

NAWA RACER DEVELOPMENT CONSORTIUM ANNOUNCED DYNAMIC PROTOTYPE ON TRACK FOR Q3 DEBUT

- First fully rideable e-motorbike ready this summer from an expert group of partners comprised of NAWATEchnologies, AKKA Technologies, Pronergy, FAAR and YSY Group
- Originally unveiled by NAWA Technologies at CES 2020, **NAWARacer** is powered by a world-first ‘hybrid’ battery system combining conventional tech with **NAWACap** next-gen ultracapacitors
- Offering ten times more power and five times more energy than existing ultracapacitors, **NAWACap** unleashes the potential of a hybrid battery, bringing huge efficiency improvements
- New, fully functional dynamic e-motorbike prototype will feature electronic integration by Pronergy and Faar, with simulation, design and realization by AKKA Technologies, and tested by YSY Group
- Its world-first hybrid battery system is fully scale-able and can be applied to any type of electric vehicle
- High-res images for download: <https://bit.ly/NAWARacer>
- Video: https://bit.ly/NAWARacer_film

19th May 2021 - NAWATEchnologies, AKKA Technologies, FAAR, Pronergy and YSY Group today announce that NAWATEchnologies’ concept e-motorbike, the **NAWARacer**, will debut as a dynamic prototype in the coming months.

Revealed at CES 2020, **NAWARacer** was initially designed as a demonstration project, illustrating how NAWATEchnologies’ next-gen ultracapacitors, called **NAWACap** and reinforced composites solution **NAWASTitch**, can be applied to a real-world electric vehicle (EV) powertrain. Following a hugely successful global reception, the decision has been taken to develop a fully functioning, rideable prototype – and a highly experienced consortium assembled to bring it to life.

*“We had such a fantastic response to our **NAWARacer** concept at CES 2020 that we had to take the next step and showcase what our **NAWACap** technology truly can do,” said **Pascal Boulanger, Founder of NAWA Technologies, and CTO**. “In order to develop a fully dynamic prototype, and best reflect our next-gen energy storage technology, a world-leading consortium has been brought together to design and build a fully functioning version.”*

The prototype will feature a world-first in electric powertrains: a ‘hybrid’ battery which combines NAWATEchnologies’ own revolutionary ultracapacitors, **NAWACap**, with conventional lithium-ion cells. These are then merged in an innovative electrical architecture, enabling the best of both energy sources, opening up new possibilities for electric vehicle powertrains, with **NAWACap** playing an equivalent role to a turbocharger in an internal combustion engine.

Bringing a step-change in e-motorbike performance, this hybrid ultracapacitor battery system greatly improves energy efficiency, reduces charging times and extends entire system life. Applicable to any electric vehicle, the efficiency improvements can reduce the size of the lithium-ion battery by up to half, or extend the range by up to double – or a combination in between depending on final design.

For the initial design of the **NAWA Racer** concept, NAWA Technologies was supported by expert design and engineering services provider [Envisage Group](#) – based in Coventry, UK. Envisage Group superbly translated designs and drawings made by Pascal Boulanger, NAWA’s founder and CTO, into beautiful and simple renderings and created a physical demonstrator for the CES show stand.

Expert e-mobility consortium

To develop the first **NAWARacer** dynamic prototype, an expert development partnership has been assembled with skillsets across automotive engineering, R&D, battery management, electronics, powertrain, systems integration and prototype realisation – within the framework of the HYDEALIST project (Hybrid storage and fast-charging for AGV in logistics), funded by InnoEnergy (the European innovation platform for clean technologies).

The development of the motorbike’s unique e-powertrain and, in particular, the aluminum body – which structurally integrates the battery within the chassis, negating the need for a conventional frame – and the in-wheel motor, is led by [AKKA Technologies](#), a global leader in engineering consultancy which supports the world’s leading automotive



industry players. Based in 29 countries, AKKA's mission is to optimize all the mechanical components and conceive an e-motorbike with very few moving parts; light, easy to fabricate and with a perfect riding experience. AKKA's team of experts will develop **NAWARacer's** ride and handling characteristics, with particularly focus on the motorbike's new rear arm design and advanced suspension system.

The development of NAWARacer's electronic power distribution system is led by [Pronergy](#), a subsidiary of [FAAR SAS](#) located in Paris. This distributes power according to vehicle mode and rider demand. For this first dynamic prototype, a new switching unit has been developed allowing both **NAWACap** and the lithium batteries to provide energy, maximising the benefits of both technologies in terms of performance and efficiency.

FAAR heads up the development of NAWA Racer's Battery Management System (BMS) software control ECU electronic architecture, bringing its embedded energy management expertise to the project, which is based on more than a decade of expertise in energy management systems.

NAWATEchnologies, the inventor of the **NAWARacer** and its hybrid power-battery system, is supplying **NAWACap** – its next-generation ultracapacitors – integrated in a light, compact, modular and communicating pack that can be used in many other applications. Further expert assistance comes from YSY Group, based in Lille, France who complement NAWA in motorcycle testing. The dynamic prototype will be revealed and demonstrated on track just before summer 2021, depending on current Covid-19 restrictions.

Entirely modular and scale-able, **NAWARacer's** hybrid battery system can be applicable to any electric vehicle, capable of reducing the size of the lithium-ion battery by up to half, or extending the range by up to double – or a combination in between depending on use. While NAWATEchnologies has no plans to make or sell a production version of the **NAWARacer**, it is open to approaches from appropriate partners interested in taking this revolutionary e-motorbike to the streets.

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About NAWA Racer

Intended to turn heads as well as offer a ground-breaking electric powertrain, **NAWARacer** brings a modern twist to its retro styling. Its top tank area hides an arrangement of NAWA Technologies' own ultracapacitors, which boost a lithium-ion battery mounted low in the chassis with an innovative Hybrid Management system (HMS), Energy Control Unit (ECU) and in-wheel electrical motor.

