

NANO - Role Play

The "internet of Things"

The "internet of Things" refers to the idea that everything we consume would be electronically tagged and monitored anytime, any place. Everyday objects and devices will be tagged, sensed and connected to large databases and networks.

Here is an example of how the internet of things could work – your fridge keeps track of how much milk is inside and automatically produces a grocery list when

you're ready to go to the store. Or better yet, the fridge sends an email to your local grocery store saying you need a quart of milk and the grocery store delivers it to your front door. For this to be possible, every object in the fridge should contain a tag, and the fridge should have a sensor system that can detect the amount of food in each container and communicate to a computer.

Tags are already used in the form of RFID (Radio Frequency Identifying Devices), they often look like labels, but actually contain a radiofrequency system within. They work by generating a radio signal which is then picked up by a transceiver, which is a wireless mobile device. Information about the product can then be received and displayed. RFID tags are being used for instance in the latest e-passports. Currently RFID chips are about the size of a dust mite but researchers are working on miniaturizing them even more, using nano-writing technologies or nanowires. One day we could be able to place an RFID invisible tag on every object. Nanosensors could also be added inside the tag, so that they would be able of storing information and gathering information from the surrounding environment.

If everything we consume is monitored using miniaturized tags producers could quickly learn the needs of their customers. The history of any item from production to the shelf could be stored offering increased quality management along the supply chain. Also theft would become a thing of the past and parcels would no long be lost. However, such technology opens numerous questions on data protection and privacy, particularly as sensors and smart tags can track user's movements and choices. Also, privacy advocates warn that there could be a potential abuse of these devices, which could become "spychips" used by governments to track people.

The Dilemma Is:

Do we want to live in a world where everything is connected, monitored and open to scrutiny?



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Stakeholder : Government

You represent the government which makes decisions as to which technologies will be licensed.

Your primary motivations are:

- Managing and fostering rapid innovations.
- Inform the public about implications of new technologies.
- Protect the citizens privacy and health care.

Consider the following:

- Miniaturized RFID tags allow for a high level of security. These tags can help prevent theft and manage lost items. Privacy of humans and things must be ensured to prevent unauthorized identification and tracking.
- Should (or could) the government provide privacy protection?

• Share your opinions with the group

I think.....

• Note: You may come up with additional ideas, do not feel limited by the information above.

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Stakeholder : Consumer

You represent the consumers seeking a reliable and safe product.

Your primary motivations are:

- Lowering the cost of a product.
- Make sure that you get a cost – effective product.
- Maintain your own privacy

Consider the following:

- Theft would become a thing of the past as the location of products would be easy to find.
- Every thing, including people wearing tags in their cloth or handling tagged items they carry along such as bags, can be monitored.
- Government agencies can monitor everyone.
- Should (or could) the government provide privacy protection?

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Stakeholder: International telecommunications company

You represent a company that has developed the "internet of Things" technology and is seeking to sell it.

Your primary motivations are:

- To provide a valuable product to consumers.
- To generate profit for the company stockholders.

Consider the following:

- The "internet of Things" offers a significant new technology to monitor waste.
- Theft would become a thing of the past as the location of products would be easy to find. The same applies to parcels lost in the post.
- The company can monitor every step of its workers through the RFID devices.

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Stakeholder: Human Right's Activist

You represent a civil group that is concerned at protecting civil rights.

Your primary motivations are:

- To protect the fundamental right for personal privacy.
- To protect the right to human freedom

Consider the following:

- To tag objects in this way is an affront to human freedom. It is a human right to be free to move without being monitored.
- Privacy of humans and things must be ensured to prevent unauthorized identification and tracking.
- A central question to be clarified is who owns the data in network systems?

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Stakeholder: Child (you)

What is your opinion?