

## Multisource (RF and Solar) Energy Harvesting for Internet of Things (IoT)

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**Abstract :** As the Internet of Things (IoT) continues to expand, the demand for battery-free devices is increasing, which is crucial for the efficiency of 5G networks and eco-friendly industrial systems. The solution is a device that operates indefinitely, requires no maintenance, and has no negative impact on the ambient environment. One promising approach to achieve this is energy harvesting, which involves capturing energy from the ambient environment and transferring it to power devices. This method can revolutionize industries. Such as manufacturing, agriculture, and healthcare by enabling real-time data collection and analysis, reducing maintenance costs, improving efficiency, and contributing to a future with lower carbon emissions. This research explores various energy harvesting techniques, focusing on radio frequencies (RF) and multiple energy sources. It examines RF-based and solar methods for powering battery-free sensors, low-power circuits, and IoT devices. The study investigates a hybrid RF-solar harvesting circuit designed for remote sensing devices. The proposed system includes distinct RF and solar energy harvester circuits, with the RF harvester operating at 2.45GHz and the solar harvester utilizing a maximum power point tracking (MPPT) algorithm to maximize efficiency.

**Keywords :** radio frequency, energy harvesting, Internet of Things (IoT), multisource, solar energy

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