Non-intrusive energy usage monitoring of electrical systems

Technology #cu14243

Monitoring electrical energy usage is a critical component of developing and maintaining sustainable, clean energy systems. Having real-time data of energy use could also help to detect equipment malfunctions. This technology is a plug-in device that uses flexible circuits to monitor current flowing through a given system and then wirelessly transmits the usage data to a receiver. For wall plug equipment, this technology is a slim, flexible circuit which is placed between the plug and outlet. As this technology does not interfere with the operation of the systems that it is monitoring, it is ideal for short-term or long-term energy consumption monitoring for a wide range of systems.

Compact, versatile device lowers costs for energy monitoring

This technology achieves seamless, low cost energy monitoring by integrating into preexisting systems, obviating the need for cumbersome installations. Measurements of current are performed using a hall sensor closely coupled to current flow. Flexible circuits are used in this technology, allowing for the device to remain compact, making it ideal for energy monitoring in areas where space is limited. This adaptable device may both lower monitoring costs and increase the data provided, resulting in a powerful data gathering tool.

Prototypes of this device have been constructed and have successfully demonstrated the versatility and capability of the device.

Lead Inventor:
John Kymissis, Ph.D.

Applications:

- Long term energy monitoring
- A tool for short-term energy monitoring and energy auditing
- Energy monitoring in spaces where space is limited, including cars, ships, or military vehicles
- Integration with smart devices as part of a dynamic energy management in commercial or residential settings
Advantages:

- Compact size
- Easy installation
- Facile integration with many existing systems
- Able to monitor systems of various sizes, from individual appliances to wide areas of electrical use

Patent Information:

Patent Pending (US 20150309081)

Tech Ventures Reference: IR CU14243

Inventors

John Ioannis Kymissis