

Keynote Talk: The Role of Internet of Things in the Smart Cities Power System

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Abstract : As the number of mobile devices is growing exponentially, it is estimated to connect about 50 million devices to the Internet by the year 2020. At the end of this decade, it is expected that an average of eight connected devices per person worldwide. The 50 billion devices are not mobile phones and data browsing gadgets only, but machine-to-machine and man-to-machine devices. With such growing numbers of devices the Internet of Things (I.o.T) concept is one of the emerging technologies as of recently. Within the smart grid technologies, smart home appliances, Intelligent Electronic Devices (IED) and Distributed Energy Resources (DER) are major I.o.T objects that can be addressable using the IPV6. These objects are called the smart grid internet of things (SG-I.o.T). The SG-I.o.T generates big data that requires high-speed computing infrastructure, widespread computer networks, big data storage, software, and platforms services. A company's utility control and data centers cannot handle such a large number of devices, high-speed processing, and massive data storage. Building large data center's infrastructure takes a long time, it also requires widespread communication networks and huge capital investment. To maintain and upgrade control and data centers' infrastructure and communication networks as well as updating and renewing software licenses which collectively, requires additional cost. This can be overcome by utilizing the emerging computing paradigms such as cloud computing. This can be used as a smart grid enabler to replace the legacy of utilities data centers. The talk will highlight the role of I.o.T, cloud computing services and their development models within the smart grid technologies.

Keywords : intelligent electronic devices (IED), distributed energy resources (DER), internet, smart home appliances

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