

# **Technical Talk on**

## **IoT Sensor Integration in Smart Buildings**

### **for Monitoring and Control**

**Date:** Tuesday, May 22<sup>nd</sup>, 2018

**Time:** 03:00-04:30 pm

**Venue:** **National University of Singapore**  
Seminar Room E3-06-09, Block E3, Faculty of Engineering,  
National University of Singapore.

**Presenter:** **Professor Dr. Saifur Rahman**  
Director, Advanced Research Institute  
Virginia Tech, USA  
President-elect, IEEE Power & Energy Society.

**Registration Is Free:** Click here: **Seminar Registration Form**

***Jointly Organized By:***

**Green Energy Management and Smart Grid Research Center (GEMS),**  
Department of Electrical & Computer Engineering,  
National University of Singapore

and

**IEEE Power & Energy Society, Singapore Chapter and**  
**IEEE PES National University of Singapore Student Branch**

#### **ABSTRACT:**

Internet of Things (IoT) deployments offer a much higher value proposition if these can function in the context of smart buildings. Such advanced information and communication technology (ICT) applications in commercial buildings, schools, libraries, shopping centers, etc. offer low cost but highly effective monitoring and control opportunities. Sensors deployed in key locations can monitor the building environment in real-time, collect information for intelligent decision making, and facilitate various services. An IoT sensor platform has been developed that provides a unified communication platform which can integrate information from disparate sources and provide one control hierarchy. It is a powerful, low-cost, open-architecture software platform that can monitor and control major electrical loads (e.g., HVAC, lighting and plug loads), as well as solar PV systems, energy storage units and other IoT sensors in commercial buildings. The platform can provide new or legacy buildings with a building automation system (BAS) or connect with existing BAS systems in large and small commercial buildings.

This platform leverages machine learning algorithms to draw insights from a deployed building's historical operating data and occupant preferences to save energy (kWh) while increasing occupant comfort. This also allows buildings to reduce peak demand (kW) through direct communication with utilities using demand response protocols such as open ADR.

### **Speakers Biography:**



**Professor Saifur Rahman** is the founding director of the Advanced Research Institute ([www.ari.vt.edu](http://www.ari.vt.edu)) at Virginia Tech, USA where he is the Joseph R. Loring professor of electrical and computer engineering. He also directs the Center for Energy and the Global Environment ([www.ceage.vt.edu](http://www.ceage.vt.edu)). He is a Life Fellow of the IEEE and an IEEE Millennium Medal winner. He is the president of the IEEE Power and Energy Society (PES) for 2018 and 2019. He was the founding editor-in-chief of the IEEE Electrification Magazine and the IEEE Transactions on Sustainable Energy. He has published over 130 journal papers and has made over four hundred conference and invited presentations. In 2006 he served on the IEEE Board of Directors as the vice president for publications. He is a distinguished lecturer for the IEEE Power & Energy Society and has lectured on renewable energy, energy efficiency, smart grid, electric power system operation and planning, etc. in over 30 countries. He is the founder of BEM Controls, LLC, a Virginia (USA)-based software company providing building energy management solutions. He served as the chair of the US National Science Foundation Advisory Committee for International Science and Engineering from 2010 to 2013. He has conducted several energy efficiency related projects for Duke Energy, Tokyo Electric Power Company, the US Department of Defense, the State of Virginia and the US Department of Energy.