

Microvast Battery Systems Power Electric Shuttle Buses at Expo 2017 Astana

Jun 28, 2017

Huzhou, CHINA, and Stafford, Texas - Jun 28, 2017 - Microvast, a global leader in battery storage solutions for mobile and stationary applications, announced that its battery systems have been installed on Higer pure-electric buses, which will provide shuttle service for Expo 2017 Astana in the capital of Kazakhstan.

With its ultra-fast charge characteristics, electric buses equipped with Microvast battery systems can handle all weather conditions, a very high volume of visitors, and lengthy operating periods -- while slow-charging buses cannot. The company is looking to attract interest in electric-powered bus travel by demonstrating how to use energy efficiently and cleanly for passenger travel.

"We are happy to provide our technology for the shuttle buses at Expo 2017 Astana," said Hanko Song, Microvast Vice President of Marketing. "This year's Expo subthemes: Reduction of Carbon Emissions, Energy for Life and Energy for All, align with our Clean City Transit (CCT) plan. CCT is a roadmap to electrify urban transport systems and establish the necessary infrastructure in an economical manner, while ensuring environmental, societal and air pollution reduction mandates."

It is expected that attendees from 100 countries will participate in Expo 2017, and more than two million people will visit the exhibition this year. During the Expo, the bus routes will include all the significant transportation hubs around Expo Park, World Expo Village, the Expo hotel and the city leading to the Expo area. Attendees from around the world will enjoy traveling with the comfortable and convenient shuttle service provided by pure-electric buses.

Expo 2017 Astana is an international exhibition held in Kazakhstan from June 10th to September 20th. This year's theme, "Future Energy," is focused on innovative and practical energy solutions and their impacts. Greening the Expo with pure-electric buses is consistent with Kazakhstan's goal to decrease GHG emissions by 15 percent by 2020 and 25 percent by 2050.

About Microvast

Microvast is a fast-growing and profitable market leader in the design, development and manufacturing of safe, ultra-fast charging, long-life lithium-ion battery systems. Established in 2006, Microvast was founded with a vision to address current constraints in electric vehicle development and to redesign power systems to drive mass adoption of electric vehicles. The company has supplied more than 15,000 hybrid and fully electric buses with battery systems, operating in more than 100 cities across six countries with over one billion kilometers traveled. Microvast is

headquartered in Zhejiang, China, with offices in the US, UK and Germany. More information is available at www.microvast.com.

About Clean City Transit

Clean City Transit plan, or the CCT plan, is Microvast's primary business strategy. The CCT plan aims to assist in the electrification of urban transportation systems by progressively introducing Microvast's power battery systems, first to city buses, then to taxis and finally to passenger cars.

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Microvast Receives \$400 Million in New Funding, Led by CITIC Securities

Apr 20, 2017

HUZHOU, China and STAFFORD, Texas, April 20, 2017 - Microvast Power Systems (MPS), a subsidiary of Microvast today announced that it has received \$400 million in a funding round led by CITIC Securities. Additional investors included CDH Investment, National Venture Capital, and others.

MPS is a vertically integrated developer and manufacturer of advanced Electric Vehicle Power System solutions, based on the company's innovative fast charging, long-life, and non-flammable Li-ion battery systems. The company has been successfully operating battery systems in more than 15,000 electric and hybrid-electric vehicles in over 140 cities, reinforcing the high value of its ultra-fast charging capability. In public transport, Microvast has demonstrated high standards of operation in major cities.

"MPS was founded to provide power solutions for electric vehicles. We established 'fast charging, long-life, and non-flammable' as our battery R&D goal back in 2008," said Mr. Yang Wu, CEO of Microvast, Inc. "Our products are now widely used in the public transport sector, will gradually be implemented in electric taxis, and eventually in electric cars. The funding we received will be used for continued research and development, as well as scaling production capacity. We will also implement our Clean City Transit strategy in China, EU, North America, and Asia Pacific area."

"The 'fast charging' approach is becoming an industry trend," said the director of this investment from CITIC Securities. "Microvast is committed to a high level of investment in R&D to maintain its advantage in advanced battery technologies. The company is also accelerating the commercialization of those technologies, which makes us very confident in its potential."

MPS plans to launch its next generation products with higher energy density this year, and began construction on its Phase III production facility in Huzhou, Zhejiang, China, in March. The plant's targeted production capacity is 11 GWh in Phase III and the total production capacity will reach 15 GWh, and will be in operation by 2019.

