

Wireless Power Transmission Methods for Internet of Things

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Internet of Things is a concept to interconnect embedded computing devices in the real world through wireless communication. Advances in wireless communication have made it possible for a tiny chip embedded into daily objects to communicate with other objects over wireless link. However, electrical energy to operate the chip has to be supplied with a wired cable or a battery. Thus the perpetual operation of the Internet of Things is highly restricted.

Wireless power transmission is a promising technology to overcome this problem. As widely accepted, power transmission through magnetic resonance is one of the most efficient wireless power transmission method for mid-range distance up to several meters. Instead of sending the power vertically, our proposed method allows to establish virtual routes on a 2D plane by using multi-hop resonators. The resonators deployed on the same plane are loaded with wireless controllers that can control impedance of the resonators. Using our method, sensors and electrical appliances installed on the walls and floors can be powered without connection. In addition, by detecting a position of the power receiver, it can also provide power to mobile objects such as robots continuously.