# Card 1.

Introduction: 2002, Prey, swarm nanomachines feed on living tissue.

Kahn, Katz, and Pister, U C Berkeley engineering and computer sci. profs. hyp.

Microelectromechanical (MEMS) devices could detect light, temp, or vib.

Thesis Statement: Researchers hyp that s.d. could track patients, warn of natural disaster, act as defense against bioterrorism.

Prev.: What smart dust is and how it works, military aps, nonmilitary aps.

Transition: To help understand, first, what smart dust is.

# Card 2.

I. Dr. Kris Pister, prof robotics lab UC Berkeley conceived the idea in 1998 in a proj. Defense Advanced Research Projects Agency (DARPA).

1. 2001 article by Bret Warneke et al titled “Smart Dust: Communicating with a Cubic-Millimeter Computer” publ. in Computer, Pister wanted sensors, comm. devices, and computer in a cubic millimeter package.
2. Doug Steel of CT Bauer College of Bus at Houston noted grain of rice = 5 cm.
   1. Each mote could interact w/ others.
   2. (see extended quotation, next card)

Quotation: Steve Lohr, NYT Jan 30 2005, “Smart Dust? Not Quite, but We’re Getting There.” Smart dust could eventually consist of “Tiny digital sensors, strewn around the globe, gathering all sorts of information and communicating with powerful computer networks to monitor, measure, and understand the physical world in new ways.”

# Card 3.

II. Orig conceptualized under DARPA, military uses theor. and examined.

1. Smart Dust website, battlefield surveill., treaty monitor., transp. monitor., + scud hunting.
   1. benefit, surveill.
      1. Maj. Scott Dickson, Blue Horizons Paper for Ctr for Strat and Tech for USAF air war college, sees s.d. as help for battlespace awareness, homeland security, and WMD ID.
      2. could also defeat comm. jamming equipt by communicating among itself and w/ civilians in combat zones.
2. 2010 article Jessica Griggs New Scientist, early defense, storms and debris.

Transition: Switch gears to daily lives.

# Card 4.

III. s.d. project website: s.d. could become common in daily life.

1. Pasting particles for virtual computer keyboard to inventory control poss.
   1. Steve Lohr, 2010, NYT, “The applications for sensor-based computing, experts say, include buildings that manage their own energy use, bridges that sense motion and metal fatigue to tell engineers they need repairs, cars that track traffic patterns and report potholes, and fruit and vegetable shipments that tell grocers when they ripen and begin to spoil.”
2. Medically, according to SD project website, help disabled.
   1. interface w/ computers
   2. injected, cd. relay info to docs and detect body changes instantly
      1. cancer cells, bacteria or virus, speed up treatment, and so on.

Transition: We expl. What SD is, how SD cd be used military, and how SD cd impact our lives.

# Card 5.

Conclusion: Transf fiction to fact, experts agree potential 2025. Michael Crichton’s Prey isn’t reality, but in developing SD as fact, there are ethical considerations. Pister: privacy.

Dr. Kris Pister: “As an engineer, or a scientist, or a hair stylist, everyone needs to evaluate what they do in terms of its positive and negative effect. If I thought that the negatives of working on this project were larger or even comparable to the positives, I wouldn’t be working on it. As it turns out, I think that the potential benefits of this technology far far outweigh the risks to personal privacy.”