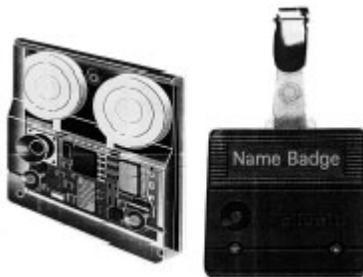


## The Journey Inside<sup>SM</sup>: Technology and Society Student Handout: Ubiquitous Computing

### Ubiquitous Computing

Marc Weiser, a researcher at Xerox Parc, has proposed the idea of ubiquitous computing. In Weiser's model, you would still have desktop computers, but in addition you would have pads and tabs.

A pad is somewhat like a piece of paper—it is a very thin screen on which information is displayed. You might have a pad for each magazine you want to read. You might have a pad in your classroom that displayed the lunch menu. Another pad might contain your math book. These pads would be automatically updated on a regular basis so that you could always access the most recent version of your information.



The tab computer, worn as a badge, is equipped with a microprocessor, infrared sensors, transmitters, and batteries (note internal view).

A tab is an even smaller computer about the size of a name badge you can wear on your shirt. You can easily carry a tab with you. This tab identifies you to any computer you encounter. Furthermore, once you are identified, whatever pad or computer is accessible instantly becomes "yours" so you can access your own digital library. Regardless of where you are in the world, you have access to your own resources and any other source of information you choose.

There could even be sensors everywhere so that others could locate you by the signals sent out from your tab. This completely wireless network lets you carry the "computer power" you need anywhere you go.

### Activities

1. Identify some examples of information that might be put on a pad. How would you use a pad? Will you always have one with you or will you find one in every room you enter? Should pads be individually owned or should they just be available in convenient places for any person to use?
2. Movies, television, and science-fiction books give us an imaginary world. However, sometimes what is seen in science-fiction movies or television programs gives you an idea of the devices soon to be available to the world. For instance, Star Trek's actors used a small, folding handheld communicator—a handheld telephone—long before the public had access to cellular telephones.

Think about any such programs you have watched. Identify examples of devices that you think might fit into this category. In what ways are these items signs of ubiquitous computing?

3. A tab keeps track of you so that the computer can locate you at any time—much like the "badges" worn on Star Trek. What happens if you misplace your tab? Should a tab be automatically destroyed if someone else tries to wear it? Does having a tab keeping track of your life make you feel threatened in any way? Do you feel like a tab is watching everything you do?
4. Collect ads for and descriptions of personal digital assistants (PDAs) and other handheld computers. Examine their range of capabilities. Examine their limitations relative to a portable computer or a desktop computer. In what ways are these devices like tabs or pads?
5. Keeping in mind the many convenient devices available and the incredible changes that are taking place in technology, spend some time designing an invention of the future. Think of an item you would like to improve in some way. Many devices have limitations—smoke detectors, cross-walk signals, pagers, and various medical instruments. How could you improve such a device to better meet the needs of the user? Write a description of your invention and complete a diagram illustrating the device.