



# **Smart Dust: Real-time Tracking Of Everything, Everywhere**

TN Note: DARPA is a driver of Technocracy in the 21st Century. Its creation of computerized microscopic sensors no larger than a spec of dust will surpass the Internet of Things (IoT) by orders of magnitude. Known as “Smart Dust”, an area can be blanketed to achieve 100% real-time monitoring of everything in every nook and cranny. Also, Smart Dust can be incorporated in fabric, building materials, paint or any other substance use in construction, decoration or wearables.

The year is 2035, and Sgt. Bill Traverse and his team of commandos are performing a “sweep and clean” operation through a portion of the war-torn Mexico City. Their job is to find any hidden pockets of resistance and flush them out and back through the neutral zone or eliminate them. The drones that provide surveillance overhead cannot offer much support in the twisting alleys and passageways of the sprawling metropolis and the helmet-based HUD systems that soldiers are equipped with are useless in a city where all technical infrastructure was destroyed years ago.

Sgt. Traverse isn't navigating blind, though. He and his team use Dust, portable packets of sensors that float in the air throughout the entire city and track movement, biometric indicators, temperature change and chemical composition of everything in their city. The Dust sensors send information back to their HUD displays through a communications receiver carried by a member of the team. Traverse can tell, from the readings that Dust gives him, if there are people around the next corner and if they are holding weapons. His team can then proceed accordingly ...

This scene of Sgt. Traverse and his merry men is a fiction. The concept of Dust is not.

The idea of the Internet of Things is so passé. The general concept of the Internet of Things is that we can put a sensor on anything and have it send data back to a database through the Internet. In this way we can monitor everything, everywhere and build smarter systems that are more interactive than ever before.

Putting sensors on stuff? Boring. What if the sensors were in the air, everywhere? They could monitor everything—temperature, humidity, chemical signatures, movement, brainwaves—everything.

The technology is called Smart Dust and it's not quite as crazy (or as new) as you might think.

Smart Dust as a concept originated out of a research project by the United States Defense Advanced Research Projects Agency (DARPA) and the Research And Development Corporation (RAND) in the early 1990s. We use the military anecdote above because it was these military research groups that first conceptualized Smart Dust but the practical application of the technology can be applied to almost any industry. Dust in the fields monitoring the crops. Dust in the factories monitoring the output of machines. Dust in your body monitoring your entire state of well being. Dust in the forests tracking animal migration patterns, wind and humidity.

The entire world could be quantified with this type of ubiquitous sensor technology. But how does it really work?

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