

Chapter 8

IoT–Based Wireless Microwave Power Transmission Using Rectenna

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ABSTRACT

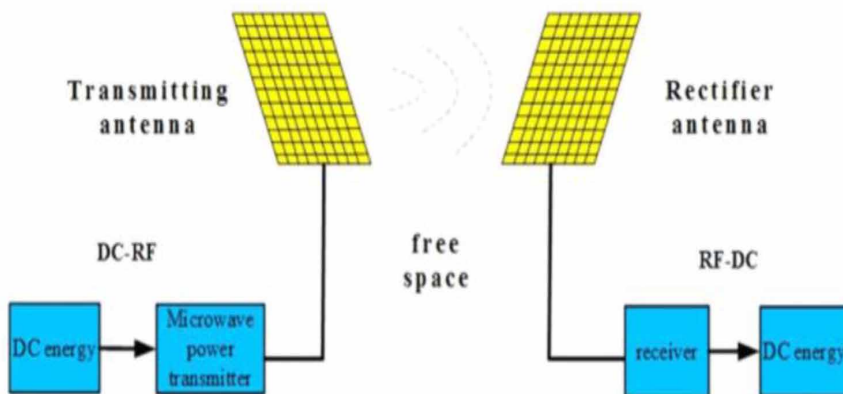
Wireless microwave power transfer (WMPT) knowledge is measured as one of efficient energy shifting technologies. Power transmission by radio waves dates back to the early 1890s. WMPT had a long history before the recent movement towards it. This chapter proposed that the WMPT can be applied to beam-type point-point technique as well as an energy collecting system fed by broadcasting radio waves and solar powered satellites to power IoT devices. WMPT is an important technology in the practice of rectenna (rectifying antenna) to convert microwave signal to a direct current (DC) signal with good efficiency. This method of transferring the power through wireless medium will minimize the wastage of power.

DOI: 10.4018/978-1-7998-9315-8.ch008

INTRODUCTION

As the technology is growing the planet is now moving toward wireless power. We will see that now days everyone prefers to use a wireless mouse or a wireless headphone. The utilization of batteries can make this possible but the matter is that too many batteries are getting used and therefore there has got to be how by which these applications can run wirelessly and the neatest thing would be if the batteries weren't used. How can this be possible? This is often the matter which we'll attempt to solve within the design. The rectenna used will convert the RF power into dc signal and rather than batteries the appliance will have a rectenna to supply the facility. Therefore we'll have a real wireless system, which has no wires and no batteries as shown Figure 1.

Figure 1. Microwave Wireless Power Transmission.



BACKGROUND

The word 'rectenna' as we all know today was first introduced by Brown. The essential concept of rectenna may be a "rectifying antenna". In other word an antenna which can be used for receiving RF signal and a rectifying circuit which is employed to offer us DC power.

Wireless Microwave power transmission (WMPT) are often viewed as an electrical grid which generates power. WMPT is that the technology which is employed for wireless transmission of power, this may be utilized in the solar energy satellites, radio waves and power IoT. Let me explain the concept intimately. Because the satellites are orbiting round the earth 24 hour and therefore the satellites have the potential

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