

# Microelectromechanical systems

Technology



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The nanometer is a unit length which equals  $10^{-9}$  meters, in other words, billionth of a meter. In basic, logical perspective, the definition: the science, which studies the matter in atomic dimensions for the term "nanotechnology" is quite perceptible. However, to deeper understanding, it is useful to take a look at a wide definition of the nanotechnology, provided by U. S. National Nanotechnology Initiative. According to the initiative, "Nanotechnology is the understanding and control of matter at dimensions between approximately 1 and 100 nanometers, where unique phenomena enable novel applications.

Encompassing nanoscience, engineering, and technology, nanotechnology involves imaging, measuring, modeling, and manipulating matter at this length scale. "It is useful to try to imagine what happens if the human being would have the full control of the matter in atomic dimensions. To help the reader, it is reminded that the first computer MANIAC was took 167 mm space and approximately 30 tons in weight. Now, the human being have computers in their small smartness. The control of smaller materials have caused less space and less weight, in other words more "nanotechnology".

When the word is pronounced, it is naturally related to information technology in people's mind. The control of smaller material means advanced information technology, so the question "how the nanotechnology would affect information systems and information technology" automatically arises. To answer this question, some usage or potential usage of nanotechnology is presented. One example is Carbon nanotubes. Carbon nanotubes are tubular structures of nanometers diameter. Technical details of it are skipped.

They can be used to create sensors and high capacity storage media.

Sensors can be used to gain information and with high capacity storage media this information could be stored. Another example is Porous silicon. Similar to CNN, due to its properties, porous silicon has enormous value for sensing. It has also potential to be used in fabrication of electromechanical systems known as MESS. According to chocolate and Lulu, pressure sensors, inertia sensors, DNA chips can be given as examples of MESS. For example, smart nurses could be invented by the blood pressure sensors.

The blood pressure of the patient are sensed and processed, then the necessary drug is given. Accelerometers are already available today as inertia sensors. Accelerometers produced by nanotechnology are used in airbag systems of automobiles. Another example is narrowness. Narrowness are believed to play an important role as both interconnects and active components in fabricating annoyance electronic devices. (Martin-Palm and Lacking, 2010) That would bring high speed of information transfer and storage. The nanotechnology also useful in criminal information systems.

The crime scene is full of data and it must be gathered. The usage of nanotechnology, investigators would get to a much conclusion with the same material. Carbon black, aluminum flake, gentian violet etc. Re used to develop fingerprints and increase the sensitivity of forensic search.

(Catamaran, M. ) area the nanotechnology is most promising in?

Nanotechnology seems to be most promising in medicine. A lot of usage and potential usage of nanotechnology are outsourcing in medicine. One of them is drug delivery usage.