A Novel Technique to improve the Performance of Wireless Sensor Network using Adaptive Antennas and High-Altitude Platform Communications

International Journal of Computer Applications
© 2014 by IJCA Journal

Volume 104 - Number 3
Year of Publication: 2014

Authors:
Yasser Albagory
Mostafa Nofal
Omar Said

10.5120/18185-9081

Abstract

In this paper, the performance of Wireless Sensor Networks (WSN) is improved using adaptive antenna technique and High-Altitude Platforms Systems (HAP). An adaptive concentric circular array (ACCA) is proposed to improve the communications link between sink and sensor nodes. The system is first demonstrated for several scenarios including different cell sizes at a HAP height of 20 km and the quality of link in terms of the ratio of bit energy to noise power is demonstrated where it shows the capability and reliability of building HAP-WSN despite of the long distance between ground sensors and HAP sink. The proposed ACCA technique provides a power gain profile that both increases the power to and from sensor nodes as well as it reduces the out-of-cell radiation to other HAP-WSN areas.

References


- Yasser Albagory, "An Efficient Clustering Scheme for High Altitude Platform Mobile


- Yasser Albagory, Moawad Dessouky and Hamdy Sharshar, An Efficient Highways Coverage Technique for the High Altitude Platforms Mobile Communications, has been accepted for publication in the 23rd Progress In Electromagnetics Research Symposium, PIERS 2008, in Hangzhou, CHINA, 24-28 March, 2008.


- Sultan Aljahdali, Mostafa Nofal and Yasser Albagory, A Modified Array Processing...
A Novel Technique to improve the Performance of Wireless Sensor Network using Adaptive Antennas and High-Altitude Platform Communications


Index Terms

Computer Science
Wireless
Keywords
HAP  WSN  Adaptive Antenna  Concentric Circular Arrays