Re-using more than 80 percent of the energy captured from regenerative braking, **NAWARacer** uses a much smaller lithium-ion battery than would otherwise be possible: around half the size of a conventional electric sports bike's battery.

The **NAWACap** pack itself is lightweight and is combined with the motorbike's aluminum structural body, set to offer a 25 percent weight saving over conventional electric sports bikes. The hybrid storage pack powers a highly efficient in-wheel electrical motor, developing up to 40 kW. Although simplified for its first version, this lightweight, compact hybrid battery system results in exceptional range. Thanks to its lithium-ion battery, **NAWA Racer** is projected to cover 150km on a mixed cycle, including highways. But by capturing so much energy from stop-start riding, releasing it again as acceleration, **NAWA Racer** can double its urban range to 300km.

No matter the charge level of the lithium-ion battery, NAWA Racer will always have full acceleration on demand – projected to be 0-100km/h in under three seconds – because of the ultracapacitor's high power characteristics, which continually maintain response and performance.

About NAWA Technologies

Located in Aix-en-Provence, France, NAWA Technologies is a world-leader in innovative energy storage and composites. Its range of game-changing products are all based on one patented technology: vertically aligned carbon nanotubes (VACNT). NAWA has applied the unique properties of VACNT to create high power and high energy ultracapacitors, one of the [fastest electrodes](#) for lithium batteries – and also reinforced carbon fiber composites.

Its NAWACap range of ultracapacitors can offer up to five times more energy than existing ultracapacitors and ten times more power, depending on application. Setting new standards for charging speed, frequency and environmental friendliness, NAWA Technologies' Ultra-Fast Carbon Battery bridges the gap between existing ultracapacitors and more traditional lithium-ion batteries. NAWA's technology is being applied in multiple ways, from 'hybrid' batteries – a modular, scale-able concept applicable to any EV that combines ultracapacitors with lithium-ion for huge performance increases as debuted by NAWARacer – to its Ultra Fast Carbon Electrode, potentially the world's fastest electrode, a system which brings a quantum leap in performance for any chemistry but particularly lithium-ion.

Through its NAWA America, based in Dayton, Ohio, it is bringing multifunctional ultra-strong composites to market; game-changing materials using VACNT and based on unique, proprietary technology, aimed at sectors including automotive, aerospace, sporting equipment and consumer & luxury goods.

NAWA Technologies now enters its next exciting phase – mass manufacturing on both sides of the Atlantic – but with environmental benefits always at its core. NAWA's goal is to be a carbon neutral company. Already, its NAWACap batteries have been awarded 1000 efficient solution for the planet by Solar Impulse foundation.

About YSY Group

YSY is a consulting firm, managing an agile network of companies, based in France (Paris, Lille and Aix-En-Provence), and operates in 26 countries, mostly for western Europe clients. YSY helps business owners, CEX, and decision makers to blossom and perform. Its experts cover a wide scope of services such as product testing and development, organizational behavior improvement, strategic analysis, manufacturing excellence, taylor-made software development, M&A deep evaluation (finance, business, technical), CEX coaching and support.

In addition to the people, we rely on our own laboratories (ByExpert) for testing and development (consumer goods and industrial products) in Lille and Shanghai, Offices and facilities in Lille Paris and Aix-En-Provence, enable a perfect environment for experiences in innovation, development, coaching, training, and field testing.

YSY serves various type of clients (retailer, brands, traders, industry, consumer association, customs...). TV and other information media regularly report on our activities. We adjust our team to serve clients from small companies up to



majors international players. The quality of the relationship based on share values is the key factor of success for the 300 people working together for our client's satisfaction.

Related to this project, energy storage and management is one of our technical and products expertise, with technical experts, a dedicated facility and high technical equipments. Our skills in project management and CEX support are useful to the different steps of this wonderful project.

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About AKKA

AKKA is a European leader in engineering consulting and R&D services. Our comprehensive portfolio of digital solutions combined with our expertise in engineering, uniquely positions us to support our clients by leveraging the power of connected data to accelerate innovation and drive the future of smart industry. AKKA accompanies leading industry players across a wide range of sectors throughout the life cycle of their products with cutting edge digital technologies (AI, ADAS, IoT, Big Data, robotics, embedded computing, machine learning, etc.) to help them rethink their products and business processes. Founded in 1984, AKKA has a strong entrepreneurial culture and a wide global footprint. Our 21,000 employees around the world are all passionate about technology and share the AKKA values of respect, courage and ambition. The Group recorded revenues of €1.5 billion in 2020. AKKA Technologies (AKA) is listed on Euronext Paris and Brussels – segment B – ISIN code: FR0004180537.

For more information, please visit: <https://www.akka-technologies.com/>

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About FAAR

Located in Paris Saclay, France, was found in 2004. FAAR is an electronic embedded provider which develop complex system architectures and manage innovative projects in the field of New Mobility. FAAR focuses its activities on the design, development, manufacturing and integration of innovative electronic systems. FAAR's DNA includes promotion of new lifestyles and supply technologies for the benefit of future mobility. FAAR's mission is to deliver cost effective control system solutions with short lead times at the best quality for the ground vehicles, automotive, aeronautics, energy and robotic fields. FAAR's vision is to bridge humans to technologies.

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About Pronergy

Located at Paris Saclay, PRONERGY is a French company with more than 45 years of experience in energy conversion and storage, active and passive filters, automation products and product integration. Pronergy has acquired a robust expertise in the most challenging field such as military land forces, Marine, nuclear, aeronautical and other fields and today has the capacity to respond to any request for tailor-made equipment, used in rough environment.

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