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Microvast Delivers Record Number of Electric Buses in 2016

Feb 02, 2017

STAFFORD, TEXAS (February 2, 2017) – Microvast, a global leader in battery storage solutions for mobile and stationary applications, delivered more than 7,500 all-electric and hybrid-electric buses in 2016 for metro transit use worldwide – a new high for the company. The company also announced plans to expand operations in the U.S., where it expects to put its first e-buses on the road in 2017.

As of the end of 2016, more than 15,000 Microvast battery-powered buses were operating in public transport networks in China, as well as in five countries in Europe. Collectively, Microvast electric buses have traveled over one billion kilometers without failures or safety issues.

Microvast has been a vertically integrated developer and manufacturer of safe, long-life, fast-charging lithium-ion battery systems for more than 10 years. Its electric and hybrid bus business was launched in 2010, mainly focusing on Europe and China. Based on considerable experience with battery systems in those markets, the company is advancing its activities in the U.S. This includes a primary emphasis on the e-bus sector, while also pursuing opportunities in truck electrification, mining processes, grid-scale energy storage, and other markets.

“We’re very pleased to report a record number of vehicles delivered in 2016, as well as passing the one billion mark for kilometers traveled by Microvast-powered buses,” said Hanko Song, Microvast Vice President of Marketing. “Based on that success, we’re moving forward with a major expansion of our U.S. activities, beginning with establishing a manufacturing facility, hiring more staff, and creating partnerships to support that effort.”

In the U.S., Microvast sees a significant opportunity to electrify public transport like it has in other countries. To that end, the company established a U.S. headquarters near Houston that will expand to include additional engineering, service and production personnel. Nearby in Sugar Land, Texas, Microvast will open a new battery pack manufacturing facility, which will be in compliance with the FTA’s Buy America program.

Microvast currently provides three lines of fast-charging lithium-ion battery solutions, with different chemistries and performance characteristics as required by the diverse markets for high-performance batteries. These characteristics include ultra-fast charge capability – fully charging in 10-15 minutes; high cycle life – exceeding 20,000 full-depth charge cycles; thermal performance – able to operate in a wide range of temperatures; or high energy density. Microvast batteries are also extremely safe, thanks to the company’s patented Smart Thermal Liquid (STL) protection system.

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Microvast Received Two Awards in 2016 FT/IFC Transformational Business Awards Event

Jul 01, 2016

LONDON, UK, June 09, 2016 -The Financial Times and IFC, a member of the World Bank Group, have announced Microvast as the winner of two awards of “*Achievement in Low-Carbon Urban Transformation*” and “*Excellence in Transformational Business*” during the 2016 FT/IFC Transformational Business Awards Ceremony and Conference. FT/IFC Transformational Business Awards is the unique global programme that highlights ground-breaking, long-term private sector solutions to key development issues, focuses on the challenges around climate change, particularly in rapidly growing urban areas, with an emphasis on the capital, technology and innovation required for substantive progress. This year, a total of 155 entries were received from 219 organizations involving projects in 92 countries.

The Award of “*Achievement in Low-Carbon Urban Transformation*” that Microvast was rewarded highlights innovative projects and transactions that address challenges around energy demand and supply, environmental decay and other climate change-related issues in developing economies, with a focus on urban areas. In the end of the ceremony, Microvast also received the award of “*Excellence in Transformational Business*”, which is a special award for the winner of the winners.



Mr. Yang Wu, CEO of Microvast, Inc. receive the awards in the ceremony

Mr. Yang Wu, CEO of Microvast, Inc. addressed during the ceremony, “I am so surprised to receive two awards tonight. With our passion and enthusiasm, Microvast has spent 10 years in research and development in advanced Li-ion battery systems for electric vehicles. We are very proud that our achievement has been recognized today. Please take a ride on any of the 1,000 double decker buses on the street of London tomorrow that is using our battery technology, enjoy it, and take it!”



Mr. Yang Wu, CEO of Microvast, Inc. had a speech in the ceremony

As one of the most impactful awards in the industry, the selection of Transformational Business Awards was primarily based on the innovation of technology and its applications. In the final selection of nominees, Microvast was competing with projects such as Electric Airship, Hydraulic energy storage, and micro photography satellite made by the NASA. Microvast has been dedicated in research and development for years. It shows the primacy and uniqueness of Microvast’s advanced technology.

As an advanced electric vehicle power solution provider, Microvast is strategically implementing electric vehicles by following its Clean City Transit (CCT) plan with its ultra-fast charging, long life, and safe battery technology. Based primarily in China, Microvast have developed, manufactured and sold battery power systems to 10,000 electric buses in over 100 cities across China and four European countries. Microvast truly deserves these awards because of its revolutionary technology and the innovative business model.

