with **sensorized** part.



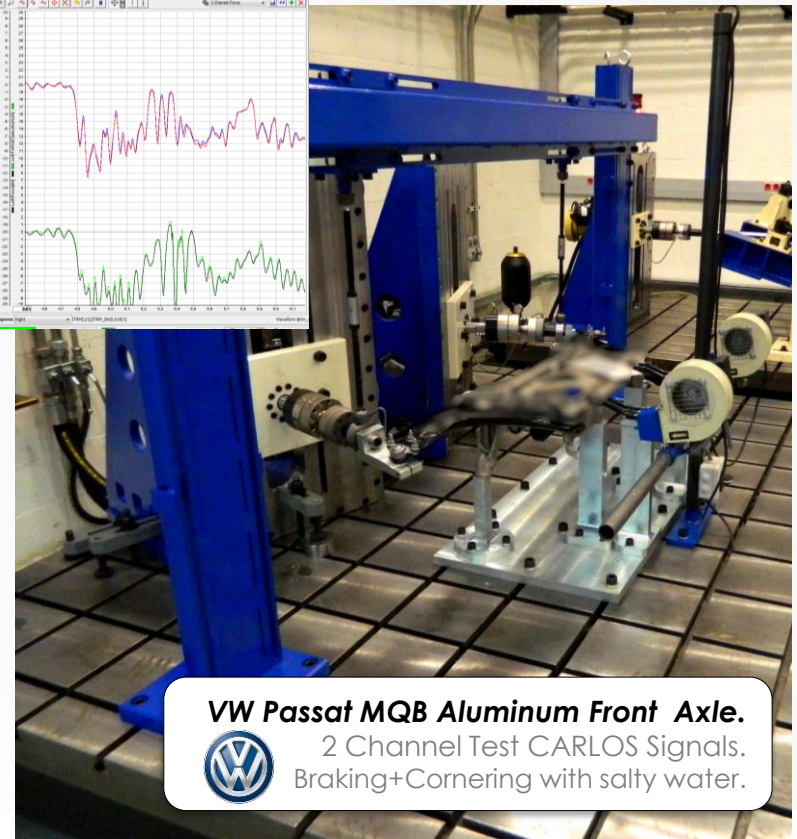
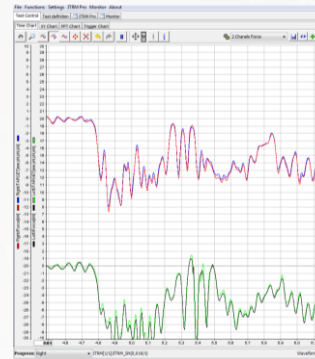
Experience in Carbon Fiber, Aluminium, Steel, Plastic,...



Testing system definition & construction with electronic controls and user communication.



Dynamic Correlation ; Dynamic Stiffness & Damping, Friction evaluation & Durability.



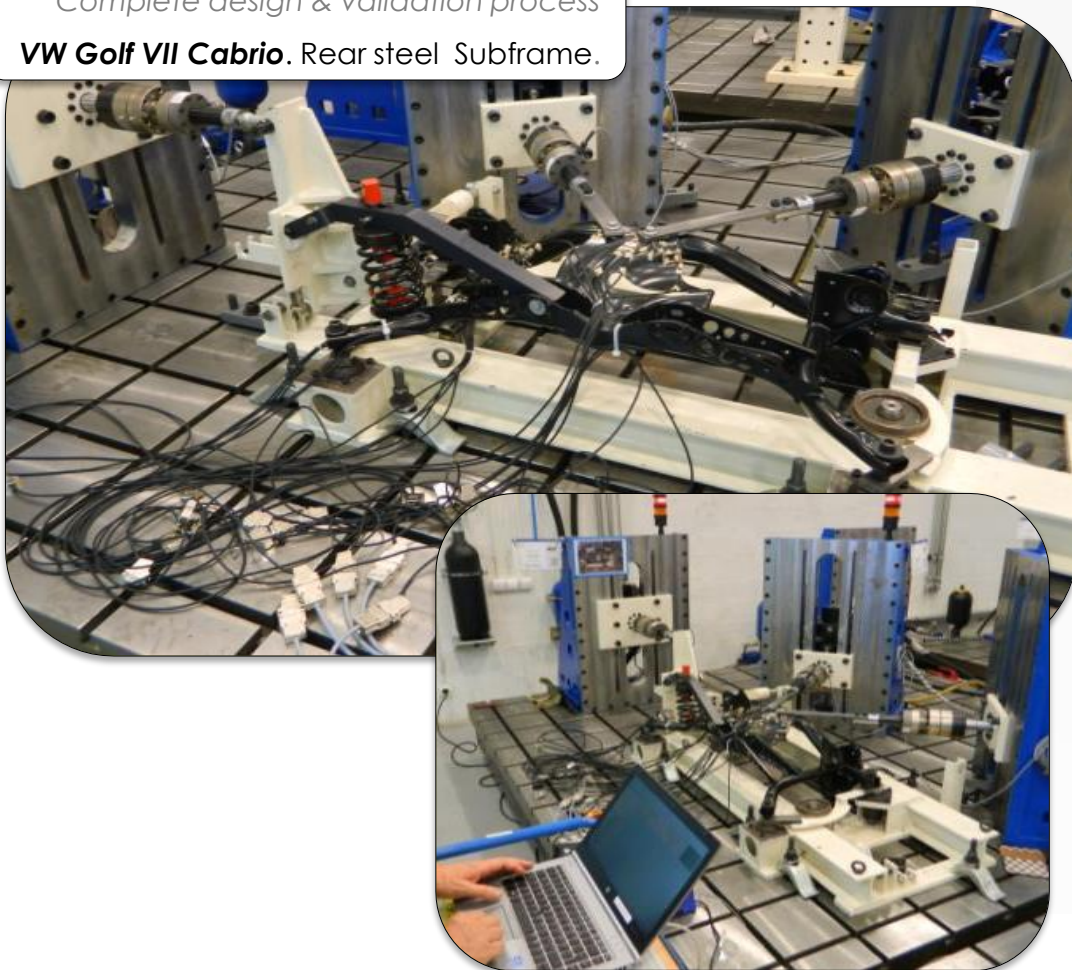
VW Passat MQB Aluminum Front Axle.
2 Channel Test CARLOS Signals.
Braking+Cornering with salty water.

