



## ANALYSING THE PERFORMANCE OF NANO DEVICES CONSIDERING COST FACTOR, POWER CONSUMPTION FACTOR AND QUALITY FACTOR

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**Abstract:-** Nano devices are mobile as well as light weighted. They are required in order to develop display devices that better picture quality. In this paper we have explain scope of nanotechnology & investigate their benefits & limitations as compare to traditional technology have been discussed & we would use MATLAB to make comparative study of traditional & nanotechnology performance considering several factors such as Cost, Power consumption, portability, quality factor, mass production, & Environment friendly. We have considered energy consumption, energy efficiency & delayed efficiency.

Keywords:-Nanotechnology, Manipulation, Molecular,

### [1] INTRODUCTION

Nanotechnology has been developed for being used in many fields of studies including physics, chemistry, biology, material science, engineering, & computer science.

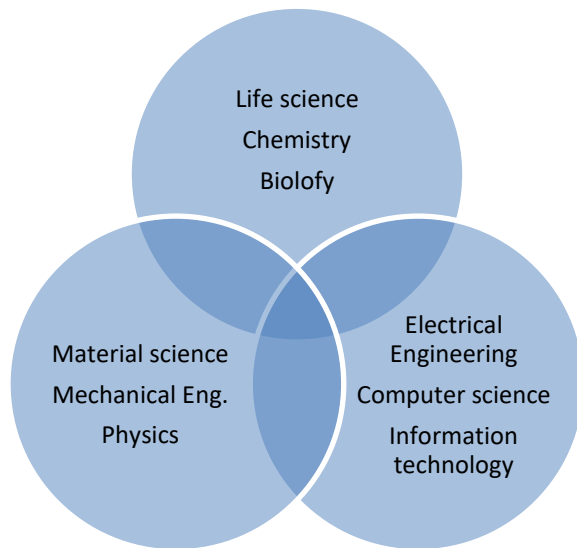


Fig 1 Nanotechnology

Nanotechnology as defined by size is naturally very broad, including fields of science as diverse as surface science, organic chemistry, molecular biology, semiconductor physics, energy storage, micro fabrication, molecular engineering.

The associated research & applications are equally diverse, ranging from extensions of conventional device physics to completely new approaches based upon molecular self-assembly, from developing new materials with dimensions on nanoscale to direct control of matter on atomic scale.

Scientists currently debate future implications of nanotechnology. Nanotechnology may be able to create many new materials & devices with a vast range of applications, such as in nanomedicine, nano electronics, biomaterials energy production, & consumer products. Nanotechnology raises many of same issues as any new technology, including concerns about toxicity & environmental impact of nano materials, & their potential effects on global

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economics, as well as speculation about various doomsday scenarios. These concerns have led to a debate among advocacy groups & governments on whether special regulation of nanotechnology is warranted.

## [2] APPLICATIONS OF NANO TECHNOLOGY

The Understanding Nanotechnology Website is dedicated to providing clear & concise explanations of nanotechnology applications. Check listings under to get an application of interest, or apply navigation bar over to go openly to page discussing an application of interest.

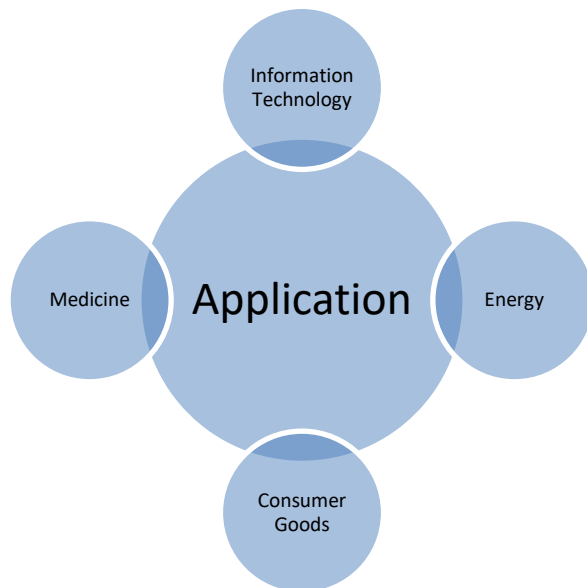


Fig 2 Application of nanotechnology

### 1. Information Technology

Smaller, faster, more energy efficient & powerful computing & other IT based system

### 2. Energy

More efficient & cost effective technologies for energy production

**Solar cells:** - Corporation had explains nanotech solar cells that could be manufactured at important minor cost than standards solar cells.

**Fuel cells:** - Nanotechnology is being used to reduce cost of catalysts used in fuel cells to produce hydrogen ions from fuel such as methanol.

