Bridging the Innovation Development Gap
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BRIDG Collaboration to Introduce Battery-Free IoT Wireless Sensors

Patented Evercell™ Power Source Enables IoT Sensors to Operate on Harvested Energy Without Batteries

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NEOCITY, FL (JANUARY 29, 2018) – BRIDG, an industry-led public-private partnership for advanced technologies and manufacturing processes, announces a collaboration with Face® International Corporation in the development and integration of a patented energy-harvesting technology – the Evercell™ power cell – that is capable of powering wireless IoT sensors without batteries.

The Evercell technology employs a unique design and advanced materials to harvest thermal energy in any environment where the ambient temperature is above absolute zero – reliably generating the microwatts of electrical power needed to run wireless IoT sensors without the need for batteries. Evercell power cells are inexpensive to produce, consume no fuel, have no moving parts, and contain no toxic materials. According to company officials, an Evercell demonstration device has been operating continuously for 16 months with undiminished performance, producing enough electrical output to power a typical wireless sensor.

(A video demonstrating the Evercell technology and the detailed specifications for the Evercell power cell are listed at the end of the release.)

The breakthrough energy harvesting power cell was developed and patented by Face International Corporation, a technology company with more than 60 patents, to address a technology barrier that experts say has been the primary problem limiting the growth of the Internet of Things (IoT) – the dependence on billions of batteries to power the sensors critical to its operation. As part of the collaboration to commercialize the Evercell technology, BRIDG and Face intend to cooperatively undertake technology validation for product integration development and prototype manufacturing of Evercell™ power cells at its NeoCity campus in central Florida, with the goal to achieve mass production by 2019, based on customer-driven demand.

“In driving the continued expansion of the IoT, the Evercell technology has the potential to be to batteries what the light bulb was to candles and oil lamps,” observed Dan Holladay, BRIDG’s Director of Strategic Partnerships. “The cost, inconvenience, and inaccessibility associated with battery replacement make them impractical as a power source for many of the IoT sensor applications. The promise of the Evercell technology could address an unmet annual demand for tens of billions of IoT devices relying on batteries that otherwise could not be deployed.”

Producing Evercell power cells in the volume required to respond to this demand is a major challenge that BRIDG is uniquely positioned to help solve. “BRIDG will be able to assist Face with its capabilities to provide continued development and assist in creating solutions to overcome the manufacturing demand for Evercell,” Holladay explained. “This could include coordinating efforts to optimize the Evercell technology into IoT devices and facilitating necessary patent licensing to satisfy IoT demand.

To accelerate construction of new facilities specifically designed to mass-produce the Evercell devices, an international equity firm, Castlepines Corporation, has agreed to provide financing and other services through the investment of its own and partners’ equity in major assets for secure, long-term yields. “We are excited to be playing a role in delivering the revolutionary Evercell technology to the market,” stated Dr. Gareth Lucken, Castlepines General Manager, MENA region. “The positive impact of this technology on the IoT, and its potential to improve the quality of life for billions of people is obvious – as well as the importance of helping the world avoid the disposal of billions of batteries.”

The collaboration could result in the development of the initial prototype manufacturing line for the Evercell power cells at the BRIDG facility located in NeoCity, a 500-acre technology district in Osceola County, Florida. BRIDG operates a 109,000-square-foot state-of-the-art manufacturing facility focused on semiconductor-based processes for smart sensors, photonic technologies, and next-generation integrated devices to enable innovative breakthroughs for industry partners serving government and commercial markets.

The BRIDG facility includes approximately 60,000 square feet of cleanroom laboratory/manufacturing space for use by its industry partners, which is led by visionary stakeholders — Osceola County, the University of Central Florida, and the Florida High Tech Corridor Council. Other major BRIDG partners include imec, Harris Corporation, Siemens, Aurora Semiconductor, Photon-X, University of Florida, University of South Florida, and Florida Institute of Technology, among others.

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About BRIDG:
BRIDG is a not-for-profit, industry-led public-private partnership for advanced sensors, optics, photonics, and advanced manufacturing devices. BRIDG focuses on the innovative manufacturable processes, materials and equipment for next-generation sensors and future high-tech products. Supported by Osceola County, University of Central Florida, and Florida High Tech Corridor Council, BRIDG provides the physical infrastructure and collaborative process to connect challenges and opportunities with solutions – thus “Bridging the Innovation Development Gap” that makes commercialization possible. Located at NeoCity, a 500-acre master-planned intuitive community of innovation in Florida, BRIDG is centrally located near the Orlando International Airport and the Florida Turnpike. Learn more at www.GoBRIDG.com.

About Face® International Corporation:
Face® International Corporation is a family-controlled technology company headquartered in Norfolk, Virginia. Face has been granted more than 60 United States patents with dozens of patents pending in technologies ranging from energy harvesting systems, to wireless devices and construction equipment. Descended from a Norfolk contracting company founded by E.W. Face in 1867, Face developed the technologies and methods that led to the modern concrete commercial / industrial floor in the 1970s and 80s. The ASTM International standard for concrete profile quality control – “F-Numbers” or “Face Numbers” – is named for the company. Evercell™ is one of Face’s Evergreen® family of energy harvesting technologies.

About Castlepines:
Castlepines Corporation is an international equity fund that invests its own and partner equity in major assets for secure, long-term yields. Castlepines principally operates in mining and resources; power generation and utilities; real estate; and shipping and marine. Castlepines seeks to purchase long-term, conservatively-yielding assets that provide a secure passive income stream. Equity is sourced from Castlepines’ own pension funds, large public pension funds and the pension funds of insurance companies. Castlepines has developed an investment model that provides access to substantial pension fund capital relatively quickly and efficiently. This capital is provided through one or more of our partner banks that act as pension fund advisers.

Evercell™ Power Cell Technology

Enabling the design of self-powered IoT Sensors and ICs using harvested energy

- Delivers continuous power output without requiring a perceptible temperature differential (in essentially any environment above absolute zero)
- Utilizes existing semiconductor manufacturing processes
- Solid state structure
- No toxic materials
- Scalable output – can be made in various form factors
- Low-cost manufacturing in volume production
- Compatible with SiP and PCB heterogeneous integration

Evercell™ technology demonstration video

Examples of expected performance for first-generation Evercell production devices:

5µW device
34mm x 34mm x 1mm
1.2V output
4.2µA continuous current

480-nW device
30mm x 30mm x 0.2mm
1.2V output
400nA continuous current

960-nW device
50mm x 75mm x 0.1mm
1.2V output
800nA continuous current

Evercell™ is a patented and patents pending technology from a member of the BRIDG Consortium.

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