Claims:

1. A Radio Frequency (RF) energy harvesting apparatus for harvesting ambient RF energy comprising:

an antenna assembly comprising a first magnetic coil, a second magnetic coil in parallel connection with said first magnetic coil, a capacitor in parallel connection with said first magnetic coil, a load resistor in parallel connection with said capacitor, said first magnetic coil has a greater inductance value than said second magnetic coil, wherein said first magnetic coil has a bigger surface area than said second magnetic coil and is arranged to capture said ambient RF energy and said second magnetic coil reduces the total inductance to achieve a high quality factor;

an RF-DC converter coupled to said load resistor for converting said ambient RF energy from said antenna assembly to Direct Current (DC) voltage; and

an energy storage coupled to said RF-DC converter for storing said DC voltage or energy.

~~2. The RF energy harvesting apparatus according to claim 1, wherein said first magnetic coil has a bigger surface area than said second magnetic coil.~~

~~3. The RF energy harvesting apparatus according to claim 1, wherein said first magnetic coil has a greater surface area than said second magnetic coil.~~

24. The RF energy harvesting apparatus according to claim 13, wherein said first magnetic coil includes at least two rectangular coils and said second magnetic coil includes a rectangular coil.

35. The RF energy harvesting apparatus according to claim 1, wherein the RF-DC converter is a 8-stage rectifier circuit.

46. The RF energy harvesting apparatus according to claim 1, wherein said energy storage is in a form of a material that stores electrical energy.

57. The RF energy harvesting apparatus according to claim 1, wherein said capacitor is a variable capacitor.

68. The RF energy harvesting apparatus according to claim 1 further comprising a DC-DC converter.