**Battery:** - Corporations are presently increasing batteries using nano materials.

**Bio fuels:** - Nanotechnology could improve performance of catalysts used to transform vapors escaping from cars or industrial plants into harmless gasses.

### 3. Medicine

Researchers are developing customized nano particles size of molecules that could deliver drugs directly to diseased cells in your body.

### 4. Consumer Goods

Nanotechnology is having an impact on several aspects of food science, from how food is grown to how it is packaged. Corporations are increasing nano materials that would compose discrepancy not only in style of food, but also in food safety.

## [3] IMPACT OF NANO TECHNOLOGY

The impact of nanotechnology extends from its medical, ethical, mental, legal & environmental applications, to fields such as engineering, biology, chemistry

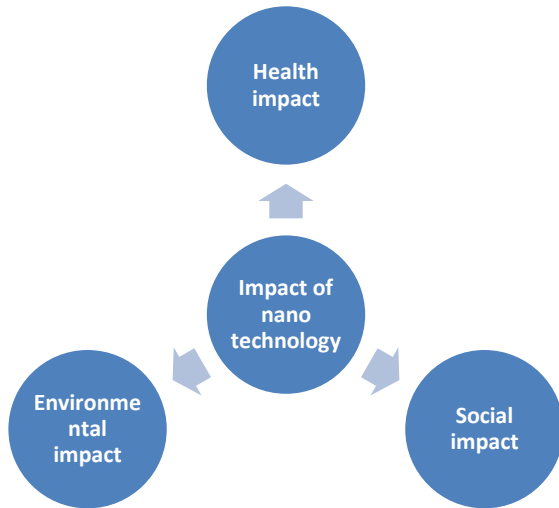


Fig 5 Impact of nano technology

computing, materials science, & communications. Main advantage of nanotechnology involve better manufacturing methods, water purification systems, physical enhancement, nanomedicine, energy systems, & large-scale infrastructure auto-fabrication. Nanotechnology's reduced size might allow for automation of tasks which were previously inaccessible due to physical restrictions, which in turn might reduce labor, land, or maintenance requirements placed on humans.

**Health impact**

The health impression of nanotechnology possible achieves that use of nano technological materials & devices would have on human health.

**Environmental impact**

The environmental impact of nanotechnology is possible effects that use of nano technological materials & devices would have on environment.

**Social impact**

Beyond toxicity risks to human health & environment which are associated with first-generation nano materials, nanotechnology had broader societal impact & poses broader social challenges.

**[4] PROPOSED WORK**

In proposed model nano technology has been compared with traditional. Here we would make comparative analysis with performance of traditional technologies with modern technology. The base for comparison is performance, power consumption, & Heat generation, Technical feasibility of implementation, portability & Limitation of traditional technologies. The objective of his research is to make study of nano technology. Here we would make comparative analysis with performance of traditional technologies with modern technology. The base for comparison is performance, power consumption, and Heat generation, Technical feasibility of implementation, portability & Limitation of traditional technologies.

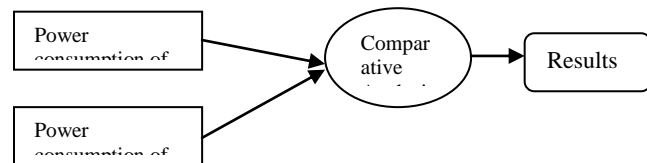


Fig 6 Comparative analysis Power consumption of Traditional & Nano technology

**Input:** Power consumption of Traditional Technology, Power consumption of Nano Technology

**Processing:** perform comparative analysis on data

**Output:** Graph charts in MATAB according to tradition & proposed power consumption

**[5] RESULT & DISCUSSION**



In this research we would use MATLAB to make comparative study of traditional & polytronics devices performance considering several factors such as Cost, Power consumption, portability, quality factor, mass production, & Environment friendly. We have considered energy consumption, energy efficiency & delayed efficiency.

**Pollution factor U**

If Pollution factor is less then efficiency increases & if Pollution Factor is more than efficiency decreases

**Number of Devices is N** here

**Equation for efficiency E** is as follow

$$E=N(Q+M-P-U-C)$$

Matlab based GUI design for comparative analysis between traditional & nanotechnology based devices.

Case 2: Cost factor is 0.7 , power consumption factor 0.8, quality factor is 1.2 , mass production factor is 1.1, pollution factor is 0.9 & number of device is 10.

