

ZeroTouch: New kind of infrared touch computer interface (w/ video)

May 12 2011, by Bob Yirka



Zero-thickness visual hull sensing with ZeroTouch

(PhysOrg.com) -- Students from Texas A&M have unveiled a project they've been working on for the past couple of years they call the ZeroTouch; a device that looks like an empty picture frame and uses embedded LEDs and infrared sensors to translate human movement into



computer commands. Taking the technology behind the Microsoft Connect a step further, the ZeroTouch can be laid flat on a table, mounted on a computer screen or hung in the air; each for a completely unique purpose. When laid flat, it can be used as a drawing board, when mounted over a regular computer screen it can be used as a touchscreen device, and when hung in the air it can be used as a virtual canvas for painting.

To do its magic, the ZeroTouch has LEDs and infrared sensors (similar to the technology used in television remote controls) mounted around the periphery of the frame, which are then connected to a computer that crunches the constant stream of data coming in from the sensors; when a finger or other device is introduced into the invisible plane, the infrared signals sent from LEDs on one part of the frame are blocked from reaching the complementary sensors on the opposite side, which is then interpreted as a touch.

On display at the Computer Human Interaction (CHI) conference this past week, in Vancouver, British Columbia, the ZeroTouch, invented by Jonathan Moeller, was demonstrated by various students working on the team, which was led by Andruid Kerne.

In contrast to other touch type screens, such as those on the iPhone or iPad, the ZeroTouch requires no pressure to be exerted, which can mean less muscle fatigue if used over a long period of time; and because it can be used in more than one format, the ZeroTouch is far more versatile; when placed alone on a table for example, it might be used as a drafting device, replacing far more expensive options; and its application as a virtual painting canvas, while unique, is certainly not it's most engaging feature; that would have to be the ability to place it over a conventional screen, instantly converting it, very cheaply, into a touchscreen device.

Also, according to Moeller, the "ZeroTouch is a full multi-touch sensor,



and it tracks 20+ fingers in its current configuration, meaning pinch and spread gestures are entirely possible, as are many other high degree of freedom gestures." He also said in a prior interview that he and his team are working on a three-dimensional device where multiple frames are laid atop one another, that he says, should allow for a much higher degree of dexterity. It should also allow for hovering and 3-D hand manipulation of virtual objects, both of which are not currently available with any touchscreen device.

More information:

-- ecologylab.net/research/zerotouch/index.html

-- Interface Ecology Lab exhibiting multifinger ZeroTouch sensing at ACM CHI in Vancouver

Correction/Update: Jonathan Moeller should have been credited as the inventor of the ZeroTouch, as he was not just a research assistant on the team. Also, according to Moeller, the "ZeroTouch is a full multi-touch sensor, and it tracks 20+ fingers in its current configuration, meaning pinch and spread gestures are entirely possible, as are many other high degree of freedom gestures."

© 2010 PhysOrg.com

Citation: ZeroTouch: New kind of infrared touch computer interface (w/ video) (2011, May 12) retrieved 27 April 2024 from https://phys.org/news/2011-05-zerotouch-kind-infrared-interface-video.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.