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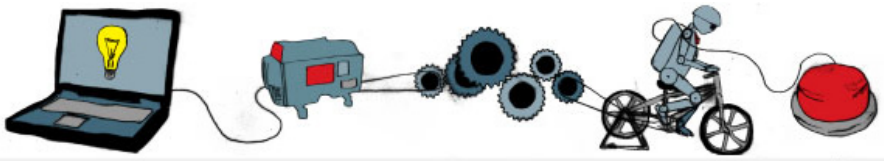
Taking the sweat out of technology



ZeroTouch makes any screen touchable

19:00 11 May 2011

Technology Video

Jim Giles, contributor, Vancouver, Canada

A cheap way to turn a screen of any size into a touch-sensitive device. An ultra-precise game controller. A new way to manipulate images. These are just some of the possible uses for ZeroTouch, an interface unveiled this week at the Conference on Human Factors in Computing by researchers from Texas A&M University in College Station.

ZeroTouch senses an object's position using a series of infrared LEDs and sensors mounted on the outside of what looks like an empty picture frame. The LEDs create a grid of invisible beams

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that crisscross the space inside the frame. A finger or other object that enters the frame blocks some of the beams, allowing the software monitoring the beams to track the movement of the object in real time.

The system can be used to turn any screen, including supersized televisions, into a touchscreen. Combined with a traditional touchscreen, ZeroTouch can also be used to increase the range of commands that a system can understand.

The Texas team demonstrated a ZeroTouch frame overlaid on a touchscreen that was controlled by a handheld stylus. Users could issue commands by tapping the stylus on the screen or by dragging and pinching with their fingers as they would on an iPhone. The team demonstrated how the combination of stylus and touch let users smoothly control a complex strategy game.

Team leader Andruid Kerne says he would like to rig up a series of ZeroTouch frames that would be big enough for someone to walk through. The system would be able to detect movements in three-dimensional space, which would have applications in game control. Current 3D controllers, like Microsoft's Kinect, beam infrared light from a single point, which limits the accuracy of the tracking as well as the area over which users can be tracked.

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14 Comments

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Conundrum on May 11, 2011 8:19 PM
Neat, wonder if it uses focussed IR diodes or VCSELs?

These are often used in "laser" mice, and are considered eye safe because the beam(s) are such low power even though invisible.
The optics are much simpler as only a single lens is needed for a collimated beam.

John on May 11, 2011 8:57 PM
Sorry, but how is this new? The Toshiba Tosdic Distributed Control System consoles used this in the 1980's

Allan Brewer on May 11, 2011 10:23 PM
I seem to remember HP marketed business terminal screens using this touch method back around 1990, albeit at a lower resolution.

marcos anthony toledo on May 11, 2011 10:44 PM
I can't wait till this avable may it come soon I hope this would make my tv work like a desk top computer.

Martin on May 12, 2011 4:09 AM
My old HP-150 used the same tech back in the 80s. Although obviously not quite as advanced.

Dags on May 12, 2011 7:32 AM
That's so funny Martin. It is almost the same tech (criss-crossing infrared) as the HP-150 in

http://t.co/G9P9f7KP about 6 hours ago

Kinect weighs astronauts just by looking at them
http://t.co/LYj7w526 about 7 hours ago

"I lived as a turkey for a year" > http://t.co/OgVghH93
about 12 hours ago

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By Catalin
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By Mark
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By Adam
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1983!

jim on May 12, 2011 7:33 AM
this s not new. it was used in 1983 by HP on thr HP 150 desktop pc.

Geoff Morris on May 12, 2011 9:31 AM
Funny... see I'm not the only one who immediately thought "but that's not new at all - it's exactly what HP did back in the eighties!" :-)

John on May 12, 2011 9:32 AM
How is this new? The Toshiba Tosdic dirtributed control system used almost exactly the same touchscreen technology in the 1980's

Alan Brown on May 12, 2011 8:37 PM
Reinventing the HP150 touchscreen from 1986?

don on May 12, 2011 8:50 PM
This technology is currently available on HP monitors, like the L2105tm. Does the uniqueness lie in the stand-alone, use on any monitor concept?

Adam on May 13, 2011 5:49 PM
First I've heard of this tech, that's pretty awesome results for what i'd guess are just four rows of varying wavelength UV diodes and opposing receivers lined up? seems like a nice direct cheap way around the transparent conductors or resistive touch screens. Can't wait to tinker with these.

Mark on May 17, 2011 1:45 PM
I remember an old Acorn User magazine which had an article descibing how a home hobbyist could make one of these for the old BBC computer.
Admitedly the resolution was very low, but the basic principle was the same.

docking mission to the ISS

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Catalin on December 9, 2011 9:01 AM
This technology seems to come from the future. I am very curious to see if the commercial application of this technology will be launched. If this will happen, I think the touchscreen devices producers will loose a lot of money, because any gadget can be transformed.

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