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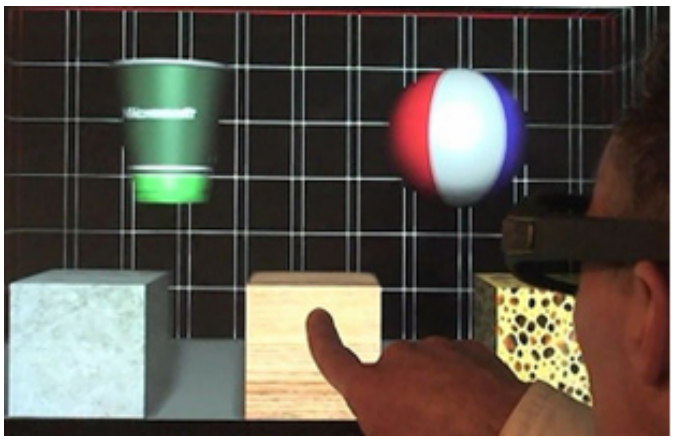
16. 07. 2013

The Natural Interaction Research Group at Microsoft Research develops what it says is the first 3D touchscreen with force feedback capabilities-- providing touchable onscreen objects offering users with different "weights" and "textures."



Called "Actuated 3D Display with Haptic Feedback," the monitor was shown off at Microsoft's TechFest 2013 event. It consists of an off-the-shelf multitouch 3D monitor mounted on a robot arm, both of which in turn are connected to the same PC.

When the user pushes a finger against the screen, the robot arm pushes back-- with feedback strength adjusted according to the object(s) on the screen.

One demo has 3 different blocks (in stone, wood, sponge), with each block acting realistically according to virtual material weight and friction. The stone block"feels" harder to the touch, and requires more force to push, than the sponge block.

The robot arm's movement is also fine enough to recreate the surface texture of a virtual object, making objects feel either "smooth" or "rough."

“I had been interested in the notion of putting a robot behind something you could touch,”

project leader Mike Sinclair says. “Originally, I had wanted a robot arm with many degrees of freedom. But complexity, costs, and safety issues narrowed down the options to one dimension of movement.”

Microsoft does not mention if it will put the technology to commercial use, but haptic feedback is not a new topic-- remember force feedback-capable joysticks? The topic is also relevant to the touchscreen age, as people tend to want to touch more than mere smooth glass on their tablets and smartphones.

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