

PERVASIVE RF ENERGY HARVESTING SYSTEM USING MAGNETIC COUPLED RESONANCES

Abstract

5

This invention relates to a Radio Frequency (RF) energy harvesting apparatus for harvesting ambient RF energy. The RF energy harvesting apparatus comprises an antenna assembly, a RF-DC converter and an energy storage. The antenna assembly includes a first magnetic coil, a second magnetic coil in parallel connection with the first magnetic coil, a capacitor in parallel connection with the first magnetic coil, a load resistor
10 in parallel connection with the capacitor. The first magnetic coil has a greater inductance value than the second magnetic coil, wherein the first magnetic coil is arranged to capture the ambient RF energy and the second magnetic coil reduces the total inductance to achieve a high quality factor. The RF-DC converter is coupled to the load resistor for
15 converting the ambient RF energy from the antenna assembly to Direct Current (DC) voltage. The energy storage is coupled to the RF-DC converter for storing the DC voltage.

20 Figure 6 to accompany the abstract