

Innovations in Flexible Electronics and Their Applications

Jordan Roberts
PhD
Seoul National University
1 Gwanak-ro, Gwanak-gu, Seoul, South Korea

Cameron Turner
PhD
Université Paris-Saclay
3 Rue Joliot Curie, 91190 Gif-sur-Yvette, France

Nico Mitchell
PhD
Politecnico di Milano
Piazza Leonardo da Vinci, 32, 20133 Milano MI, Italy

Abstract. Flexible electronics are transforming the landscape of wearable technology and electronic devices. This study delves into recent innovations in materials and fabrication processes that have enabled the creation of flexible and stretchable electronic components. The paper examines applications ranging from healthcare to consumer electronics, highlighting the benefits of flexibility in terms of durability and user comfort. Future prospects and challenges are also discussed.

Keywords: Flexible Electronics, Wearable Technology, Material Science, Healthcare, Consumer Electronics

Introduction

The development of flexible electronics has opened new avenues for innovation in the design and application of electronic systems. These systems offer distinct advantages over traditional rigid electronics, such as enhanced durability, lightweight designs, and improved user comfort. This paper reviews cutting-edge advancements in flexible materials and manufacturing techniques that have paved the way for this technology. Applications in various sectors, including healthcare, consumer electronics, and robotics, are explored. The potential for flexible electronics to revolutionize these fields is immense, though challenges in material costs and long-term stability remain.

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