About Microvast

Founded in 2006, Microvast is a fast-growing and profitable market leader in the design, development and manufacturing of ultra-fast charging, long life battery power systems for electric vehicles. Microvast was founded with a vision to solve the current key constraints in electric vehicle development and to redesign electric vehicle power systems to the mass adoption of electric vehicles. In March 2016, Microvast announced its non-flammable battery technology, which highly improved the safety standard of electric vehicles.

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The Link

<https://live.ft.com/Events/2016/FT-IFC-Transformational-Business-Awards>

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Microvast launched its non-flammable battery technology

Mar 19, 2016

BEIJING, CHINA, March 19, 2016 –Microvast, Inc. launched today its non-flammable battery technology for lithium-ion batteries at a press conference event held at the Water Cube in Beijing. This technology is a breakthrough for the industry, resolving battery safety issues through a multi-level approach from materials to the system level. The new technology takes both active and passive protection measures in order to enhance product safety, including improvements to the battery's electrolyte, separator and protection system. Over 200 delegates including government officials, industry experts, operators, automotive OEMs and members of the press attended the event.



Wu Yang, CEO of Microvast, Inc., opened his speech with the topic of “Fire”. Although the electric vehicle market experienced a huge upswing last year, especially in China, global automotive giants have not responded to the demand with increased large-scale production and sales. One of the important reasons for this is the unpredictable flammable nature of lithium-ion batteries. The lithium-ion battery has certain risk of random short-circuiting during its production and use, which can cause accidents. Even with a high quality control standard in place (i.e., 2ppm for 18650 cylindrical batteries), in every 100,000 vehicles sold, 1,600 of them would have batteries at risk of bursting into flame.

In 2008 when Microvast started to focus its research on electric vehicle power systems, Microvast established three main objectives: “10-Minute Ultra-Fast Charge”,

“Long Battery Life”, and “Non-flammable”. These three points are the foundation of Microvast’s primary business strategy, the Clean City Transit (CCT) plan. Today, with the implementation of the CCT plan, both the “10-Minute Ultra-Fast Charge” and the “Long Battery Life” technologies have been widely accepted by Microvast’s customers. Microvast’s battery power systems have been installed in more than 10,000 electric buses worldwide in 26 provinces across China and four countries in Europe. After 8 years of intensive research, Microvast has finally revealed its non-flammable technology.

Non-flammable electrolyte that ensures both ultra-fast charge and long battery life

Research has shown that when thermal runaway occurs in a lithium-ion battery, most of its heat is released by electrolytes, which means electrolytes need to be controlled to ensure safety. However, it is a challenge to develop non-flammable electrolytes with ultra-fast charge capability and long life. Thanks to the tremendous efforts by its research team, Microvast has developed an electrolyte that is non-flammable and can be fully charged within 10-15 minutes and with a cycle life of over 10,000 times.

Temperature tolerance separator

A high performance separator is also an important protection measure for lithium-ion batteries. A normal lithium-ion battery separator has a low melting point and will usually shrink around 130°C. The resulting short circuit will lead to thermal runaway of the battery. As a membrane expert with over 30 years of experience, Microvast’s Chief Technology Officer (CTO), Xiang Li, announced the high temperature membrane separator at today’s event. The newly developed separator has a higher melting point compared with commercial ones, which ensures that it does not shrink even at temperatures of up to 300°C. This reduces the possibility of thermal runaway and short circuiting.

STL-System level protection measure

In addition to improvements to the electrolyte and separator, the Smart Thermal Liquid (STL) technology is applied to the battery as a protection system, with the battery module immersed in the liquid. As a preferable material of insulation, flame retardation and thermal conductivity, STL can isolate any thermal runaway points in the case of short circuiting. Meanwhile, by deploying liquid to reduce the temperature of any thermal runaway point, STL can significantly lower the risk of short circuiting. As a passive protection system, STL also balances temperature differences inside the battery and applies outside circulation to control the battery temperature. Furthermore, the STL can detect any battery leakage that may happen in the battery pack.

The non-combustion electrolyte and the temperature tolerance separator are two active protection methods. Combined with STL intelligent thermal control fluid technology, Microvast has achieved its goals of non-combustion, advanced safety and high performance in a battery system. A demonstration of the combustion of different battery cells was performed at the launch event, which displayed the impressive coordination of non-combustion technology and a normal lithium-ion battery.

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