

Internet of Nano Things

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Introduction

The evolution of Web 3.0 and the development of near field communication capabilities and nanotechnologies enable autonomous communication, data sharing, and intelligent information processing among machines. This has led to the development of smart machines that use technologies generally referred to as the Internet of Things (IoT); additionally, the emerging area Internet of Nano Things (IoNT) is set to replace the traditional use of IoT in health and utility equipment and software applications. IoT is a paradigm utilizing the Internet to transform real-world objects into smart objects with autonomous capabilities to organize, adapt, and communicate. Similarly, IoNT is a type of IoT where interconnected nanodevices are used to create smart objects. Nanoscale devices and systems characterized with their size of 100 nanometers have allowed the development of the Internet of Nano things (IoNT), allowing us to develop interconnectivity of nanoscale devices over the Internet and other communication networks. According to marketwatch.com, the global Internet of Nano things (IoNT) market is projected to reach \$5.43 billion by the end of 2022, growing at 21.89% during 2020-2022.

One of the key promises of IoNT is to create a globally interconnected network with the inclusion of real-life objects. A world with intelligent devices offers enormous promise to design and develop a smart society and implement new and improved business processes. These innovations may impose security and privacy threats and technical challenges. However, the focus here is not downscaling the sensors or devices rather on the effects and emerging characteristics utilizing the main areas of nanotechnology combined with the Internet of Things (IoT). IoNT research suggests that the medical sector is the primary application sector for the technology where bio-nano-nodes and the Internet of Bio-Nano Things (IoBNT) are the counterparts of artificially produced nano-machines.

To understand the full potential of IoNT innovations and trends requires that we, as researchers, seek technical solutions and address corresponding organizational and socio-political threats and the way we manage them. Policies and frameworks related to the IoNT paradigm are critically important for individuals, organizations, and government and a greater understanding of these emerging technological trends is required to address these threats.

This mini track accepted the paper with the title-“*Richard, Are We There Yet? An Internet of Nano Things Information System Architecture*”. The paper discuss that IoNT is still at the nascent stage and emphasizes the principles for designing an information system from an architectural perspective to satisfy the demands of IoNT-based systems. A conceptual discussion is made between nano system architecture and its usage in a real-world setting considering the macro and nano distinction. The macro-view represents system entities and the processes utilized in a real-world application like healthcare and smart devices within the architecture. Nano-view includes the nano-level entities, communication, and their interaction with Internet. The nano-view consists nano sensors, nano nodes, etc. with low computing power, and limited storage capacities. This offers researchers with a methodological foundation for future research possibilities and collaboration, for example, integrating artificial intelligence and Internet-of-nano-things targeting privacy, security, social, and ethical issues.