IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 15, May 2023

RF Energy Harvesting

Dr. Vivek Ratnaparkhi, Ms. Pallavi Kokate, Ms. Prachi Yerokar,
Ms. Shrawani Rele, Mr. Chinmay Hatwade
Department of Electronics and Telecommunication
Shri Sant Gajanan Maharaj College of Engineering, Shegaon, India

Abstract: *An emerging technology known as RF energy harvesting has the potential to change the way systems and devices are powered. It makes it possible to turn ambient electromagnetic radiation into electrical energy that can be used to power things like wireless sensor networks, IoT devices, and mobile devices. The ability to operate in remote or difficult-to-reach locations and the absence of the need for batteries are just two of the many benefits offered by this technology. The antenna's AC signal is converted into DC power that can be used to power electronic devices by rectification circuits. A variety of topologies, such as voltage doubler, half-wave, and full-wave rectifiers, can be utilized in the design of these circuits. The requirements of the application and the frequency of the incoming RF signal determine which rectifier circuit to use. RF energy reaping has various possible applications, including fuelling, remote sensor organizations, brilliant homes, clinical gadgets, and wearable hardware, among others. It enables the deployment of devices and systems in remote or difficult-to-reach locations and provides an alternative to traditional battery-powered systems that is both sustainable and cost-effective. In conclusion, RF energy harvesting is a fascinating technology that is rapidly developing and has the potential to change the way systems and devices are powered.*

Keywords: RF Energy Harvester, Antenna, Rectifier, Matching circuit, Electromagnetic radiation, radio frequency

REFERENCES

[1]. Microstrip Patch Antenna For 2.4GHz Using Slotted Ground Plane, Karthikeya Anusury, Haneesh Survi, Paritosh Peshwe, (10th ICCCNT - 2019 July 6-8, 2019, IIT - Kanpur, India)
[2]. Sandhya Chandravanshi, S.S Sarma, and M.J. Akhtar, “Design of triple and differential rectenna for RF energy harvesting”, IEEE Transactions on Antennas and Propagation, vol. 66, no.6, pp. 2716-2726, June 2018
[3]. Z. Tang, J. Liu, and Ying zeng Yin, “Enhanced cross-polarization discrimination of wideband differentially fed dual-polarized antenna via a shorting loop”, IEEE Antennas and Wireless Propagation Letters, vol.17, no.8, pp. 1454-1458, August 2018
[4]. Devi, K. K. A., N. M. Din, and C. K. Chakrabarthy, "Optimization of the voltage doubler stages in an RF-DC convertor module for energy harvesting," Circuits and Systems, Vol. 3, No. 3, Jul. 2012
[5]. Zhi-Hong Tu, Kai-Ge Jia, and Yan-Yan Liu, “A differentially fed wideband circularly polarized antenna”, IEEE Antennas and Wireless Propagation Letters, vol.17, no.5, pp. 861-864, May 2018.
[6]. E. Khansalee, Y. Zhao, E. Leelarasmee and K. Nuanyai, "A dual-band rectifier for RF energy harvesting systems," 2013 11th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), Nakhon Ratchasima, 2013, pp. 1-3
[7]. H. Jabbar, Y. S. Song and T. T. Jeong, "RF energy harvesting system and circuits for charging of mobile devices," in IEEE Transactions on Consumer Electronics, vol. 56, no. 1, pp. 237- 253, February 2010