

NAWA TECHNOLOGIES' ULTRACAPACITORS WILL REVOLUTIONISE THE COST, EFFICIENCY AND CAPABILITY OF IoT DEVICES

- The number of IoT devices in the world is predicted to grow from 25 billion to 80 billion by the end of the decade as connectivity plays an ever-increasing role in our lives
- But whether they are monitoring the temperature of food during transportation or oil rig drill pressure at the sea floor, they need to be efficiently and cost-effectively powered
- By integrating its next-gen ultracapacitors, NAWA Technologies can reduce the overall size and weight of IoT devices by more than 60 per cent
- This integration can double or even triple the lifetime of a sensor – and greatly increase the frequency of data it can send in its life, making a step change in monitoring capability
- As well as cutting costs and increasing efficiency, the integration of ultracapacitors also improves reliability and safety while also reducing environmental impact
- For more information on NAWA Technologies visit: <http://www.nawatechnologies.com>



June 23rd, 2020 - NAWA Technologies' next-generation ultracapacitors will revolutionise the growing global market for IoT devices, offering huge benefits in operational lifetime, cost, efficiency, safety and environmental impact.

As the world becomes more connected, IoT devices can be found in billions of products. They play a crucial role in our daily lives, from bringing added convenience in domestic applications, like wifi-enabled electrical appliances – such as smart meters – to improving the quality of our food by monitoring its condition during transportation. Constantly tracking factors like pressure, location, proximity, smoke, gas and light, IoT devices can be found everywhere from our homes to extreme environments including deep under the sea or at altitude in aerospace.

Thanks to this wide variety of applications and usage conditions, the number of IoT devices across the world is expected to grow exponentially, from 25 billion in 2020 to 80 billion before 2030*. This creates major challenges around performance, raising the question of how to power these devices – and to do so efficiently, cost-effectively and with minimal environmental impact.

Ronald De Graaf, Sales Manager for IoT at NAWA Technologies explains: *“Many IoT devices spend most of their lives on stand-by, requiring a low amount of energy. But when the device needs to send a signal a short burst of energy is required. For example, in the oil and gas industry, when a transfer of pressure data is sent from a drill on the sea floor to a rig on the surface. If you then combine the long-term energy requirement with a remote location and extreme environment, an energy solution that is only based on a conventional battery is just too large and expensive. Our concept is the hybridization of our NAWACap ultracapacitors with conventional batteries, resulting in the perfect solution for these applications, reducing size and improving performance.”*

IoT devices use many types of battery technologies, from non-rechargeable primary batteries such as regular AA or AAA alkaline to lithium primary cells to rechargeable lithium-ion batteries, but the need to provide repeated power bursts for transmission limits their lifetime, causing early failures or heat problems in the circuitry. Lithium is also a finite resource and has issues around recyclability and safety.

Greener solutions, such as energy harvesters – for example solar power, or systems that use kinetic energy or salt water to generate energy – can supply a sensor with low-level ‘standby’ energy but not the short bursts of energy required for data transfer.

NAWA Technologies’ NAWACap ultracapacitors are the solution. Based on carbon, they use a material that is abundant, recyclable and environmentally friendly. The NAWACaps can be packaged into small, flat cells and withstand extremes of temperature and the harshest environments, through deep sea to deep space. They also match ideally with the IoT sensor power use profile, coping with high current peaks, combined with long lifetime and therefore do not need to be replaced.

“Combining our NAWACap ultracapacitors with a lithium cell, creating a ‘hybrid’ battery, has many advantages. If we take a GPS tracking device as an example, often used to track valuable assets or integrated into the collar of a pet, the conventional approach is to use a non-rechargeable AA lithium battery, but this is very bulky,” continues Ronald De Graaf. “Integrate NAWACap and you could immediately reduce the reliance on lithium AA to AAA-sized batteries with superior performance, including the same or even an extended operational lifetime. One could also combine NAWACap with a coin cell resulting in an even flatter, lighter package with even better lifetime.”

Pascal Boulanger, Founder, Chairman of the board, CTO and COO added: *“Our NAWACap system is the perfect companion solution for IoT devices. We can integrate our ultracapacitors with lithium rechargeable or non-rechargeable batteries like alkaline batteries, creating a system that is 80 per cent lighter and 60 per cent smaller, an overall reduction in volume and weight of more than 60 per cent.*

“They are an energy source that can more than last the lifetime of a device – and, in fact, we believe we can double or even triple the lifetime of an IOT device, while greatly increasing the frequency of the data it can send in its life, making a step change in monitoring capability too.

In addition, they are able to operate under extreme conditions, making them an excellent solution for remote applications or in the cold supply chain, keeping food temperature efficiently monitored during transportation, substantially reducing losses and resulting in better quality food for us all."

Ulrik Grape, CEO of NAWA Technologies adds: *"As well as substantial savings through increased energy efficiency and maintenance-free systems, it is also important to consider the indirect environmental benefits. Our NAWACap technology requires only abundantly available, non-toxic, disposable and recyclable materials. As a result, NAWA's technology provides and supports economical, environmentally friendly and safe solutions for the IoT market."*

NAWA Technologies' core market is the production of its next-generation ultracapacitor cells. With development completed, and 13 M€ funding already raised from historical and new investors end of 2019, NAWA Technologies begins the mass production phase over the coming year. A first of its kind cell production line will be installed at its Provence facility and, at full production, NAWA expects to achieve a capacity in excess of one million cells per month.

In addition to the IoT markets, these cells will be first used globally in a wide range of electrical systems including power tools and automated guided vehicles.

Other key markets are the automotive industry in hybrid cars, battery electric vehicles (BEVs) and fuel cell vehicles (FCEVs) where NAWA Technologies can, for example, rapidly store (and deploy) energy from regenerative braking systems, greatly increasing energy efficiency. With the global market for ultracapacitors estimated to grow to €2-3bn in 2023, NAWA Technologies is ideally positioned to take advantage of increased demand.

ENDS

<https://www.forbes.com/sites/michaelkanellos/2016/03/03/152000-smart-devices-every-minute-in-2025-idc-outlines-the-future-of-smart-things/>

Media contact:

Sam Hardy

Email: samh@influenceassociates.com

Tel: +44 7815 863 968

Assets:

NAWA Technologies IoT Battery Solutions for a GPS tracking device:

https://bit.ly/NAWACAP_IoT_Battery

NAWA Technologies media image bank:

http://bit.ly/NAWA_Technologies

NAWA Technologies' Ultra Fast Carbon battery - the next generation of the ultracapacitor film:

http://bit.ly/NAWA_Technologies_Film

About NAWA Technologies

Based in Aix-en-Provence, France, NAWA Technologies is a world-leader in innovative energy storage. Its Ultra-Fast Carbon Batteries are the next generation of the ultracapacitor, featuring vertically aligned carbon nanotube electrodes – the fastest electrodes in the world.

Combined with a pioneering unique coating they 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.

Capable of being charged and discharged within seconds over a million cycles without any loss in performance, the batteries are also environmentally friendly to produce and have exceptional second life usage, because they are based on carbon – a naturally-occurring, accessible and abundant material. NAWA Technologies' new Ultra-Fast Carbon Batteries have multiple uses, from the power tool and manufacturing sectors, to automotive and commercial vehicle markets, within the IoT and sensor sectors as well as playing a key role in managing energy flow in a smart grid, to aerospace and even space.

