

Of course, there are still many researchers at IBM who are chartered with "simply" doing world-class science, whether or not an immediate product application is evident. But increasing numbers of researchers here derive their deepest satisfaction when an idea of theirs helps people accomplish the tasks that matter to them in a better way.

Ted Selker, Ph.D.

Dr. Ted Selker is the inventor of the TrackPoint pointing device. This miniature joystick with the rubbery red tip sits in the middle of the keyboard and solves a pressing problem for notebook users — how to achieve the functionality of a mouse in situations where space limitations prohibit a mouse or where carrying a mouse is inconvenient. The first TrackPoint device appeared in IBM's ThinkPad 700C notebook in 1992 and caused quite a stir among laptop users accustomed to clumsy trackballs. Now in its third generation of subtle refinement, the TrackPoint III included with the ThinkPad 701 computers is a pointing device *par excellence*. While Dr. Selker is gratified that the TrackPoint device has won such wide acceptance among portable computing users, he remains somewhat surprised that the community of desktop computer users hasn't also adopted the device in large numbers.

Q: *Did you set out to create a device that would have such a profound effect on portable computing?*

A: No; in fact, I was trying to solve a problem common to all GUI (graphical user interface) users today, which is the loss of time and context that occurs when you remove your hands from a keyboard to reach for a mouse. It takes 1.75 seconds, on the average, to grab the mouse. At 60 words per minute, that's two words. Plus, you lose your stream of thought. It seemed to me that it would be easier to work in a situation where your textual input device (the keyboard) and

your graphical input device (the mouse) were better integrated.

Q: *You've succeeded in integrating the two. Are people more productive using a TrackPoint?*

A: We have found that people get 20 percent more work done with this in an environment that involves a mix of typing and selection activities. This is the kind of environment found in word processing, spreadsheets and many other typical computer applications.

Q: *Is it flattering to have your concept become a new standard for notebooks?*

A: It's flattering, but it's also frustrating. The hardware and software underlying all the TrackPoints, and most particularly that of the TrackPoint III, has been carefully designed, tested and refined to work well with the subtle human factors that come into play. Sometimes I run into computer users who have tried devices similar to a TrackPoint but without our software or hardware. It's frustrating for me to hear some of those people complain about the devices they've used and confuse them with the genuine IBM technology.

Q: *What's new in the TrackPoint III?*

A: The first improvement is a subtle technique that we call "negative inertia," but which is being marketed under the simpler name of QuickStop response. The software not only takes into account how far you push the TrackPoint in any direction, but also how quickly you push it or release it. We've found that it allows people to make selections up to eight percent faster.

The second improvement is in the composition of the TrackPoint III's cap. This used to be made from grippy rubber, which worked great for most people, unless they happened to use it with particularly greasy fingers. The rubber could absorb some of the grease and need cleaning. Now we use a kind of "plastic sandpaper" that

works well in all situations and doesn't require cleaning except for cosmetic purposes.

Q: *Sounds like you've perfected the TrackPoint. Are there any other improvements?*

A: Actually, yes. Newer 755-series ThinkPads now have a button on the computer that is like a locking mouse button. This lets you do one-handed drags without having to hold down a button the whole time. It helps people with special needs, or anyone who needs more accuracy for drawing operations. It helps make the TrackPoint as good as a mouse, even for drawing tasks.

When we performed usability tests with the TrackPoint III, we gave a number of them to desktop computer users, along with a mouse. After two weeks, 80 percent of the people had unplugged their mice. That's why I'm convinced that the TrackPoint is not just the best solution for laptop users, but is also the best solution for desktop computer users. *[Editor's note: TrackPoint-equipped desktop keyboards are now available from IBM.]* ■

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