

Energy Harvesting Technologies for IoT Devices

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Abstract. Energy harvesting presents a sustainable solution for powering Internet of Things (IoT) devices. This article investigates various energy harvesting technologies, including solar, thermal, and kinetic methods, and their integration into IoT systems. The study evaluates the efficiency and feasibility of these technologies in real-world applications, aiming to reduce the dependency on traditional batteries and enhance device longevity.

Keywords: Energy Harvesting, IoT, Sustainability, Solar Energy, Kinetic Energy

Introduction

The proliferation of Internet of Things (IoT) devices has led to increased demand for sustainable and efficient energy solutions. Energy harvesting technologies offer a promising approach by converting ambient energy into usable power for these devices. This paper explores the potential of various energy harvesting methods, such as solar, thermal, and kinetic energy, to meet the power needs of IoT systems. We discuss the integration challenges and the prospects of these technologies in reducing battery dependency and increasing the lifespan of IoT devices. Case studies demonstrating successful implementations are also presented.

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