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# The Use of Nanotechnology in Electronic Components

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## INTRODUCTION

The research into ways to improve electronic devices for everyday use in terms of their display, size, and power consumption is referred to as "nanoelectronics" in the field of nanotechnology. This includes studying physical surface changes on memory chips and electronic devices. The term refers to a variety of small devices and materials that require extensive research into quantum mechanical properties and inter-atomic interactions. Nanoelectronics cover everything from hybrid materials to semiconductors to single-dimensional nanotubes to nanowires to quantum mechanical properties. Well-developed nanoelectronics can be used for a number of things, but they are especially useful for finding disease-causing agents and disease biomarkers.

## DESCRIPTION

Nanoelectronic devices have critical dimensions that range from 1 nm to 100 nm. Nanoelectronic devices support data storage in addition to transistors. In this context, spintronics is already a well-established technology that studies and makes use of the electron spin and electric charge in solid-state devices. Nanoelectronics are making huge commitments to the creation and capacity of energy in different fields, including sunlight based cells and supercapacitors. Traditional materials cannot shrink further after reaching a certain size. Nanotechnology has made the field of nanoelectronics possible in this regard. When electronic components made with nanomaterials are smaller than those made with conventional "bulk" materials, this field is known as nanoelectronics. One example of a nanoelectronic device is a graphene battery. Semiconductors or two-dimensional, highly active materials are used in the production of the majority of nanoelectronic devices. With the added benefit of being significantly smaller due to these properties, nanomaterials can offer electrical efficiencies comparable to, if not higher than, those of bulk materials utilized in conventional components. Since current competitors contrast fundamentally from traditional semiconductors, nanoelectronics are once in a while viewed as a problematic innovation. Nanoelectronics has a lot of potential to make electronics devices smaller, lighter, and less power-dependent while also improving their capabilities. Both the weight and density of display screens and the amount of power they use can be reduced. Nanoelectronic applications' future growth will largely be attributed to the rapid expansion of spintronic materials. This is essential because it will ensure that various applications will have more memory and processing power while consuming less energy. In addition to being a smaller form of electronics, it encompasses everything from nanoscale components to quantum technology, spintronics, and molecular electronics [1-4].

## CONCLUSION

The field of nanoelectronics has been steadily expanding in recent years in response to the growing demand for electronics that are smaller while still maintaining high performance. Nanomaterial-based components can be made to be much smaller than traditional, bulkier materials, which helps reduce the overall size of the electronic device. In addition, many nanomaterials are stable in the majority of environments, whether they are used in an electronic device that generates a lot of heat for its internal components or in a sensor in a harsh chemical processing environment. New and faster types of computers, more energy-efficient power sources, and medical treatments that save lives are all possible thanks to nanotechnology. Economic disruption and potential threats to health, safety, the environment, and privacy are among the potential drawbacks.

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## CONFLICT OF INTEREST

None.

## REFERENCES

1. Goodman RP, Schaap IA, Tardin CF, Erben CM, Berry RM, et al. (2005) Rapid chiral assembly of rigid DNA building blocks for molecular nanofabrication. Science 310(5754): 1661-1665.
2. Seeman NC (2004) Nanotechnology and the double helix. Sci Am 290(6): 64-9.
3. Guo P (2010) The emerging field of RNA nanotechnology. Nat Nanotechnol 5(12): 833-42.
4. Strong M (2004) Protein nanomachines. Plos Biol 2(3): E73.