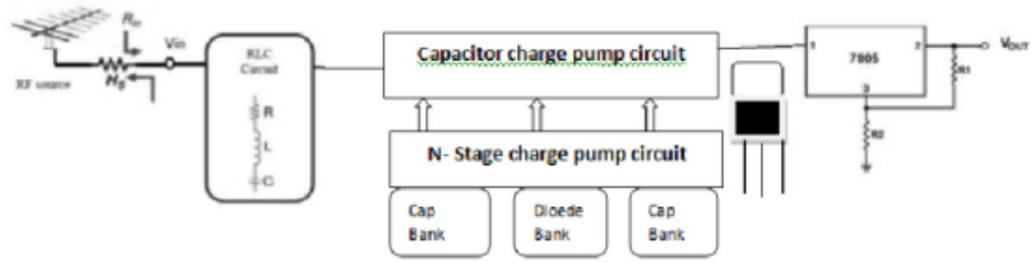


GRANTED**(IN202011014385)**

Energy harvesting from far field RF signal



NEED

Tired batteries and frequent charging in low-power electronics reduce efficiency and cause \$3B in downtime annually. RF energy surrounds us yet remains unused. What if this invisible power could be harvested without wires, batteries, or solar cells?

TECHNOLOGY OVERVIEW

This patent presents a compact ambient energy harvesting device that captures radio frequency (RF) energy and converts it into direct current (DC) using a 30-stage Dickson charge pump and voltage regulator. The system supports integration into wearable, IoT, and battery-less devices for low-power applications.

TECHNOLOGY KEY FEATURES

30-stage Dickson charge pump with diode-capacitor pairs; RLC tuner for optimal energy transfer; converts RF energy (97.75 kHz) to usable DC output; supports battery charging in low-power electronics.

[Read more here](#)

MARKET ANALYSIS

The global energy harvesting system market is projected to reach \$12.3B by 2033, growing at 9.5% CAGR. Growth is driven by IoT demand, battery-less devices, and sustainability mandates in consumer and industrial electronics. (Source: IDTechEx, MarketsandMarkets)

Target Industries

Electronic component manufacturers for RF and energy modules; IoT device platforms integrating self-powered systems; Smart home, industrial IoT, and wearable tech companies exploring energy-autonomous deployments.

AT A GLANCE

SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production)

Technology is available for licensing/ co-development.

Reach out to Prof. Deepak Chitkara, Coordinator, BITS Technology Enabling Centre,

BITS Pilani Contact Details: tec.bits@pilani.bits-pilani.ac.in, 91 1596-255913