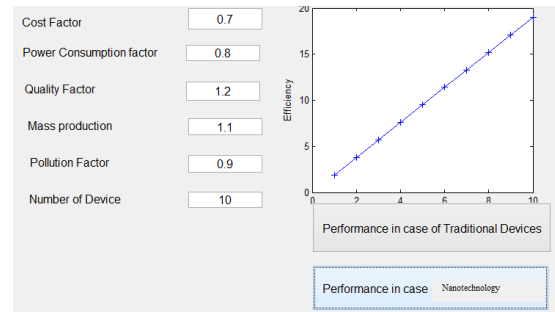


Fig 9 Cost factor is 0.7, power consumption factor

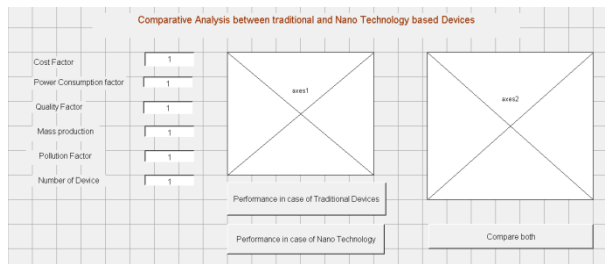


Fig 7 Pollution factor U

Case 1: Cost factor is 1 , power consumption factor 1, quality factor is 1.2 , mass production factor is 1.1, pollution factor is 1 & number of device is 10.

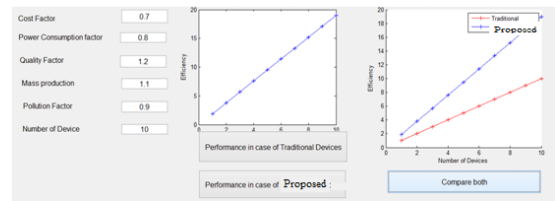


Fig 10 Comparative Analysis between & nanotechnology based device

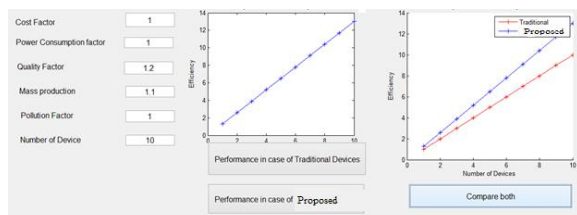


Fig 8 Cost factor is , power consumption factor

Case 3: Cost factor is 0.7, power consumption factor 0.65, quality factor is 1.1 , mass production factor is 1.2, pollution factor is 0.6 & number of device is 20.

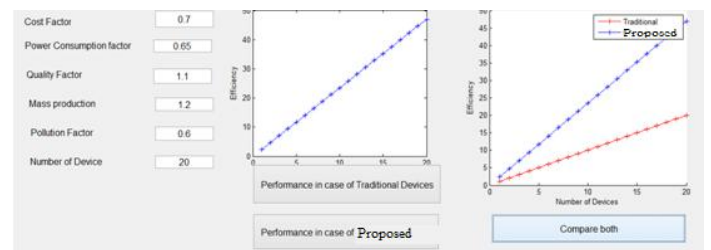


Fig 11 Comparative Analysis between & nanotechnology based device

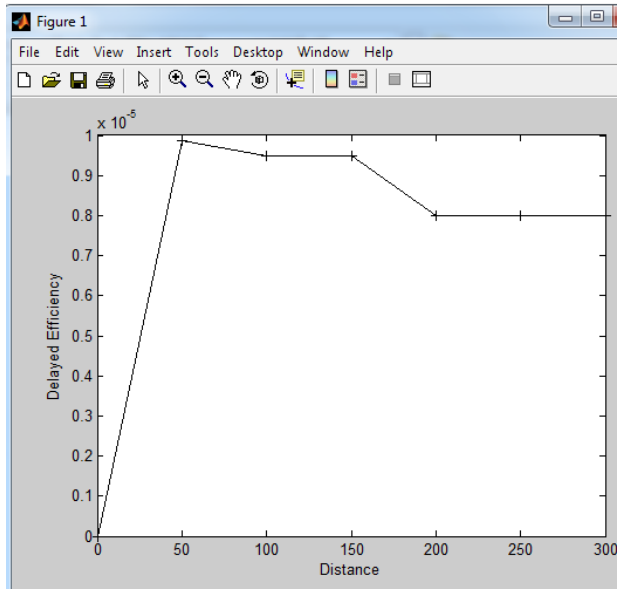


Fig 12 Delayed Efficiency

## [7] CONCLUSION

The age of nanotechnology electronic had begun. It is not primarily a replacement for existing electronic technologies, but opens up prospect of completely new applications that combine features of transistor, LED, detector & interconnect devices with freedom of design, flexibility & low cost of plastics. In scope of these new findings it seems possible that nanotechnology solves present & coming problems & add new functionality to microelectronic circuits & systems. nanotechnology creates a new & very promising technological area with new applications & products. Research on polymer electronics is not a fancy of well equipped laboratories which have too much time & money. Nanotechnology be one technology besides other for future electronic systems.

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