

Assessment on Relevance of Nanotechnology

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Abstract

Nano electronics can be elaborated technically as the applied science of mechanical arts which deals in specification of materials, those which are scaled in nanometer which varies from least to several hundred nanometers. Nano electronics has endeavored to increment many technical sectors, environmental science, information technology, transportation. This assessment focuses on the establishment of Nano electronics and its relevance.

Keywords: *Nanocells, Nanopaper towels, Nano probes, Nano bio-sensors.*

1. Introduction

Nano electrical devices are the vital elements or enables that allows the humanity to explore technicalities of electronics, mechanics, communication, biological systems .In an explicit way Nano devices has an excess impact on enduring of energy conservation, pollution remedies, human health including medical sciences.

The beneficial of Nano electronics is possible in tailoring the vital frameworks of elements at the Nano scale to reach its specific properties, make them stronger, durable, lighter, reactive, and conductors. Till now more than 800 commercials rely on Nano scale materials.

2. Present Analysis

Since previous years, our endurance has combined with technique and has shown advancement in a number of fields. The unexpected invention of carbon Nano tubes has fabricated the use of electrical devices. For example the invention of bio molecules and superstructure molecules in the area of Nano devices, the separation of biological motors and their incorporation with non

biological environment are the advances. Following are the various areas where nano technology plays vital advancement.

2.1 Nano technology in Environmental Remedy Application

As compared to the polluting and high machine engine loaded vehicles Nanotechnology has successfully applied and launched its eco-friendly applications to make environment pollution less and clean. Nanotechnology has met the needs of environment and is helping in clean drinking water, free from carbon tetra chloride.

Surely Nano particles will be used to clear machinery and refinery pollutants. For example technology has developed Nano paper towel which can soak twenty times its weight of oil. The new researches in nanotechnology will lead to advancement of sensors which will detect the harmful chemicals passing through pores and block them.

Advantages

1. Less fuel consumption will be required.
2. Less polluted or pollution free resources.
3. Helps in meeting the affordability.
4. Blockage of harmful chemicals.



Fig.1 Nanorust cleans arsenic from water.

2.2. Nanotechnology in Technical Applications

Nanotechnology uplifts the growth and advancement of Nano electric devices by reducing power consumption, increasing sustainability, speed, density of devices. The resonant tunneling devices, quantum automata, quantum dot technique have remarkably progressed in exploring memory logics and logical multileveled circuits.

The advancement of silicon based hetero junctions have evolved and improved the techniques used in data processing, image processing, computation, digital radars, and wireless communication. It has a wide range of applications in analog to digital convertors in detectors. The goal of Nano devices is to make portable systems that can store huge amount of data in small memory chips known as Nano chips.

Advantages

1. Increased functionality
2. High sensitivity, better image processing
3. Nano biological systems, medical sciences, health applications
4. Lower power consumption
5. Portability
6. Long lifetime, durability

2.3. Nanotechnology in Medical Application

Nanotechnology has the capability to change fundamentally the shape and course of biotechnology and medical sciences, so as to make them Cheaper, safer, effective, and easier to administrate. For example as discussed earlier quantum dot technique are Nano crystals which modify, enhance the image biology, and medical diagnostics. Using ultra violet rays a band of colors are emitted which are used to detect types of cells, conventional dyes.

Nanotechnology is used in diagnosis of atherosclerosis, initial stage of plague in arteries. An imaging technique is developed to measure the ratio of Nano particles required in the treatment of plague. Study is underway to use nanotechnology in the growth of nerve cells like in distortion in spinal cords, brain cells.

Advantages

1. It becomes more personalized.
2. It is portable, cheaper, and safer.
3. It is easier to administrate.
4. A remedy to many diseases.
5. Increases the efficiency of medicines.

2.4. Nano transport Applications

In addition to the relevance's of Nano technology, its emergence in transportation is commendable. Its use in greener vehicles, airships, rockets and aerospace has not only improved but has also uplifted the transportation.

the use of Nano-engineering steel ,concrete and other cement materials used in highway projects, dams, bridges have improved the quality, resistance and durability of projects with lesser costs. Nano sensors used in aircrafts, rails etc. has improved the security and monitoring of the systems and avoid any type of miscommunication or mismatch leading to clashes, collisions.

