

Energy Harvesting Techniques for Sustainable Wireless Sensor Networks

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Abstract. This paper explores energy harvesting techniques as a means to power sustainable wireless sensor networks. By utilizing ambient energy sources such as solar, thermal, and kinetic energy, the study presents methods to extend the lifespan of sensor nodes. These techniques are crucial for the deployment of long-lasting and maintenance-free sensor networks.

Keywords: Energy Harvesting, Wireless Sensor Networks, Sustainability, Solar Energy, Kinetic Energy

Introduction

The deployment of sustainable wireless sensor networks is contingent upon effective energy harvesting methods. This article investigates various ambient energy sources, including solar, thermal, and kinetic energy, to power sensor nodes. By harnessing these renewable sources, the study aims to extend the operational lifespan of sensor networks, reducing the need for frequent maintenance. The research evaluates different energy harvesting techniques, providing insights into their efficiency and applicability in real-world scenarios. These findings are pivotal for the development of long-lasting, maintenance-free sensor networks.

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