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Minebea, Paradox Engineering and OSRAM to Turn Lighting Infrastructures into Smart Urban Networks

Tokyo, Novazzano and Munich, June 20– Leading lighting manufacturer OSRAM chooses PE.AMI(*1) technology by Paradox Engineering to enhance its portfolio of LED luminaries for street and urban environments. OSRAM will equip Smart City lighting products with Paradox Engineering's network technology to provide cities with the opportunity to turn their public lighting infrastructures into Smart Urban Networks to support and manage multiple urban services. Paradox Engineering, a member of Minebea Group, is sharing its Smart City vision with OSRAM to develop innovative solutions based on the Internet of Things, taking advantage of Minebea's increasing role and investments in the lighting market.

Street lighting is one of the domains many communities are focusing on, since it represents a major cost item in cities' balance sheets, has a clear impact on livability and affects environmental performance. OSRAM offers a complete portfolio of energy-efficient, low-maintenance, durable and reliable LED luminaries to ensure the maximum light quality and safety for roads, crossroads and parking facilities, as well as pedestrian zones, plazas and urban parks.

Along the line that urban street lighting develops in lively economies, by integrating PE.AMI technology OSRAM's LED streetlight devices acquire the capability to provide a telecommunication network for the future, being connected to a reliable wireless network to enable remote control and management. Each luminaries will be part of a meshed network, reliable and efficient by design, enabling interconnectivity between luminaries and integrating other data sources such as availability of parking spaces, metering sensors in general.

Together with Paradox Engineering, OSRAM is therefore offering an interoperable and flexible Smart Urban Network platform to support Smart Lighting applications at first instance, with readily available and out-of-the-box possibilities to be expanded to other city services such as parking management, remote meter reading, solid waste collection, public Wi-Fi, and virtually any Internet of Things application that can be developed on PE.AMI's open standard based solution.

"We are happy to contribute with OSRAM and Paradox Engineering to innovating the lighting industry and bringing value to customers", says Yoshihisa Kainuma, Representative Director, President and Chief Executive Officer, Minebea Co. Ltd. *"When I became Minebea's CEO seven years ago, we registered Electro Mechanics Solutions in Japan, one of our trademarks which shows our future destination. It is no exaggeration to say that our dream has come true when our Paradox Engineering's technology is used for street lights connected to a network and equipped with electronic and machined components through collaboration with OSRAM and*

Paradox Engineering. OSRAM highly values the Smart City project we're implementing in the Kingdom of Cambodia, and we hope to extend our collaboration in the near future. We are already working with OSRAM to promote our new LED lighting equipment SALIOT (Smart Adjustable Light for the Internet Of Things) in Europe, and will continue to strengthen our lighting equipment lineup to be the partner of choice of Smart Cities looking for reliable and efficient solutions".

"From the Internet of Things perspective, we can think of street lighting as a citywide distributed communication system, and leverage it as the backbone to build a genuine smart urban network. Thanks to our PE.AMI technology, luminaries as well as the multitude of objects which are disseminated in our cities are smart nodes of this network, supporting narrowband and broadband wireless communications to enable a number of applications, from public lighting to parking, from energy distribution to video surveillance, and many more", adds Gianni Minetti, President and Chief Executive Officer, Paradox Engineering SA. *"That's our vision for future-proof cities, and that's exactly the journey with OSRAM and our parent company Minebea".*

"Combining our expertise in city lighting with Paradox Engineering's proven and state-of-the-art wireless communication technology will allow us to offer the next generation in street lighting", said Eladia Pulido, Chief Executive Officer of OSRAM's business unit Lighting Solutions.

Capitalizing Paradox Engineering's expertise in the Internet of Things domain, the three companies are also collaborating to explore large-scale use of some emerging technologies, including the deployment of motion, temperature or any other sensor for adaptive lighting, citizen engagement through Bluetooth Low Energy technology and a full scale potential of a true sentient city.

Minebea, Paradox Engineering and OSRAM will jointly address Smart markets across Europe, Middle East and Africa with a joint market strategy, presenting their solutions at Light Middle East 2016, which will take place in Dubai on October 31-November 2.

*1 PE.AMI…PE.AMI is a future proof Internet of Things ready hardware and software network communication platform enabling Cities to manage and control a number of smart urban services, including seamless public and private lighting. Based on open standards and agnostic to any object or field device, PE.AMI allows to add intelligence to urban objects (meters, light points, parking lots, etc.) and connect them to a citywide network. Key feature of PE.AMI is the possibility to host multiple urban services over the same IPv6/6LoWPAN infrastructure, even if deployed over time, allowing municipalities to schedule urban services development according to upcoming priorities and resources availability.

About Minebea Co., Ltd.

Minebea Co., Ltd. is the world's leading comprehensive manufacturer of high-precision components supplying to customers in IT, telecommunications, aerospace, automotive, home appliance and other industries in the global market.

Established in 1951 as Japan's first specialized manufacture of miniature ball bearings, Minebea today has expanded its network to all over the world with about 70,000 employees and many sites of production, R&D and sales promotion in Asia, North America and Europe.

For more information, please visit www.minebea.co.jp

About Paradox Engineering SA

Paradox Engineering SA is a technology company that designs and markets solutions and services to unlock the value of data for smart industrial and urban networks in the Internet of Things (IoT) age. Unique competences in radio design, network design and management, low power consumption and data collection at the heart of Paradox Engineering's technological leadership. The Company conceives and provides open standard wireless sensor network solutions for smart environments, global virtual networks and OEM versions of its core network technologies.

Established in 2005 and headquartered in Switzerland, the Company is part of the Japanese Group Minebea Co. Ltd., the world's leading comprehensive manufacturer of high-precision components, which acquired full capital and assets of Paradox Engineering SA in July 2015. Minebea is capitalizing on Paradox Engineering's vision, know-how and technologies to accelerate the success of the Group in the IoT and Smart markets, develop cutting edge technologies and transform Minebea's products to be full IoT ready.

For more information, please visit www.pdxeng.ch and www.pe-stone.com

About OSRAM

OSRAM, based in Munich, is a globally leading lighting manufacturer with a history dating back more than 100 years. The portfolio ranges from high-tech applications based on semiconductor technology, such as infrared or laser lighting, to smart and connected lighting solutions in buildings and cities. OSRAM had around 33,000 employees worldwide at the end of fiscal 2015 (September 30) and generated revenue of almost €5.6 billion in that fiscal year. OSRAM is equipping the Sistine Chapel in Vatican with a new type of LED solution. OSRAM experts developed the LED lighting concept as part of a project subsidized by the European Union and together with various project partners, including conservators and experts for color quality and sustainability.The company is listed on the stock exchanges in Frankfurt and Munich (ISIN: DE000LED4000; WKN: LED400; trading symbol: OSR). Additional information can be found at www.osram.com

(Related Information)

Press Releases:

July 30, 2015
Minebea's Plan Unofficially Selected by MOEJ as Financing Programme for JCM Model Project
http://www.minebea.co.jp/english/news/press/2015/1189640_7564.html

September 8, 2015
Minebea to Make Paradox Engineering SA a Wholly-Owned Subsidiary
http://www.minebea.co.jp/english/news/press/2015/1189742_7564.html

May 10, 2016
Minebea and OSRAM of Germany Agree to Sales Cooperation for New LED Lighting Equipment SALIOT in Europe
http://www.minebea.co.jp/english/news/press/2016/1191189_7980.html

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