Advantages

1. Less cost required
2. Any kind of miscommunication is blocked
3. Improved transportation infrastructure
4. Improved performance and resiliency
5. Durability and longevity

2.5. Nanotechnology in biosensors

Nanotechnology plays a crucial role in improvement of biosensors. The performance and sensitivity of biosensors is improved with the help of nano particles. With the use of nano particles, it has introduced new signal transduction techniques to improve the efficiency of biosensors. Portable devices like nano sensors, nano probes have made multiple conversion tasks easy and accurate. Nano technology sensors have a wide use in transportation as it provides sensing over bridges, parking areas, basement, and pavements. The sensors communicate with the vehicle based systems and provide necessary help to the drivers to show lane positions, area

mapping and saves them from collisions.

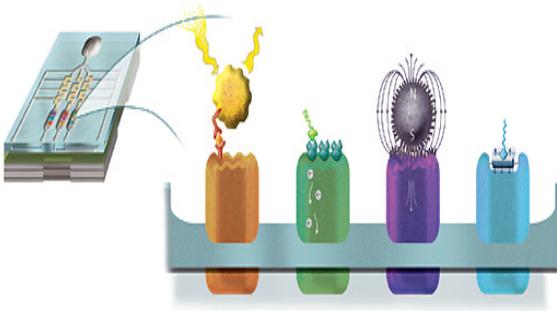


Fig.2 Future nano biosensors

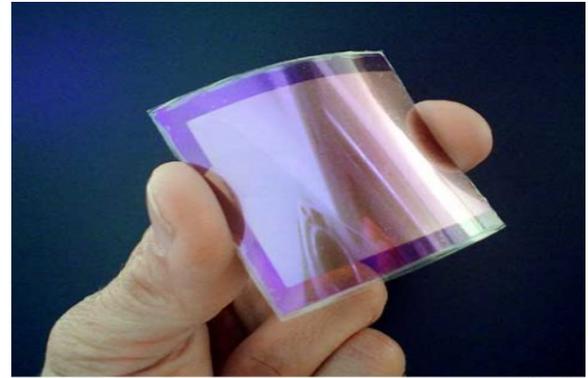


Fig.3 New solar films used in solar cells made by nano cells.

Advantages

1. Cost is less.
2. More effective to use.
3. Helps to provide area tracking and mapping facilities.
4. Reduces the collisions, accidents.
5. Better performance.

2.6. Nanotechnology in energy sustainability

Nanotechnology helps in meeting the growing demand of energy consumption to protect the environment. The main work of nanotechnology is to maintain a clean, affordable, and healthy environment. Solar cells used in solar panels are used to convert solar energy to electric energy; nano particles used in solar cells improves performance and efficiency of vehicles. Nanotechnology is already emphasizing its importance in building light weighted batteries and cheaper, durable gadgets so as to make efficient use of technology and provide a clean environment.

Advantages

1. Energy consumption is less.
2. Eco friendly.
3. Cheaper durable and easy to use.
4. Increases the efficiency and production.

3. Conclusion

In the above assessment the focus is emphasized on Nano electronics and its relevance and it has been surveyed that Nano electronics is the branch of science which deals in Nano particles and its applications. Also the analysis and the advancement in nanotechnology in various fields can be observed and it can be said that the relevance of Nano electronics is so enormous that it can define the whole world.

4. Future advancement and development

To utilize Nanotechnology in devices, we have to understand it with respect to all respects and fields whether its electronics, mechanics, medicine, environment. The analysis done today will be drafted and used in future for further advancement through demonstration, theory. Over the time period it will be possible enough to integrate transistors, diodes, and semiconductors into Nano chips .The furious progress in Nano mechanics and biomechanical systems a sign of surety of advancement in medicine. The exploitation and exposure given to Nano transport, Nano aerospace, Nanotech in robotics has remarkable future advancements. The paradigm shifts is another step to future advancement of integrated circuits.

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