6. Successful Projects

Developed, prototyped and validated project. All expertise from OEM to validate complete systems.
Correlation of tension levels between prototype and virtual simulation with sensorized part.

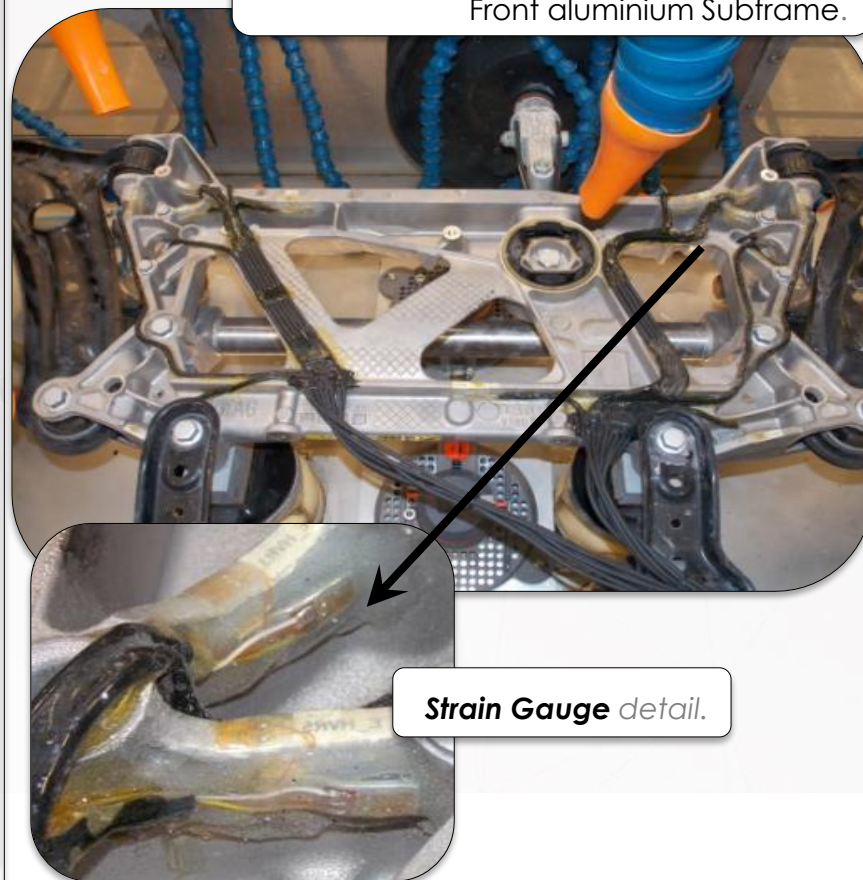
Complete design & validation process

VW Golf VII Cabrio. Rear steel Subframe.



Complete validation process **VW Golf VII**

Front aluminium Subframe.



Developed, prototyped and validated projects for OEM and TIER 1.
5 Patents related with weight reduction in serial production.

Project for OEM



Patented Design

[WO2013110528](#)



Rear Subframe

17,6% weight reduction
 VW Passat, Audi A3,...



Patented Design

[DE102012111461A1](#)



Rear Subframe.

15% weight reduction
 VW Golf, VW EOS,...



Patented Design

[DE102014116200A1](#)



Hybrid Rear Axle.

27% weight reduction
 11 Parts Vs 43 Parts
 Carbon/Glass Fiber + Alu



Patented Design

EP03305398



Hybrid Link.

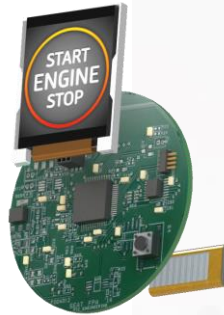
14% weight reduction
 Plastic + Steel

The first TOYOTA car (worldwide)
 that will include (2018)
 a HYBRID structural part in suspension.



SmartKey concept

development for 20V20 project



NEW INTEGRATED



Enabling

new infotainment
 features for 2 wheelers



北汽集团
BAIC Group

Infotainment

development for
 Beijing
 Automotive



Project for TIER 1



Patented Design

EP11382075

Mubea
 light efficient global.



Patented Design

EP15382353

Mubea
 light efficient global.



Patented Design

EP14382346

Mubea
 light efficient global.



Patented Design

EP15802159

Mubea
 light efficient global.



Click
 here to
 see the
 patent

Click
 here to
 see the
 patent

Click
 here to
 see the
 patent

Thank you!

Product & System Development

Joserra Mosteiro Goyoaga

Email; joserra.mosteiro@ninaut.es

Telf; 616 58 57 69

Testing & Validation

Aitor Uriarte Urrutia

Email; aitor.uriarte@ninaut.es

Telf; 605 77 72 75