

Rectenna Systems for RF Energy Harvesting for IoT Sensors

Application

- Internet of Things applications
- Recharging of devices
- Battery-less power source
- Power source for smart sensors
- Energy harvesting system market estimated to be worth USD 468 million in 2021 and is projected to reach USD 701 million by 2026, at a CAGR of 8.4 %.¹



Technology

- The solution offering will be the integration of a multiport rectenna for energy harvesting, a power management unit (PMU), micro control unit (MCU), RF transceiver module, and sensors.
- The key component is the multiport rectenna system. It harvests ambient RF energy from cellular and wireless systems to provide dc power, even in low light and dark indoor or embedded environments.
- To supplement the ambient RF energy in low RF energy areas, Wireless Power Transfer (WPT) can also be utilized with a standalone RF source (>900 MHz) to supplement the RF environment.
- The PMU is for incorporation of multiple input power and redistribute them to multiple output loadings. The PMU system can accommodate sensors or transceivers with different voltage specifications. In the IoT sensor nodes, the power flows are in μW to mW scales.



Talk to Us

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Advantages

- Replacement of conventional power sources
- Unlimited spectrum of wireless sources
- Efficient source of energy
- Green energy
- Reduction of periodic replacement of battery
- Extended life for devices for recharging of storage battery during standby

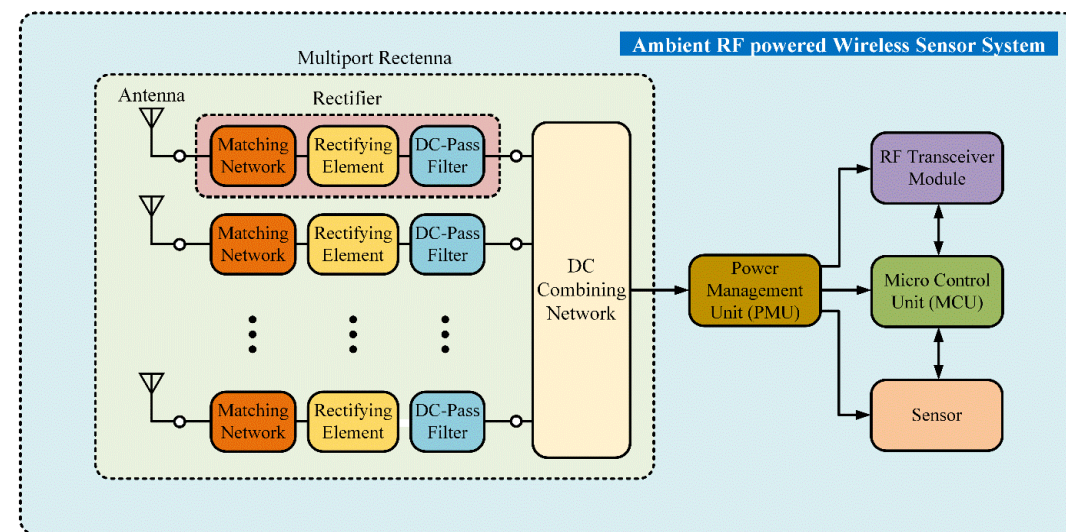


Fig 1. Block diagram of proposed ambient RF powered wireless sensor system



Intellectual Properties

- US Patent Number: US 10,854,977 B2; China Patent Number: ZL201811524041.5
- US filing number: 17/064266; China Patent Number: ZL202022361833.4