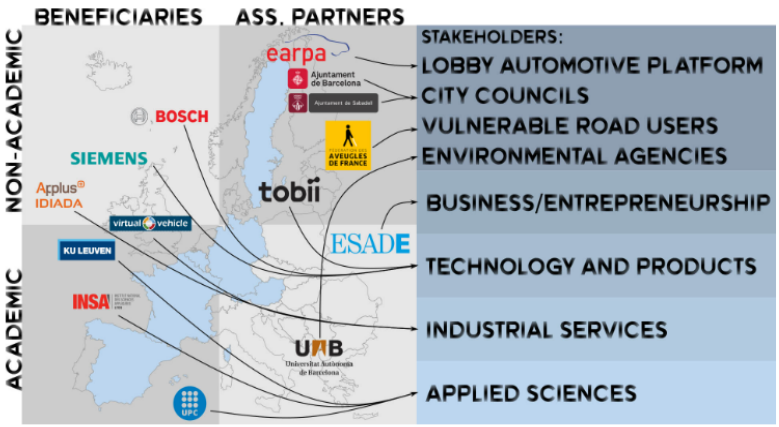
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NEWSLETTER # 1

"Global Acoustic interaction and Psychoacoustic impact of the autonomous vehicles in interior and exterior NOISE" (GAP_NOISE) is a Horizon Europe MSCA Doctoral Network that started on 1st March 2023.

GAP_NOISE aims to develop research and a training program to create a technologically strong community of scientists and engineers capable of boosting the integration of electric powertrains in future vehicles.

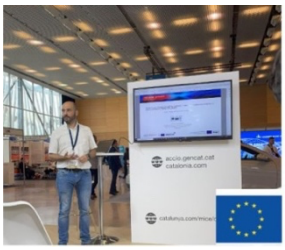


GAP_NOISE Consortium represents a good balance in terms of experience and type of organisation:



On the 28th and 29th of March 2023, the Consortium met in UPC (Barcelona) to start the passionate journey of creating a thriving community of young researchers.

GAP_NOISE had a presence at the FISITA World Congress held on 12th-15th September of 2023 on behalf of Prof. Arnau Dòria-Cerezo, coordinator of this project.

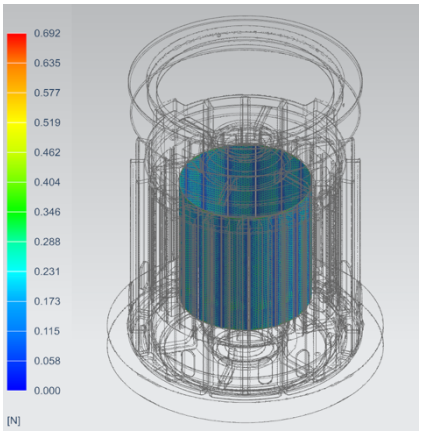


Moreover, meetings with Associate partners Barcelona City Council, Sabadell City Council, and Universitat Autònoma de Barcelona took place to involve them from the beginning.

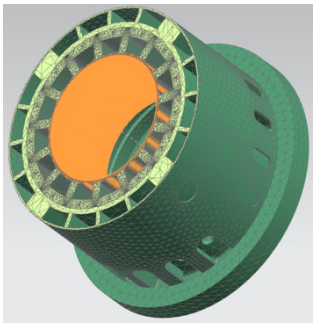




During 2024, GAP_NOISE met at IDIADA facilities to participate in the 1st Crash Course (18th-20th March), and later, the Doctoral Candidates participated from 12th to 14th June in the first Summer School organised by Insa-Lyon.



In the meantime, two Doctoral Candidates, Ludovica Luciano and Zhenxian Li, participated in their first secondment, both at SIEMENS facilities.



During her experience, Ludovica contributed to the development of a multi-physics simulation framework using Siemens software packages. She acquired the skills to design different models with increasing level of detail to capture the main characteristics of the Permanent Magnet Synchronous Motor (PMSM) and provide insights into the electromagnetic radial forces distribution across the stator at different frequencies.

This project has received funding from the European Commission Horizon Europe Programme under Grant Agreement No. 101073014

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Project Test Bench at UPC facilities

The test bench consists of four main parts: (1) a motor-generator set, (2) a level voltage source inverter that is fed by voltage controlled power supply with dc-link voltage of 300V, (3) an acquisition board that contains current sensors, hardware protection, and LAUNCHXL-F28379D kit, (4) Auxiliary power supply for supplying the acquisition board and the drivers of two-level voltage source inverter.





The used electric motor is an interior permanent magnet synchronous motor (PMSM) manufactured by RDM Electric Machines with a rating of 7.5kW. The motor parameters are given in the following table.

Rated Output Power	7.5	kW
Rated Voltage	380	V
Rated Torque	50	Nm
Rated Peak Current	20	A
Rated Speed	1300	rpm
Number of Pole Pairs	5	-
Stator Winding Resistance	0.5167	Ohm
Stator Inductance on d axis	0.00739	H
Stator Inductance on q axis	0.01507	H
Permanent Magnet Flux Linkage	0.3806	Wb
Rotor Inertia	0.03898	$Kg*m^2$
Viscous Friction	0.0306	Nm/(rad/s)

The motor is loaded by another PMSM that is used as a generator.

WELCOME ON BOARD!



If you want to be updated on the evolution of young Doctoral candidates and their automotive specialisations fields... check our webpage and follow us on our social media channels:

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https://www.linkedin.com/in/gapnoise-doctoral-network-41887926b/

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