



## Powered IoT Consortium

MR Control Systems International Inc. <http://mrcsi.com> <https://sinolta.com>  
Green Power Labs Inc. <https://greenpowerlabs.com>

### **Consortium:**

MR Control Systems International Inc. (MRCSI), established in 1999, is a Canadian technology company providing cutting-edge industrial-grade automation software solutions. Over the last 20 years, the company has delivered more than 300 solutions in 14 countries around the world. As an automation industry leader, the company offers a scalable platform branded Sinolta which addresses the challenges that operators face daily. Sinolta is more than a SCADA software system; it is an engine to transform raw field data to useful information for decision makers. The Sinolta platform has been able to achieve this by integrating the latest IIoT technologies with conventional SCADA systems in an integrated and modern platform.

Green Power Labs Inc. (GPL), established in 2004, is a Canadian predictive energy management technology developer with extensive experience in weather-to-energy analytics and supervisory predictive controls. GPL brings to its clients predictive energy management technologies and solutions delivering real-time site-specific observations-based data analytics. This allows for managing energy consumption, on-site generation and storage in both automated and non-automated commercial, institutional, and municipal buildings. Our weather-to-energy predictive analytics delivers energy savings, carbon reduction and opens new possibilities for revenue generation through support of smart buildings and smart grid operations.

### **Main business areas:**

- Wireless IoT Solutions
- Monitoring and control
- Supervisory control and data acquisition (SCADA)
- Weather-to-energy forecasting

### **Tech areas for collaboration with Korean companies:**

IoT Sensor-Based Wireless Building Automation (Monitoring, control, analytics and optimization) pilots with strategic technology demonstration/ commercialization partners in South Korea.

### **Competitive advantages:**

It is a well-known fact that many of today's buildings systems are based on 20-year-old technologies. While these old technologies may be reliable, they are highly inefficient and limited in their capabilities. The most noticeable limitation of conventional buildings is that they cannot easily integrate with evolving IoT solutions to achieve higher energy efficiency.

Multiple attempts have been made to integrate current IoT solutions into building automation systems. The results, however, are typically too expensive, not reliable for automation, lack security and most importantly, lack scalable architecture.

The proposed collaboration will develop a cost effective and scalable wireless building automation system, based on smart wireless IoT sensors equipped with energy harvesting technology.

This includes the development of smarter IoT sensors with Solar Film-Powered energy harvesting capability and more intelligent network communication protocol to provide highly reliable data in Realtime.

This solution targets owners, managers and operators of commercial or large residential buildings.

The key Intellectual property is based on the patent: PREDICTIVE CONTROL SYSTEM AND METHOD FOR OPTIMIZING ENERGY USE AND THERMAL COMFORT FOR A BUILDING OR NETWORK OF BUILDINGS CA 2,982,375 US 10,094,586; EU 3,286,501

The proposed R&D collaboration is based on a patent application focused on high quality data transmission from wireless IoT sensors to building automation systems.

Key proposed innovations include:

- Energy harvesting capabilities to IoT sensors will allow us to use more powerful processors for more intelligent data transmission algorithms, plus more frequent data updates.
- modern Gateway can integrate wide range of functionalities such as data collection from existing wired systems and new IoT Wireless sensors, real time automation and data transmission to cloud-based applications.
- high-level communication protocol that is closely coupled with the radio network server can create an efficient traffic management network allowing large number of sensors to transmit their data frequently and reliably.



- managed data message structure that can be inherited and utilized by Controllers, Edge Devices, Protocol Convertors and Cloud Analytics solutions.

**Major clients/partners:**

*MRCSI:*

Sinolta SCADA: General Electric Renewable, Global  
Monitoring and control: City of Winter Park, Florida, USA  
Commercial Buildings: Green Power Labs

*GPL:*

Solar Asset Management: BP Solar, Verve Energy, Pacific Hydro, Recurrent Energy  
Utilities: SDG&E, SCE, SMUD, EDF/ERDF, Toronto Hydro  
Commercial Buildings: Public Works Canada, Innovacorp, MR Control Systems International Inc.

**Technology development and international partnerships:**

*MRCSI:*

- 70 man-years of development of Sinolta platform. A world class Monitoring and control platform.
- Has worked with over 50 Power utility companies globally, delivering wide range of SCADA solutions as GE' subcontractor.
- Collaborated with GE UK, GE Brazil, GE New York, GE Wind Germany to delivery multiple specialised solutions such Wind Global Control Center, Variable Frequency Transformer.

*GPL:*

- Eureka/Spain (2016): smart building technology collaboration with Kromschroeder and Miraconta
- Eureka/Eurogia cluster (2017): smart grid technology collaboration with Turkish consortium
- Eureka/ITEA4 (2021): IoT Sensor-Based Solar Film-Powered Wireless Building Automation project outline development (international consortium, in progress)

**Meeting objectives: Please specify**

Networking and matchmaking activities to establish a strategic partnership in collaborative research and development with a large-scale smart sensor manufacturer in South Korea.

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